

**FIELD TRAINING REPORT**  
**ON**  
**“Gaurav Construction Pvt. Ltd”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**  
**In**  
**Civil Engg**

**Submitted by**

**Roll No. 01-21**

**Under the Guidance of**

**Prof. Nilesh Pal**



**Education to Eternity**

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**





## CERTIFICATE

This is to certify that the field Training report on, "**Gaurav Construction Pvt. Ltd**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

ks



Internship Coordinator, CE



HoD, Civil

SR NO	UNIQUE CODE	STUDENTS NAME
1	JBTECH19381	AISHWARYA BHASKAR BARSAGADE
2	JBTECH19238	AMREEN WAHID QURESHI
3	JBTECH18413	ANIKET KARTARAM CHAUDHARI
4	JBTECH18048	ANIKET VISHNU MARBATE
5	JBTECH19168	ANKIT NASHIK MOTGHARE
6	JBTECH18098	APEKSHIT KIRTIKUMAR CHAVHAN
7	JBTECH18016	ASHISH GOPAL SAKHARWADE
8	JBE17030	ASHISH INDRARAJ HARINKHEDE
9	JBTECH18150	ASHWINI SHILWAN DOKE
10	JBTECH18088	ATIT ANIL RAGHUWANSHI
11	JBTECH19185	BHOJRAJ NILKANTH ZATALE
12	JBTECH18077	CHAITANYA BHASHKAR KAPGATE
13	JBTECH18196	CHAITANYA PRITHVIRAJ SAHARE
14	JBTECH18002	CHHAYA GAJANAN KORAM
15	JBTECH18296	DIVYA RAMESH KANNURI
16	JBTECH18285	DRAVID CHANDRAPRAKASH SHENDE
17	JBTECH18262	HARSHA MORESHWAR DOYE
18	JBTECH19156	HARSHAL AVINASH GAIDHANE
19	JBTECH19373	HIMANSHU VINOD RAMTEKKAR
20	JBTECH18003	HRITIK RAMBHAU BAGDE
21	JBTECH19368	HRITIKA VILAS DESHBHRATAR

**FIELD TRAINING REPORT**  
**ON**  
**““Western Coalfields Limited””**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

**Civil Engg**

**Submitted by**

**Roll No. 22-42**

**Under the Guidance of**

**Prof.Nilesh Pal**



**Education to Eternity**

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**


**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

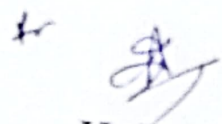
**Year2019-20**

## CERTIFICATE

This is to certify that the field Training visit report on, "**Western Coalfields Limited**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

  
Internship Coordinator, CE

  
HoD, Civil



SR NO	UNIQUE CODE	STUDENTS NAME
22	JBTECH18007	KOMAL TIKARAM MOGRE
23	JBTECH18052	KUNAL RITIKUMAR SHENDE
24	JBTECH18010	LOCHAN ABHIMAN DIWATE
25	JBTECH18290	MAHESH JAYDEEP RATHOD
26	JBTECH19283	MAHESH SAOJI MESHRAM
27	JBTECH18186	MAYUR MANOJ SURYAWANSHI
28	JBTECH18008	NEEL DINESH PATEL
29	JBTECH19186	NIKHIL ARVIND RAMTEKKAR
30	JBTECH18001	NIKHIL ASHOK MISHRA
31	JBTECH18295	NIKHIL JAYANT MESHRAM
32	JBTECH19323	NIKHIL RAJKISHOR SHENDE
33	JBTECH18342	NIKHITA NARENDRA BARAPATRE
34	JBTECH18183	NIKHITA TILAKCHAND.KHANDWAYE
35	JBTECH18006	PALLAVI SHANKAR DANDARE
36	JBTECH18057	PAYAL MALOJI RAMTEKE
37	JBTECH18011	PAYAL VASANTA NAGPURE
38	JBTECH18202	PRACHI MORESHWAR WASNIK
39	JBTECH19396	PRADNYA PRAKASH SONONE
40	JBTECH18095	PRAJWAL BIHARI LANDGE
41	JBTECH18097	PRAJWAL MAHENDRA KAPSE
42	JBTECH18188	PRAJWAL MANOHAR VIDHATE

# **FIELD TRAINING REPORT**

**ON**

**“MYSPACE ENGINEERING SERVICES”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

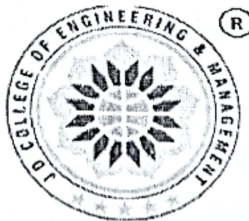
**Civil Engg**

**Submitted by**

**Roll No. 43-64**

**Under the Guidance of**

**Prof. Nilesh Pal**



**Education to Eternity**

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**





## CERTIFICATE

This is to certify that the field Training visit report on, "**Myspace Engineering Services**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU ,Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

**Supervisor/Manager/Incharge**  
**Forwarded to: HoD**

for 

**Internship Coordinator, CE**

for 

**HoD, Civil**

SR NO	UNIQUE CODE	STUDENTS NAME
43	JBTECH18009	PRAKASH GOPICHAND MADAME
44	JBTECH18190	PRANJALI PRAMODRAO GOTE
45	JBTECH18287	PUNYA CHARAN PRADHAN
46	JBTECH18377	RAJ KAILAS SAHARE
47	JBTECH18005	RAKSHA DEVESH SWAMI
48	JBTECH19429	RENU SHRIKRISHNA SAHANI
49	JBTECH18292	RIDDHI BHOJRAJ HATWAR
50	JBTECH18096	RITIK SHANKAR TUPE
51	JBTECH19286	ROSHANI ASHOK DAKHARE
52	JBTECH18050	SAHIL PURUSHOTTAM RODGE
53	JBTECH19287	SANTOSH RAMDASHJI BHADE
54	JBTECH18343	SHAILESH YASHWANT LADE
55	JBTECH18094	SHARAD GOPINATH GABHANE
56	JBTECH18289	SHEKHAR MAHESH SHIWANKAR
57	JBTECH18330	SHIVANI YASHAWANT TADAM
58	JBTECH18291	SIDDHI BHOJRAJ HATWAR
59	JBE17703	SONALI MORESHWAR DHOKE
60	JBTECH18338	SUJIT DUDHARAM AKARE
61	JBTECH18293	SUKHADAS PANDIT CHAVHAN
62	JBTECH19285	SURAJ MUKESH SHAMBHARKAR
63	JBTECH19377	TANMAY PANKAJ MOOL
64	JBTECH19179	VAISHALI MAHADEO DESHPANDE

**FIELD VISITREPORT**  
**ON**  
**“HIGHWAY CONSTRUCTION”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

**Civil Engg**

**Submitted by**

**Roll No. 01-21**

**Under the Guidance of**

**Prof. Atul Gautam**



Education to Eternity

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**

## CERTIFICATE

This is to certify that the field report on, "**Highway Construction**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

  
Internship Coordinator, CE

  
HoD, Civil



SR NO	UNIQUE CODE	STUDENTS NAME
1	JBTECH18154	ABHAY JAYENDRA OHEKAR
2	JBTECH18260	ACHAL RAJU WADHAI
3	JBE17435	ADARSH SANJAY KUDKELWAR
4	JBE17447	AKASH GANPAT PARATE
5	JBE17041	AKSHAY FULCHAND CHAKOLE
6	JBE17044	AMAN DILIP RANGARI
7	JBTECH18294	AMAN RAJU CHAURE
8	JBTECH18393	AMOGH RAVINDRA BAWANKULE
9	JBE17620	ANIRUDDHA JAYPAL BAMBOLE
10	JBTECH18257	AVINASH DEVIDAS NARNAWARE
11	JBTECH18261	AYUSH CHUCKERBUTTY JAIDEEP CHUCKERBUTTY
12	JBE17009	BOAZ SANJAY BARVE
13	JBE17134	CHANDAN GIRISH MASARAM
14	JBTECH18176	DEEPIKA SANJAY KATHOUTE
15	JBE17130	DIKSHA TEJRAM CHANDANBATVE
16	JBE17623	EKTA ARUN MESHRAM
17	JBTECH18147	HARSH RAJESH SATPUDE
18	JBE17251	HARSHIKA SUNIL SOMKUWAR
19	JBE17627	HITESH ASHOK URKUDE
20	JBE17702	JAYA DHANIRAM MOURYA
21	JBE17043	JAYASH HIRALAL BAWANE

**FIELD VISIT REPORT**  
**ON**  
**““NATIONAL HIGHWAY””**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

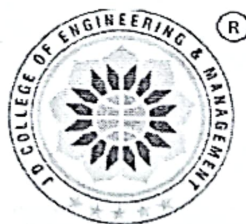
**Civil Engg**

**Submitted by**

**Roll No. 22-42**

**Under the Guidance of**

**Prof.Nilesh Pal**



**Education to Eternity**

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year2019-20**



## CERTIFICATE

This is to certify that the field visit report on, "**National Highway**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

  
Internship Coordinator, CE

  
HoD, Civil

SR NO	UNIQUE CODE	STUDENTS NAME
22	JBE17698	KAJAL ARUN MADAVI
23	JBE17632	KAVERI DHAKESHWAR RAUT
24	JBE17125	KRUNAL KAILAS NIKOSE
25	JBE17258	KRUSHNA PRALHAD JADHAV
26	JBE17038	LAVKESH NARENDRA DAPURKAR
27	JBTECH18177	LAXMAN ADKU KULSANGE
28	JBE17408	MANISH SANTOSHRAO PACHARE
29	JBTECH18180	NIKHIL ASHOKRAO GAHUKAR
30	JBE17060	NIKITA KARU BUDHE
31	JBE16089	NIKITA OMPRAKASH PADOLE
32	JBE17172	NIKITA PRAKASH TEMBHURNE
33	JBE17153	NIKITA TEJRAM JANBANDHU
34	JBE17014	NINAD CHARANDAS WAKDE
35	JBE17106	NITISH THAKURDAS ROY
36	JBE17013	PINTU RUSHI TEMBHURNE
37	JBE17163	POOJA DEVIDAS BANSOD
38	JBTECH18366	POOJA MUKUNDA GAVHARE
39	JBE16152	PRAJWAL MOHAN MUNNE
40	JBE17626	PRAMOD RAJKUMAR WANJARI
41	JBTECH18288	PRANAY RAVIDAS BORKAR
42	JBE15363	PRASAD RAVINDRA BANSOD

# **FIELD VISIT REPORT**

**ON**

**“STATE HIGHWAY”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

**Civil Engg**

**Submitted by**

**Roll No. 43-64**

**Under the Guidance of**

**Prof. Nilesh Pal**



Education to Eternity

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**



## CERTIFICATE

This is to certify that the field visit report on, "State Highway "in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU ,Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

  
Internship Coordinator, CE

  
HoD, Civil



## FIELD VISIT REPORT

SR NO	UNIQUE CODE	STUDENTS NAME
43	JBE17066	ROHIT NARENDRA KHOBRAGADE
44	JBE17052	ROHIT SANJAY TUMANE
45	JBE17290	RUPALI SATISH RAMTEKE
46	JBE17132	SANAT SUNIL KALE
47	JBE17026	SANDEEP NATTU NAITAM
48	JBTECH18398	SANDHYA PRAFUL SURYAWANSHI
49	JBE17065	SANDHYA SURESH ILAME
50	JBE17622	SATYAFULESH RAKESH RANGARI
51	JBE16463	SAURABH LAXMAN KINNAKE
52	JBE17467	SAURABH SANTOSH BAGHMARE
53	JBE16398	SHASHANK GAUTAM MOON
54	JBE17449	SHRUTI KRISHNA GULGULWAR
55	JBE17289	SHUBHAM HIRALAL HUMANE
56	JBE15372	SHUBHAM PRAKASHRAO MANKAR
57	JBE17624	SONAM SUNIL KALE
58	JBTECH18153	SONU SHANKAR CHICHGHARE
59	JBE17003	SUPRIYA MILIND MESHRAM
60	JBE17151	SURAJ PURNACHANDRA SARKAR
61	JBE17103	SWAPNIL SHARADRAO RANE
62	JBE17036	UDAYKUMAR BHASKARRAO GUTTAL
63	JBE17434	VIKAS SURESH RATHOD
64	JBE17066	ROHIT NARENDRA KHOBRAGADE

# **FIELD PROJECT REPORT**

**ON**

**“Sonali Engineering & Construction”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

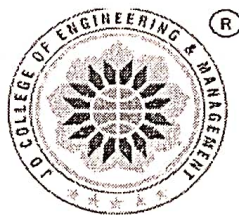
**Civil Engg**

**Submitted by**

**Roll No. 01-21**

**Under the Guidance of**

**Prof. Jacky Gurnani**



Education to Eternity

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**



## CERTIFICATE

This is to certify that the filed visit report on, "**Sonali Engg. & Construction**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU ,Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

**Supervisor/Manager/Incharge**  
**Forwarded to: HoD**

  
**Internship Coordinator, CE**

  
**HoD, Civil**

SR NO	UNIQUE CODE	STUDENTS NAME
1	JBE16125	AJAY MAHESH SHENDE
2	JBE16379	AKANKSHA VIJAY KOCHER
3	JBE16074	AKSHAY SONABA DAWANE
4	JBE16372	AMOL RAMRATAN NIMKAR
5	JBE16065	ANITA ISHWARI CHAURAGADE
6	JBE16062	ANMOL SANJAY JAISWAL
7	JBE16086	APURWA YASHWANT BAMBOLE
8	JBE17514	ARJUN SURESH ATRAM
9	JBE16275	AYUSH ABHAY KHOBRAGADE
10	JBE15629	BHUSHAN DILIP RATHOD
11	JBE16508	CHHAYA MOHAN GAHANE
12	JBE16496	DHIRAJ RAJENDRA SHENDE
13	JBE17683	HITESH GOVINDRAO BORKAR
14	JBE13138	JITENDRA SURAJLAL MARASKOLHE
15	JBE17389	JYOTI VITHAL PAUNIKAR
16	JBE16374	KAJAL NATTHUJI CHAHANDE
17	JBE15510	KANAD MAHENDRA MESHRAM
18	JBE17599	KARAN SHIVANAND PATIL
19	JBE16247	KHOMESH DIGAMBAR PATHRABE
20	JBE16380	MANISHA RAJESHWAR DUBEY
21	JBE16376	MANSI SACHINDRA BAWARIA

# **FIELD PROJECT REPORT**

**ON**

**““AU Construction””**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

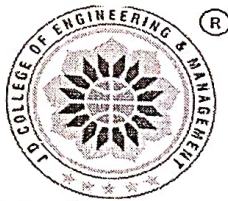
**Civil Engg**

**Submitted by**

**Roll No. 22-42**

**Under the Guidance of**

**Prof. Jacky Gurnani**



Education to Eternity

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**

## CERTIFICATE

This is to certify that the filed visit report on, "**AU Construction**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Supervisor/Manager/Incharge  
Forwarded to: HoD

  
Internship Coordinator, CE

  
HoD, Civil

SR NO	UNIQUE CODE	STUDENTS NAME
22	JBE16515	MAYUR VINAYAK UPASE
23	JBE17385	NARESH KISHOR VASYANI
24	JBE17188	NEHAL BABURAO UMARE
25	JBE16523	NIKITA YOGRAJ KATBARYE
26	JBE17386	NIRAJ ARVIND BARAMWAR
27	JBE16304	PAWAN DATTARAO RANBAWALE
28	JBE17694	PAYAL KIRAN SAMRIT
29	JBE17224	PIYUSH SANJAYRAO PARATE
30	JBE16102	PRAGATI MANOHAR VIDHATE
31	JBE16516	PRAJWAL HIRALAL SAYRE
32	JBE16381	PRASHIK SUNIL DOGARE
33	JBE17226	PRAVIN ASHOK DALAL
34	JBE15160	PRAVIN TEJRAM JAMBHULKAR
35	JBE15371	RACHANA PRABHUDAS LOKHANDE
36	JBE16090	RAJAT MANSARAM MESHRAM
37	JBE16120	RAKESH GANESH THALAL
38	JBE17195	RAMAKANT ASHOK DADHEY
39	JBE16521	RASHMI DILIP THAKUR
40	JBE16362	RASIKA CHANDRABHANAJI ZADE
41	JBE17225	RAVIKUMAR DURGAPRASAD YADAV
42	JBE16023	RISHABH JANARDAN MOHOD



# **FIELD PROJECT REPORT**

**ON**

**“ANJANI KRUPA”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

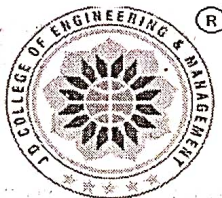
**Civil Engg**

**Submitted by**

**Roll No. 43-64**

**Under the Guidance of**

**Prof. Jacky Gurnani**



**Education to Eternity**

**Department of Civil Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad.**

**Year 2019-20**



## CERTIFICATE

This is to certify that the filed visit report on, "**Anjani Krupa**" in the subject **Civil Engineering** in the faculty of Science and Technology submitted by following students to DBATU, Lonere for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

**Supervisor/Manager/Incharge**  
**Forwarded to: HoD**

  
**Internship Coordinator, CE**

  
**HoD, Civil**

SR NO	UNIQUE CODE	STUDENTS NAME
43	JBE15611	RUPAL HEMRAJ JANBANDHU
44	JBE16422	RUPAM SHATRUGHAN BAWNE
45	JBE16365	SAKSHI DIPAK GAWANDE
46	JBE15468	SAURABH SHAMRAO TORVE
47	JBE16394	SAYALI RAVINDRA METE
48	JBE17436	SHIVANI DILIP SATEKAR
49	JBE16070	SHUBHAM SHRIKANT BAWANKAR
50	JBE17403	SHUBHAM MANOJ LENGHE
51	JBE16085	SUJIT GANESH ZADE
52	JBE16344	SUMED VINOD SHAHARE
53	JBE16468	SURAJ ANNAJI MOHAKAR
54	JBE16144	SUSHIL VIJAY SHAHARE
55	JBE16105	SWAPNIL DNYANESHWAR THAWARE
56	JBE17187	VIKRANT WASUDEV LAD
57	JBE16294	VIPUL KALICHARAN BAMBODE
58	JBE16514	VISHAKHA SURESHRAO KHAWASHI
59	JBE17513	VISHAL ARUN SAHARE
60	JBE17387	YOGESH RAMKRISHNA KUSHWAHA
61	JBE16158	YOGITA SEWAKRAM RODE
62	JBE16513	PRIYNAKA DEVANAND JADHAO
63	JBE13434	SAMUYA RAMESH SINGH
64	JBE13264	MOHAMMAD MUBASHSHIR



# **M/s. Bhagwati Builders**

**ENGINEERS & CONTRACTORS**

Off : AMGAON ROAD, DEORI - 441901 DISTT, GONDIA (M.S.)  
PH. 07199-225166, 225066, CELL : 9422130966

Ref. No.

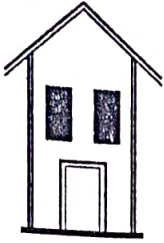
Date 15/06/2018

## **CERTIFICATE OF TRAINING**

This is to certify that Mr. RAKESH G. THALAL Student of 2<sup>nd</sup> year B. E. (Civil) J. D. College of Engineering & Management Nagpur has been working in my office , M/s Bhagwati Builders Deori as Trainee from 01.06.2018. to 15.06.2018 (15 Days) during training he has been exposed to the details of Building construction for flexible pavement , site visit etc. he is sincere and hard working person. I wish every success for his future.



Authorised Signature



# BABLU MADAVI

(Civil Work Contractor)

Dev Nagar, Nagpur. Mob: 08975570013

Ref No.

Civil/2018

Date: 10/06/18

## TO WHOMSOEVER IT MAY CONCERN

This is to inform that Mr. Prashik Dongre Student of and J.D. College of Engineering Management has completed his Internship Training at Nagpur Pardi Residential Building Project From 26<sup>th</sup> May 2018 to 10<sup>th</sup> June 2018

During his Internship he, Exposed to various Activities in Residential construction Project .

We Found him Extremely inquisitive and Hardworking, He was much Interested to Learn Function of core division and also willing to put his own Effort and get in to the Depth of the subject to understand it better

We wish him all the best for future endeavours.

*B. U. Madavi*

B. U. MADAVI

Proprietor





# **BABLU MADAVI**

(Civil Work Contractor)

Dev Nagar, Nagpur. Mob: 08975570013

Ref No.

Civil/2018

Date: 10/06/18

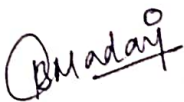
## **TO WHOMSOEVER IT MAY CONCERN**

This is to inform that **Mr. Dhiraj Shende** Student of **J.D. College of Engineering Management** has completed his Internship Training at Nagpur Pardi Residential Building Project From **26<sup>th</sup> May 2018 to 10<sup>th</sup> June 2018**

During his Internship he, Exposed to various Activities in Residential construction Project .

We Found him Extremely inquisitive and Hardworking, He was much Interested to Learn Function of core division and also willing to put his own Effort and get in to the Depth of the subject to understand it better

We wish him all the best for future endeavours.

  
B. U. MADAVI

Proprietor



188, AROHI APARTMENTS, BAJAJ NAGAR, NAGPUR - 440 010 Ph : 0712-2235442  
Email: raghukul188@rediffmail.com Website: www.raghukulnagpur.co.in

No./RCPL/Gen/1068  
Dt.09/06/2018

**WHOMESOEVER IT MAY CONCERN**

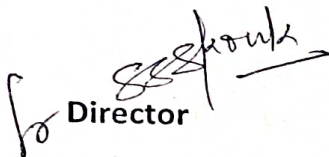
This is to certify that **SHRI. RAJAT MANSARAM MESHRAM**, II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. **AMRIT KALASH Apartments** : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. **AMRIT SARITA Apartments** : 92, Shivaji Nagar, Nagpur.

Certified that he is sincere & hardworking and possesses reasonable technical skills.

We Wish him best future .

For Raghukul Constructions Pvt. Ltd.

  
Director





No./RCPL/Gen/1069  
Dt.09/06/2018

188, AROHI APARTMENTS, BAJAJ NAGAR, NAGPUR - 440 010 Ph: 0712-2236442  
Email : raghukul188@rediffmail.com Website : www.raghukulngp.co.in

**WHOMESOEVER IT MAY CONCERN**

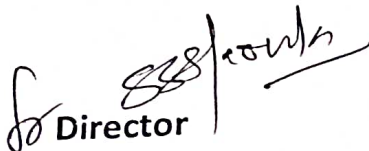
This is to certify that **SHRI.SUMED VINOD SHAHARE**, II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. **AMRIT KALASH Apartments** : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. **AMRIT SARITA Apartments** : 92, Shivaji Nagar, Nagpur.

Certified that he is sincere & hardworking and possesses reasonable technical skills.

We Wish him best future .

For Raghukul Constructions Pvt. Ltd.

  
Director



No./RCPL/Gen/1066  
Dt.09/06/2018

**WHOMESOEVER IT MAY CONCERN**

This is to certify that Ku. ASHWINI DEVRAO NINAVE, II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. AMRIT KALASH Apartments : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. AMRIT SARITA Apartments : 92, Shivaji Nagar, Nagpur.

Certified that she is sincere & hardworking and possesses reasonable technical skills.

We Wish her best future .

For Raghukul Constructions Pvt.Ltd.

  
Director







No./RCPL/Gen/1063  
Dt.09/06/2018

188, AROHI APARTMENTS, BAJAJ NAGAR, NAGPUR - 440 010 Ph.: 0712-2236442  
Email : raghukul188@rediffmail.com Website : www.raghukulngp.co.in

**WHOMESOEVER IT MAY CONCERN**

This is to certify that Ku. YOGITA SEWAKRAM RODE, II Year student of Civil Engineering from J. D College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. AMRIT KALASH Apartments : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. AMRIT SARITA Apartments : 92, Shivaji Nagar, Nagpur.

Certified that she is sincere & hardworking and possesses reasonable technical skills.

We Wish her best future .

For Raghukul Constructions Pvt.Ltd.

  
Director



No./RCPL/Gen/1064  
Dt.09/06/2018

**WHOMESOEVER IT MAY CONCERN**

This is to certify that **Ku. CHHAYA MOHAN GAHANE**, II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. **AMRIT KALASH Apartments** : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. **AMRIT SARITA Apartments** : 92, Shivaji Nagar, Nagpur.

Certified that she is sincere & hardworking and possesses reasonable technical skills.

We Wish her best future .

**For Raghukul Constructions Pvt.Ltd.**

  
Director



No./RCPL/Gen/1067  
Dt. 09/06/2018

**WHOMESOEVER IT MAY CONCERN**


This is to certify that Ku. VISHAKHA SURESHRAO KHAWASHI, II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

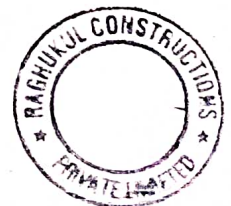
1. AMRIT KALASH Apartments : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. AMRIT SARITA Apartments : 92, Shivaji Nagar, Nagpur.

Certified that she is sincere & hardworking and possesses reasonable technical skills.

We Wish her best future .

For Raghukul Constructions Pvt.Ltd.

  
for Director



# B. G. SHIRKE CONSTRUCTION TECHNOLOGY PVT. LTD.

# SHIRKE

Regd. Office & Factory : 72-76, MUNDHWA, PUNE-411 038 (INDIA)

Tel. : 26708100, Fax : (020) 26671612 E-mail : bgstech@vsnl.com

Website : www.shirkegroup.com CIN : U45201PN1994PTC077340



Date: - 14.08.2018

## TO WHOM IT MAY CONCERN

This is to certify that the following students of J.D.College of Engineering and Management, Nagpur (M.S.) has successfully completed one month internship programme from (26 May 2018 to 16 June 2018) at our MHADA Project, Chikhali site Nagpur. During the period of their internship programme with us they were found punctual, hardworking and inquisitive. This certificate is being issued only for completion of their internship programme.

Name :

1. Piyush Sanjayrao Parate

We wish him every success in life

  
Project Site Incharge



# B. G. SHIRKE CONSTRUCTION TECHNOLOGY PVT. LTD.

# SHIRKE®

Regd. Office & Factory : 72-76, MUNDHWA, PUNE-411 036 (INDIA)  
Tel. : 26708100, Fax : (020) 26871612 E-mail : bgstech@vsnl.com  
Website : www.shirkegroup.com CIN : U45201PN1994PTC077340



Date: - 14.08.2018

## TO WHOM IT MAY CONCERN

This is to certify that the following students of J.D.College of Engineering and Management, Nagpur (M.S.) has successfully completed one month internship programme from (26 May 2018 to 16 June 2018) at our MHADA Project, Chikhali site Nagpur. During the period of their internship programme with us they were found punctual, hardworking and inquisitive. This certificate is being issued only for completion of their internship programme.

Name :

1. Vikrant Wasudev Lad

We wish him every success in life

Project Site Incharge

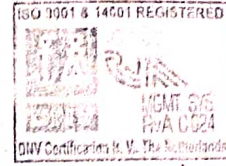
# B. G. SHIRKE CONSTRUCTION TECHNOLOGY PVT. LTD.

# SHIRKE

Regd. Office & Factory : 72-76, MUNDHWA, PUNE-411 036 (INDIA)

Tel. : 26708100, Fax : (020) 2657 1612 E-mail : bgstech@vsnl.com

Website : www.shirkegroup.com CIN : U45201PN1994PTC077340



Date: - 14.08.2018


## TO WHOM IT MAY CONCERN

This is to certify that the following students of J.D.College of Engineering and Management, Nagpur (M.S.) has successfully completed one month internship programme from (26 May 2018 to 16 June 2018) at our MHADA Project, Chikhali site Nagpur. During the period of their internship programme with us they were found punctual, hardworking and inquisitive. This certificate is being issued only for completion of their internship programme.

Name :

1. Niraj Arvind Baramwar

We wish him every success in life

  
Project Site in charge

# B. G. SHIRKE CONSTRUCTION TECHNOLOGY PVT. LTD.

Regd. Office & Factory : 72-76, MUNDHWA, PUNE-411 038 (INDIA)  
Tel. : 26708100, Fax : (020) 26871612 E-mail : bgstech@vsnl.com  
Website : www.shirkegroup.com CIN : U45201PN1994PTC077340

## SHIRKE



Date: - 14.08.2018

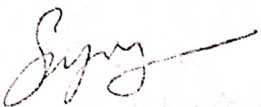
## TO WHOM IT MAY CONCERN

This is to certify that the following students of J.D.College of Engineering and Management, Nagpur (M.S.) has successfully completed one month internship programme from (26 May 2018 to 16 June 2018) at our MHADA Project, Chikhali site Nagpur. During the period of their internship programme with us they were found punctual, hardworking and inquisitive. This certificate is being issued only for completion of their internship programme.

Name :

1. Pravin Ashok Dalal

We wish him every success in life

  
Project Site Incharge



# **B. G. SHIRKE CONSTRUCTION TECHNOLOGY PVT. LTD.**

Regd. Office & Factory : 72-76, MUNDHWA, PUNE-411 036 (INDIA)  
Tel. : 26708100, Fax : (020) 26871612 E-mail : bgstech@vsnl.com  
Website : www.shirkegroup.com CIN : U45201PN1994PTC077340

# **SHIRKE®**



Date: - 14.08.2018

## **TO WHOM IT MAY CONCERN**

This is to certify that the following students of J.D.College of Engineering and Management, Nagpur (M.S.) has successfully completed one month internship programme from (26 May 2018 to 16 June 2018) at our MHADA Project, Chikhali site Nagpur. During the period of their internship programme with us they were found punctual, hardworking and inquisitive. This certificate is being issued only for completion of their internship programme.

Name :

1. Yogesh Ramkrishna Kushwaha

We wish him every success in life

  
Project Site Incharge



# Goel Ganga Infrastructure & Real Estate Pvt. Ltd.



Ref : GGIRE/HR/Intern/3

Date- 9/6/2018

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Miss. Apurva Bambode student of 'JD college of Engineering & Management, Nagpur' has successfully completed her internship at 'GLOBAL SQUARE', a project Goel Ganga Group from 28- May 2018 to 04 June 2018.

Her performance was excellent during the Project and we appreciate the same.

Regards,



Anand Shirsat

Project Manager



CIN : U15122MH2012PLC235369  
Contact : +91 712 - 255 7474/255 7575.  
Email : info@manasindustry.com  
Website : www.manasindustry.com  
Regd. Off : 5<sup>th</sup> Floor, Gupta Tower, Civil Lines, Nagpur-01. (MS, INDIA)



**MANAS**  
AGRO INDUSTRIES & INFRASTRUCTURE LTD.

## CERTIFICATE

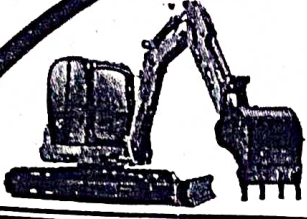
Date : 14 June 2018

This is to certify that **Mr./Ms. Mayur Vinayak Upase** From JD College of Engineering & Management, Student of Civil Engineering Department, has successfully undergone the industrial training in **Manas Agro Industries & Infrastructure Ltd. Unit-I Khursapar (Bela)**, from 02 June 2018 to 10 June 2018

During the training he/she was very attentive, industrious and dependable with enthusiastic attitude of learning with good preparation and good performance.

Mr. Manoj S. Somwanshi

Chief Operating Officer  
Manas Agro Industries & Infrastructure Ltd. Unit-I



**अरुण ना. गेडाम**

गव्हर्नमेंट कॉन्ट्रॅक्टर, यवतमाळ.  
मोबा. ९४२१८४५३१३

जा.क्र. : AG/2018/34

दिनांक : 15/06/18...

## INTERNSHIP CERTIFICATE

This is certify that **Mr. Swapnil Thaware** student of **J. D. College of Engineering and Management Nagpur** has completed internship at "**Arun Gedam Govt Contractor**", Yavatmal from 27/05/18 to 06/06/18 as job profile of "**Civil Engineer**" under the guidance of **Mr. Nilesh Patel (Project Manager)**.

He has worked sincerely on his assignment.

We wish him best of luck for his future

Thanking You

**Arun N. Gedam**  
**Govt. Contractor**

Authorized Signatory



No./RCPL/Gen/1065  
Dt.09/06/2018

188, AROHI APARTMENTS, BAJAJ NAGAR, NAGPUR - 440 010 Ph: 0712-2236442  
Email : raghukul188@rediffmail.com Website : www.raghukulngp.co.in

**WHOMESOEVER IT MAY CONCERN**

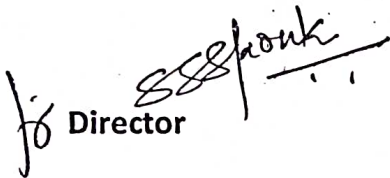
This is to certify that Ku. SAYLI RAVINDRA METE , II Year student of Civil Engineering from JD College of Engineering And Management, Katol Road, Nagpur has successfully completed the summer training from dt. 26/05/2018 to 09/06/2018 at our following project sites.

1. AMRIT KALASH Apartments : 11, Bhagwaghar Layout, Dharampeth, Nagpur.
2. AMRIT SARITA Apartments : 92, Shivaji Nagar, Nagpur.

Certified that she is sincere & hardworking and possesses reasonable technical skills.

We Wish her best future .

For Raghukul Constructions Pvt.Ltd.

  
Director





ॐ भूर्भुवः स्वः तत्सवितुर्वरेण्यं भर्गो देवस्य धीमहि धियो यो नः प्रचोदयात् ।



M/s. Laxmi Construction Company

मे. लक्ष्मी कन्स्ट्रक्शन कंपनी

Opp. Bus Stand, Main Road Goregaon  
Th. Goregaon Dist. Gondia (M.S.) - 441 801

Contact No.: Ph. 07187-292347 (Tel/Fax) Mob. 9588463673,

Email: Laxmikant.Barewar@rediffmail.com

Ref. No :

Date :

## CERTIFICATE

This is to Certify that Mr. Bhushan D. Rathod student of the 2<sup>nd</sup> year B.E.(Civil), J.D.College of Engineering & Management Nagpur.

Has been summer training in my office, "M/s. Laxmi construction company " as trainee from 01/06/2018 to 20/06/2018. During training he has been exposed to the details of road construction for flexible pavement and hot mixing plant Site visit etc. He is sincere and hard working person. I wish every success for his future.

Bhushan Dilip Rathod

Authorized signature

मे. लक्ष्मी कन्स्ट्रक्शन कंपनी

Partner

**Goel Ganga Infrastructure & Real Estate Pvt. Ltd.**



Ref : GGIRE/HR/Intern/5

Date- 9/6/2018

**TO WHOMSOEVER IT MAY CONCERN**

This is to certify that **Miss. Manasi Bawaria** student of 'JD college of Engineering & Management, Nagpur' has successfully completed her internship at 'GLOCAL SQUARE', a project Goel Ganga Group from 28- May 2018 to 04 June 2018.

Her performance was excellent during the Project and we appreciate the same.

Regards,

Anand Shirsat

Project Manager

# Goel Ganga Infrastructure & Real Estate Pvt. Ltd.



Ref : GGIRE/HR/Intern/2

Date- 9/6/2018

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Miss. Anita Chauragade student of 'JD college of Engineering & Management, Nagpur' has successfully completed her internship at 'GLOCAL SQUARE', a project Goel Ganga Group from 28- May 2018 to 04 June 2018.

Her performance was excellent during the Project and we appreciate the same.

Regards,

Anand Shirsat

Project Manager



## **GUPTA CONSTRUCTION**

Sadoday Plaza, Block No. 511, & 512, 5th Floor,  
Opposite Mayo Hospital, Central Avenue, NAGPUR-440018.  
(O) : 2727293 (R) : 2723056 Fax No. : 0712-2773713.  
E-mail : gc\_ngp2004@yahoo.co.in

Date: - 11.06.2018

### **TO WHOM SO EVER IT MAY CONCERN.**

This is certify that MISS. JYOTI V. PAUNIKAR worked as a site Engineer (Civil) for Building & various works in our company from the 25/05/2018 to 11/06/2018.

During the above said period his conduct was good. We wish him all the best in his future endeavors.

M/s. Gupta Construction

Proprietor





## **GUPTA CONSTRUCTION**

Sadoday Plaza, Block No. 511, & 512, 5th Floor,  
Opposite Mayo Hospital, Central Avenue, NAGPUR-440018.  
(O) : 2727293 (R) : 2723056 Fax No. : 0712-2773713.  
E-mail : gc\_ngp2004@yahoo.co.in

Date: - 11.06.2018

### **TO WHOM SO EVER IT MAY CONCERN.**

This is certify that MISS. SAKSHI D. GAWANDE worked as a site Engineer (Civil) for Building & various works in our company from the 25/05/2018 to 11/06/2018.

During the above said period his conduct was good. We wish him all the best in his future endeavors.

M/s. Gupta Construction

Proprietor

# Shree Saibaba Construction

**Government Contractor**

Behind Goyal Talkies Raod, Kamptee - 441 002,  
Dist. Nagpur (M.S.)



**G.R.Bawankule**

Mobile: 9823296487, 9923029401

7767044654, 9328819154

9673554455

Fax No.: 07109 - 288589

E-mail : Shreesaibaba.co@gmail.com

Date

## SUMMER VACATION TRAINING CERTIFICATE

This is to certify that **Mr. Prajwal H. Sayre** student of **J.D. College of Engineering & Management, Nagpur**, 2<sup>nd</sup> year of Civil Engineering has successfully completed the training at our working site from our organization as per following details.

**Work Name :-** Making of Concrete Cement Road at Ramjan Ghoti (Tahsil -Ramtek)

### **Details of Training :-**

- 1) Sight Survey, Making measurement, Taking RL's, Road making, Machineries and Tools information (Road roller, Sensor Pavor, Trucks And Tipper)
- 2) Duration :- 17/05/2018 to 30/05/2018
- 3) Site Address :- Ramjan Ghoti Road , Tah- Ramtek, Dist- Nagpur

Shree Saibaba Construction

  
Shree Saibaba Construction  
Kamptee

॥ श्री ॥

**M/S ADITYA CONSTRUCTION COMPANY  
ENGINEERS & CONTRACTORS**

OFFICE : 13, FUKU PATIL MARG  
AMBAZARI HILLTOP, NAGPUR -33  
PHONE NO. 0712-2242305,2242334

Date:- 10-07-2018

**TO WHOM IT MAY CONCERN**

This is to certify that Mr Prajwal Hiralal Sayre Student of "J D College of Engineering & Management, Nagpur" (2<sup>nd</sup> year) has successfully completed summer internship for field training program at our construction site "M/S Aditya Construction Company RTO Nagpur" from 02-06-2018 to 17-06-2018.

We found him sincere, hardworking, technically sound and result oriented. He worked well as part of a team during his tenure. We take this opportunity to thank him and wish him all the best for his future.

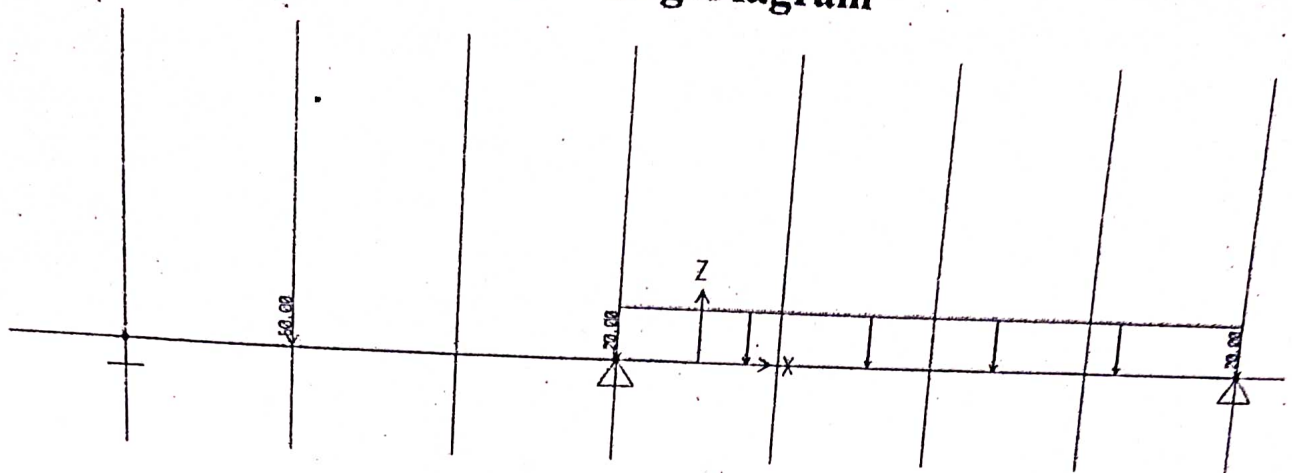
Regards,

~~M/S Aditya Construction Company~~

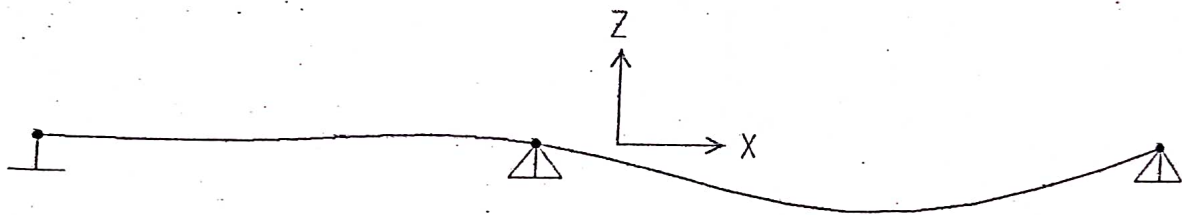
*S. S. S.*  
Authorized Signatory

M/S ADITYA CONSTRUCTION COMPANY

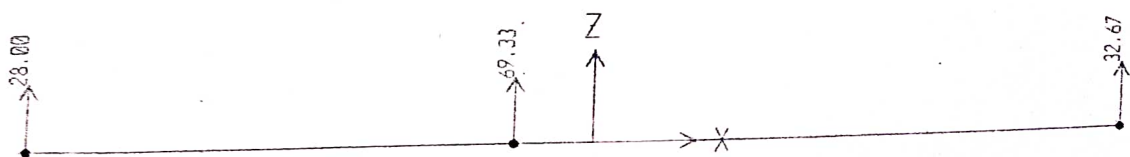
# Loading Diagram



# Deflection Diagram



# Reaction Diagram







**MEGA STRUCTURE** Consultants Pvt. Ltd.

*Architects & Interior Designers, Structural Designers, Surveyors & Planners, Engineers & Contractors*

## **CERTIFICATE**

This is to certify that Ms. Shivani Satekar was engaged in our firm for site work from 28/05/2018 to 15/06/2018. During her Internship, She has been regular and interested to learn technical facts.

We wish her best for her all future life will be successful.

Thanking You!



MEGA STRUCTURE Consultants Pvt. Ltd.

Reg. Office: Shop No. 1 Maharaja Appt. Besides Regional State CID Head Quarter, PrashantNagar, Nagpur-440013, Maharashtra, India  
Contact Nos. +918485842695, +917020457559

Email: [megastructure@mega-structure.com](mailto:megastructure@mega-structure.com), [mega.structure1@gmail.com](mailto:mega.structure1@gmail.com), Website: [www.mega-structure.com](http://www.mega-structure.com)



## **GUPTA CONSTRUCTION**

Sadoday Plaza, Block No. 511, & 512, 5th Floor,  
Opposite Mayo Hospital, Central Avenue, NAGPUR-440018.  
(O) : 2727293 (R) : 2723056 Fax No. : 0712-2773713.  
E-mail : gc\_ngp2004@yahoo.co.in

Date: - 11.06.2018

### **TO WHOM SO EVER IT MAY CONCERN.**

This is certify that MISS. NIKITA Y. KATBARYA worked as a site Engineer (Civil) for Building & various works in our company from the 25/05/2018 to 11/06/2018.

During the above said period his conduct was good. We wish him all the best in his future endeavors.

M/s. Gupta Construction

Proprietor



## **OM SATYAM BUILDCONS PVT. LTD.**

Off.: G.F., 'B' Wing, NMC Complex, Mangalwari Bazar, Sadar, Nagpur - 440001  
Tel.: 0712 -2592600 • www.omsatyamgroup.biz • info@omsatyamgroup.biz

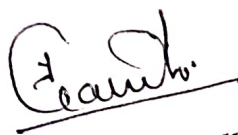
### **TO WHOM IT MAY CONCERN**

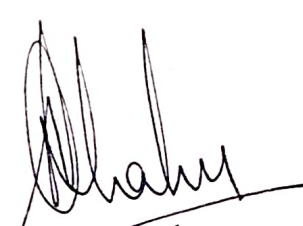
This is to certify that Mr. Ajay M. Shende a student of civil engineering (4<sup>th</sup> semester summer), JDCOEM, Nagpur has successfully completed 10 days (from 26/05/2018 to 06/06/2018) along internship program under this M/S Om Satyam Buildcons PVT. LTD.

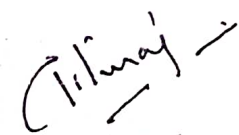
During the period of his internship program with us he was found punctual, hard working and inquisitive. I wish him very successful in his life.

For Om Satyam Buildcons Pvt. Ltd.

Director

  
Jayprakash Gandhi  
(SITE ENGINEER)

  
Abhijeet Shahu  
(DIRECTOR)

  
Rituraj Shahu  
(DIRECTOR)  
M/S OM SATYAM BUILDCONS PVT LTD.



# Goel Ganga Infrastructure & Real Estate Pvt. Ltd.



Ref : GGIRE/HR/Intern/4

Date- 9/6/2018

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Miss. Kajal Chahande student of 'JD college of Engineering & Management, Nagpur' has successfully completed her internship at 'GLOCAL SQUARE', a project Goel Ganga Group from 28- May 2018 to 04 June 2018.

Her performance was excellent during the Project and we appreciate the same.

Regards,

  
Anand Shirsat  
Project Manager



# Goel Ganga Infrastructure & Real Estate Pvt. Ltd.



Ref : GGIRE/HR/Intern/6

Date- 9/6/2018

## TO WHOMSOEVER IT MAY CONCERN

This is to certify that Miss. Pragati Vidhate student of 'JD college of Engineering & Management, Nagpur' has successfully completed her internship at 'GLOCAL SQUARE', a project Goel Ganga Group from 28- May 2018 to 04 June 2018.

Her performance was excellent during the Project and we appreciate the same.

Regards,

Anand Shirsat

Project Manager



# ETE SERVICES PVT. LTD.

[Electro-Tech Engineer Services]

. This certificate is awarded to

Mr./ Miss. **KHOMESH PATHRABE**

for his/ her outstanding performance as an intern at Electro-Tech Engineer Services for one month in **"BASIC CIVIL ENGINEERING"**.  
He / she has accomplished his / her duties and exceeded our expectations.

## CERTIFICATE OF INTERNSHIP

SEAL

BATCH : BCES18  
Reg.No.: BCES1873

TRAINING PERIOD  
25<sup>th</sup> May - 25<sup>th</sup> June

*Rahise*

PROGRAM CO-ORDINATOR  
ETES

V.G. SAGAR  
CHAIRMAN  
ETES

MR. V. GHORMADE  
DIRECTOR  
ETES

# **RENUKA CONSTRUCTION**

Off.: Laxminagar, Nagpur  
Work: Hingna Road, Nagpur

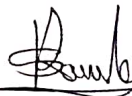
## *Internship Certificate*

This is to certify that Mr. Saurabh S. Baghmare, a student of B.tech, Civil Engineering from J.D. College of Engineering & Management, Nagpur did 20 Days internship training of **CONSTRUCTION TECHNOLOGY** at Renuka Construction from 2nd January 2019 to 22 January 2019. His performance during the course was outstanding. he coordinated with his team mates well and camp up with genuine ideas.

We appreciate his involvement and enthusiasm to learn new

SHRI RENUKA CONSTRUCTION

  
PROPRIETOR



Mr. Sunil Nawale  
Supervisor  
Renuka Construction



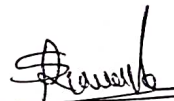
# RENUKA CONSTRUCTION

Off.: Laxminagar, Nagpur  
Work: Hingna Road, Nagpur

## *Internship Certificate*

This is to certify that Mr. Udaykumar Guttal, a student of B.tech, Civil Engineering from J.D. College of Engineering & Management, Nagpur did 20 Days internship training of **CONSTRUCTION TECHNOLOGY** at Renuka Construction from 2nd January 2019 to 22 January 2019. His performance during the course was outstanding. he coordinated with his team mates well and camp up with genuine ideas.

We appreciate his involvement and enthusiasm to learn new



Mr. Sunil Nawale  
Supervisor  
Renuka Construction

SHRI RENUKA CONSTRUCTION

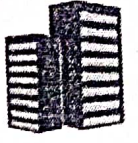


PROPRIETOR





# माता लक्ष्मी बिल्डर्स अँड लॅन्ड डेव्हलपर्स



रजि. नं. NG 000000072

ऑफिस : टेलीफोन नगर, नरसाळा रोड, दिघोरी, नागपूर - ३४.

मो.: 7304845543

दिनांक :

## CERTIFICATE OF TRAINING

This is to certify that **Mr. Akashy Chakole** a student of civil engineering with JDCOEM, Nagpur has successfully completed **16 days** (from 01/01/2019 to 16/01/2019) along internship program under this **M/S Mata Laxmi Builders & Land Developers.**

During the period of his internship program with us he was found punctual, hard working and inquisitive. I wish he is very successful in his life

Rupesh Dhote

(Director)

M/S Mata Laxmi Builders

& Land Developers



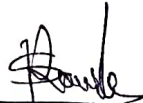
# RENUKA CONSTRUCTION

Off.: Laxminagar, Nagpur  
Work: Hingna Road, Nagpur

## *Internship Certificate*

This is to certify that Mr. Satyafulesh Rakesh Rangari, a student of B.tech, Civil Engineering from J.D. College of Engineering & Management, Nagpur did 20 Days internship training of CONSTRUCTION TECHNOLOGY at Renuka Construction from 2nd January 2019 to 22 January 2019. His performance during the course was outstanding. he coordinated with his team mates well and camp up with genuine ideas.

We appreciate his involvement and enthusiasm to learn new



Mr. Sunil Nawale  
Supervisor  
Renuka Construction

SHRI RENUKA CONSTRUCTION



PROPRIETOR

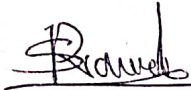
# **RENUKA CONSTRUCTION**

Off.: Laxminagar, Nagpur  
Work: Hingna Road, Nagpur

## *Internship Certificate*


This is to certify that Mr. Saurabh Kinnake, a student of B.tech, Civil Engineering from J.D. College of Engineering & Management, Nagpur did 20 Days internship training of **CONSTRUCTION TECHNOLOGY** at Renuka Construction from 2nd January 2019 to 22 January 2019. His performance during the course was outstanding. he coordinated with his team mates well and camp up with genuine ideas.

We appreciate his involvement and enthusiasm to learn new

  
Mr. Sunil Nawale  
Supervisor

Renuka Construction

SHRI RENUKA CONSTRUCTION

  
PROPRIETOR



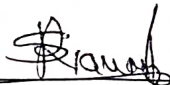
# **RENUKA CONSTRUCTION**

Off.: Laxminagar, Nagpur  
Work: Hingna Road, Nagpur

## *Internship Certificate*

This is to certify that Mr. Swapnil Sharadrao Rane, a student of B.tech, Civil Engineering from J.D. College of Engineering & Management, Nagpur did 20 Days internship training of **CONSTRUCTION TECHNOLOGY** at Renuka Construction from 2nd January 2019 to 22 January 2019. His performance during the course was outstanding. he coordinated with his team mates well and camp up with genuine ideas.

We appreciate his involvement and enthusiasm to learn new



Mr. Sunil Nawale  
Supervisor  
Renuka Construction

**SHRI RENUKA CONSTRUCTION**



**PROPRIETOR**





# **M.D. Construction's, Engineers & builders**

Nagpur



Er. Sunil yograj -contact no:9158132802

## **To whom it may concern**

This is to certify that **Mr. Vijay B. Mujmule** student of civil engineering (3rd semester winter), JD COEM Nagpur, successfully has completed 15 days (from 17 Dec. 2018 to 31 Dec. 2018) along internship program under this M.D. construction's, engineer's and builders.

During the period of his internship program with Layouting and Plotting us he was found punctual, hardworking and inquisitive. I wish him very successful in his life.

**For M.D. Construction's**

**Er. Sunil Yograj**  
**M.D. Constructions**  
**Pvt. Ltd. Nagpur**



# **M.D. Construction's, Engineers & builders**

**Nagpur**



**Er. Sunil yograj -contact no:9158132802**

## **To whom it may concern**

This is to certify that **Mr. Rohit S. Pingale** student of civil engineering (3rd semester winter), JD COEM Nagpur, successfully has completed 15 days (from 17 Dec. 2018 to 31 Dec. 2018) along internship program under this M.D. construction's, engineer's and builders.

During the period of his internship program with Layouting and Plotting us he was found punctual, hardworking and inquisitive. I wish him very successful in his life.

**For M.D. Construction's**

**Er. Sunil Yograj**

**M.D. Constructions  
Pvt. Ltd. Nagpur**



# **M.D. Construction's, Engineers & builders**

Nagpur



Er. Sunil yograj -contact no:9158132802

## **To whom it may concern**

This is to certify that **Mr. Nitish Roy** student of civil engineering (3rd semester winter), JD COEM Nagpur, successfully has completed 15 days (from 17 Dec. 2018 to 31 Dec. 2018) along internship program under this M.D. construction's, engineer's and builders.

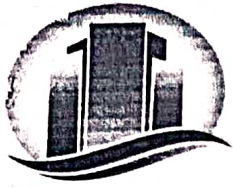
During the period of his internship program with Layouting and Plotting us he was found punctual, hardworking and inquisitive. I wish him very successful in his life.

**For M.D. Construction's**

**Er. Sunil Yograj**

**M.D. Constructions  
Pvt. Ltd. Nagpur**





# **M.D. Construction's, Engineers & builders**

Nagpur



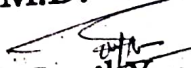
Er. Sunil Yograj Contact No:-9158132802

## **To whom it may concern**

This is to certify that **Mr. Vikas S. Rathod** student of civil engineering (3rd semester winter), JDCOEM Nagpur, successfully has completed 15 days (from 17 Dec. 2018 to 31 Dec. 2018) along internship program under this M.D. construction's, engineer's and builders.

During the period of his internship program with Layouting and Plotting us he was found punctual, hardworking and inquisitive. I wish him very successful in his life.

**For M.D. Construction's**

  
**Er. Sunil Yograj**  
**M.D. Constructions**  
**Pvt. Ltd. Nagpur**



# B.P. UKEY

REG. GOVT. CONTRACTOR

Mob. : 9860728856  
9970095642

Add. : 301, Anand Apartment Gerepeth, Nagpur-440 010.

Date : .....

## CERTIFICATE

This is to certify that Miss. VISHAKA MANOHAR GAJBE student of College of Engineering & Management", Nagpur , studying in 4<sup>th</sup> year (7<sup>th</sup>sem) in Civil Engg. Department has undergo short term "Site Execution Training" at our Construction of Examination Hall for Nagpur University at LIT Premises Nagpur Site as a " Trainee Engineer" for period from 20/05/2018 to 13/06/2018.During her tenure she was very sincere, hard working& technically sound..

i wish her better success for her future life

Date: 15/06/2018

Place: Nagpur

B.P. Ukey  
B. P. Ukey

For B.P. UKEY REG. GOVT. CONTRACTOR

# B.P. UKEY

REG. GOVT. CONTRACTOR

Mob. : 9860728856  
9970095642

Add. : 3Q1, Anand Apartment Gerepeth, Nagpur-440 010.

Date : .....

## CERTIFICATE

This is to certify that Miss. AYUSHI SANDEEP JADHAV student of College of Engineering & Management", Nagpur , studying in 4<sup>th</sup> year (7<sup>th</sup> sem) in Civil Engg. Department has undergo short term "Site Execution Training" at our Construction of Examination Hall for Nagpur University at LIT Premises Nagpur Site as a " Trainee Engineer" for period from 20/05/2018 to 13/06/2018. During her tenure she was very sincere, hard working & technically sound .

I wish her better success for her future life

Date: 15/06/2018

Place: Nagpur

B.P. Ukey

For B.P. UKEY REG. GOVT. CONTRACTOR  
Proprietor

# **B.P. UKEY**

.....  
**REG. GOVT. CONTRACTOR**

Mob. : 9860728856  
9970095642

Add. : 301, Anand Apartment Gerepeth, Nagpur-440 010.

Date : .....

## **CERTIFICATE**

This is to certify that Mr. MOHD. IMRAN SIDDIQUE student of  
College of Engineering & Management", Nagpur , studying in 4<sup>th</sup> year (7<sup>th</sup> sem)  
in Civil Engg. Department has undergo short term "Site Execution Training" at our  
Construction of Examination Hall for Nagpur University at LIT Premises Nagpur  
Site as a " Trainee Engineer" for period from 20/05/2018 to 13/06/2018. During his  
tenure he was very sincere, hard working & technically sound .

I wish his better success for his future life

Date: 15/06/2018

Place: Nagpur

B.P. Ukey  
B. P. Ukey  
Proprietor  
For B.P. UKEY REG. GOVT. CONTRACTOR

**B.P. UKEY**  
.....  
REG. GOVT. CONTRACTOR

Mob. : 9860728856  
9970095642

Add. : 301, Anand Apartment Gerepeth, Nagpur-440 010.

Date : .....

CERTIFICATE

This is to certify that Miss. SHIWANGI YASHWANT DHAWANKAR student of College of Engineering & Management', Nagpur, studying in 4<sup>th</sup> year (7<sup>th</sup> sem) in Civil Engg. Department has undergone short term "Site Execution Training" at our Construction of Examination Hall for Nagpur University at LIT Premises Nagpur Site as a "Trainee Engineer" for period from 20/05/2018 to 13/06/2018. During her tenure she was very sincere, hard working & technically sound.

I wish her better success for her future life

Date: 15/06/2018

Place: Nagpur

B. P. Ukey  
**B. P. Ukey**  
For B.P. UKEY REG. GOVT. CONTRACTOR



Phone : Office : 2237235  
Resi. : 2233365



# MANWANI BUILDERS ENGINEERS & CONTRACTORS

311, Laxmivalbhav, Laxminagar Square, Bajaj Nagar, NAGPUR - 440 010.

## EXPERIENCE CRTIFICATES

DATE:-29<sup>th</sup> JUNE 2018

TO WHOME SOEVRER IT MAY CONCERN

This is certified that (Mr. SURAJ DESHMUKH.(College: JD COLLEGE OF ENGINEERING & MANAGEMENT,NAGPUR.) Has successfully completed one month industrial training from the period of

28<sup>th</sup> May, 2018 till 28<sup>th</sup> June, 2018

He has done construction site visit regularly .In the period he has done supervision on site like casting of RCC Plinth beam ,slab, footing, column etc.& checking the work as per Architectural & structural drawing .

His exposure during his tenure with us very productive

Mr. Suraj Deshmukh

(3<sup>rd</sup> Year Civil Engineering)

MANWANI BUILDERS  
311, Laxmi Valbhav,  
S. A. Road, Bajaj Nagar,  
NAGPUR  
Vinod Manwani

(Engineer& Contractors )

# AUTODESK CERTIFICATION



In recognition of a commitment to professional excellence

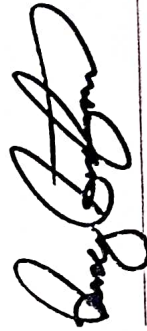
**SURAJ SUNIL DESHMUKH**

has successfully completed the Autodesk Certified requirements of:

**Autodesk Certified Professional: AutoCAD®**



wuAMh-48bN |  
verify.certiport.com



ANDREW ANAGNOST  
PRESIDENT, CHIEF EXECUTIVE OFFICER

January 27, 2018

DATE



Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

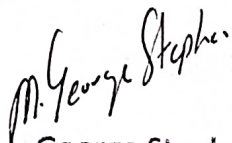
Dear Madam/Sir,

This is to certify that **Rahul Mohan Rathod** student of **J D College of Engineering & Management MIHAN** village, Nagpur-441108 , has successfully completed his academic project entitled "**Summer Internship**" with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD.



George Stephenson,



HR Admin ,  
AIIMS Nagpur project.

Kirtikumār Welekar

Roll no. 74.



**NAGPUR IMPROVEMENT TRUST**

Station Road, Sadar, Nagpur.-440001

(Website-nitnagpur.org.)

No.Esstt/Training/ 5368

Nagpur, Dated 5/6/2018

To,

Vasundhara Malhotra  
Training & Placement Officer  
J. D. College of Engineering Management,  
Nagpur


**Subject :-** Summer Vacation Practical Training for Civil Engineering Students.

**Refence :-** Your letter dated 1/6/2018.

With reference to your letter cited above it is intimated that the following students are permitted to undergo training at this organization during summer vacation.

- 12/6/18
- P 1. Kirtikumār Welekar
  - P 2. Rahul Kuhikar
  - 3. Devesh Rarokar
  - 4. Pranali Thombare
  - 5. Prajakta Lade

This is for your information please.

  
Establishment Officer

Nagpur Improvement Trust, Nagpur



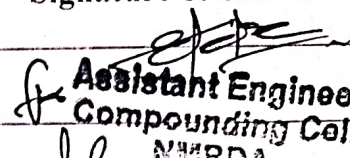
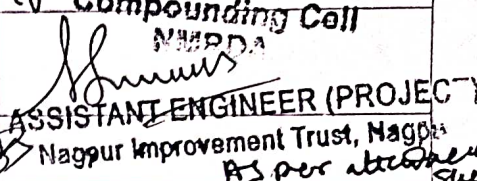
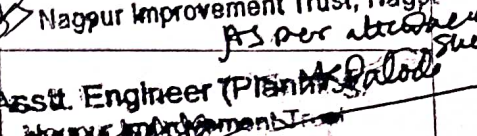
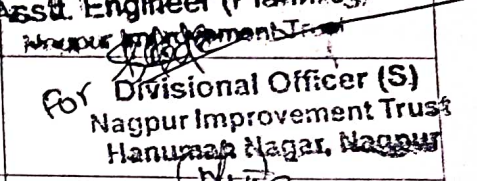
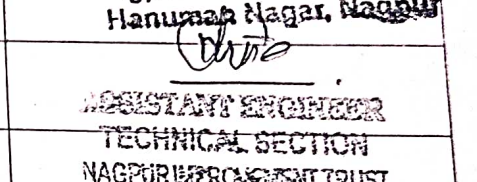
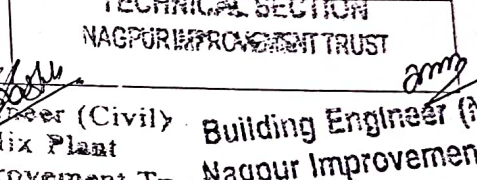
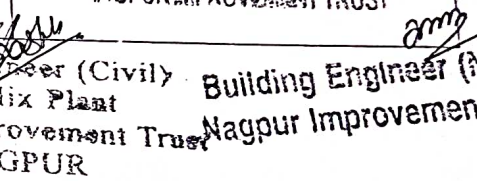
7 C

Issued by No. 5368  
Dated 05/6/18 as per Office Copy



**Summer Vacation Training For B.E. (Civil Engg.) Students Of,  
J. D. College of Engineering Management, Nagpur**

**Training Schedule**

Sr.no.	Date	Section	Signature of Section Head
1	6/6/2018 To 7/6/2018	NMRDA	 <b>Assistant Engineer Compounding Cell NMRDA</b>
2	8/6/2018 To 11/6/2018 (9 & 10/6/2018 – Holiday)	Project Section	 <b>ASSISTANT ENGINEER (PROJECT) Nagpur Improvement Trust, Nagpur</b>
3	12/6/2018 To 13/6/2018	Planning Section	 <b>Asst. Engineer (Planning) Nagpur Improvement Trust</b>
4	14/6/2018	Division Office (South)	 <b>For Divisional Officer (S) Nagpur Improvement Trust Hanuman Nagar, Nagpur</b>
5	15/6/2018 To 18/6/2018 (16 & 17/6/2018 – Holiday)	PAT Section	 <b>ASSISTANT ENGINEER TECHNICAL SECTION NAGPUR IMPROVEMENT TRUST</b>
6	19/6/2018	Building Section (North)	 <b>Building Engineer (North) Nagpur Improvement Trust</b>
7	20/6/2018	Hot Mix Plant (Wanjara/Kalmana)	 <b>Asst. Engineer (Civil) Hot Mix Plant Nagpur Improvement Trust NAGPUR</b>

**Copy to :-**

1. Kirtikumar Welekar P
2. Rahul Kuhikar P
3. Devesh Rarokar P
4. Pranali Thombare P
5. Prajakta Lade P



# TRAINING SOLUTION

*Believe in your inner beyond...*

Plot No.13, Joras Housing Society, Kiran TV, Katol Road, Nagpur  
08669045380, 08788946040, 08329246378  
f6trainingsolution@gmail.com,  
www.f6trainingsolution.com

## RECEIPT

Date: 24/06/18 No: 165

RECEIVED WITH THANKS FROM

Snehal - A. Kewade

THE SUM OF RUPEES

Twenty two thousand only

BY CHEQUE / DD / CASH / ECS.

DATE

24/06/18

CHEQUE / DD. NO

17724264

DRAWEE BANK BRANCH

₹ 22000/-

THANK YOU!

**Terms & Conditions :**

Receipt Subject to Jurisdiction Nagpur Only  
Amount is Non-Refundable in any case.

(AUTHORISED SIGNATORY)

Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

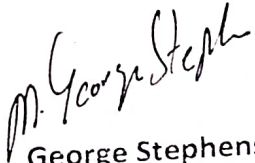
Dear Madam/Sir,

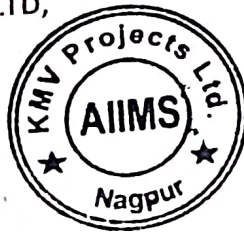
This is to certify that **Snehal Anilrao Kewale** student of **J D College of Engineering & Management** **MIRHAN** village, Nagpur-441108, has successfully completed his academic project entitled **"Summer Internship"** with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,

  
George Stephens



HR Admin,  
AIIMS Nagpur project.




Office of the Sub Divisional Engineer World bank Project Sub- division no 1 ,Nagpur	
Tel No:-0712-2562546	
No:- 198	Date:-30/06/2018

## CERTIFICATE

This is to Certify that Ms. Neha Dhanraj Duryodhan Student of civil engineering from JD College of engineering Nagpur has successfully completed the field project work Of "Improvement of existing Inner ring road with rigid road pavement in Nagpur city S.H.340 (Km 0/00 to 41/500) Rigid pavement widening of road , CD works & Bridges Nagpur, Maharashtra." For the period from 01/06/2018 to 20/06/2018.

During this period the student has undergone training on various aspect of civil work project

We found her very sincere and hard working student who carried out work diligently. We wish her Grand success in the Future Endeavour.

  
 उपविभागीय अभियंता  
 जगदिश्वर भूखण्ड प्रकल्प, जगदिश्वर, नागपुर  
 30/06/2018



**Office of the  
Sub Divisional Engineer  
World bank Project  
Sub- division no 1 ,Nagpur**

Tel No:-0712-2562546

No:- 201


Date:-30/06/2018

**CERTIFICATE**

This is to Certify that Ms. Prajakta Dasharath Bobade Student of civil engineering from JD College of engineering Nagpur has successfully completed the field project work Of "Improvement of existing Inner ring road with rigid road pavement in Nagpur city S.H.340 (Km 0/00 to 41/500) Rigid pavement widening of road , CD works & Bridges Nagpur, Maharashtra." For the period from 01/06/2018 to 20/06/2018.

During this period the student has undergone training on various aspect of civil work project

We found her very sincere and hard working student who carried out work diligently. We wish her Grand success in the Future Endeavour.

  
उपविभागीय अभियंता  
जागतिक बँक प्रकल्प उपविभाग क्र.१  
नागपूर

Pranali Thombare  
Roll No :- 69



**NAGPUR IMPROVEMENT TRUST**

Station Road, Sadar, Nagpur.-440001

(Website-nitnagpur.org.)

No.Esstt/Training/ 5368

Nagpur, Dated 5 / 6 / 2018

To,

Vasundhara Malhotra  
Training & Placement Officer  
J. D. College of Engineering Management,  
Nagpur

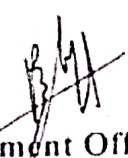
**Subject :-** Summer Vacation Practical Training for Civil Engineering Students.

**Refence :-** Your letter dated 1/6/2018.

With reference to your letter cited above it is intimated that the following students are permitted to undergo training at this organization during summer vacation.

- 12/1/18
- P 4. Kirtikumar Welekar
  - P 2. Rahul Kuhikar
  - 3. Devesh Rarokar
  - 4. Pranali Thombare
  - 5. Prajakta Lade

This is for your information please.

  
Establishment Officer  
Nagpur Improvement Trust, Nagpur

@ml

07 C

Issued to No. 5368  
Date 05/6/18 as per Online Copy

**Summer Vacation Training For B.E. (Civil Engg.) Students Of,  
J. D. College of Engineering Management, Nagpur**

**Training Schedule**

Sr.no.	Date	Section	Signature of Section Head
1	6/6/2018 To 7/6/2018	NMRDA	<i>[Signature]</i> Assistant Engineer Compounding Coll
2	8/6/2018 To 11/6/2018 (9 & 10/6/2018 - Holiday)	Project Section	<i>[Signature]</i> ASSISTANT ENGINEER (PROJECT) Nagpur Improvement Trust, Nagpur
3	12/6/2018 To 13/6/2018	Planning Section	<i>[Signature]</i> Asst. Engineer (Planning) Nagpur Improvement Trust
4	14/6/2018	Division Office (South)	<i>[Signature]</i> For Divisional Officer (S) Nagpur Improvement Trust, Hanuman Nagar, Nagpur
5	15/6/2018 To 18/6/2018 (16 & 17/6/2018 - Holiday)	PAT Section	<i>[Signature]</i> ASSISTANT ENGINEER TECHNICAL SECTION NAGPUR IMPROVEMENT TRUST
6	19/6/2018	Building Section (North)	<i>[Signature]</i> Building Engineer (North) Nagpur Improvement Trust
7	20/6/2018	Hot Mix Plant (Wanjara/Kalmana)	<i>[Signature]</i> Asst. Engineer (Civil) Hot Mix Plant Nagpur Improvement Trust NAGPUR

**Copy to :-**

1. Kirtikumar Welekar ✓
2. Rahul Kuhikar ✓
3. Devesh Rarokar ✓
4. Pranali Thombare ✓
5. Prajakta Lade ✓



Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

Dear Madam/Sir,

This is to certify that Girish Anil Hatwar student of J D College of Engineering & Management MIHAN village, Nagpur-441108 , has successfully completed his academic project entitled "Summer Internship" with K.M.V Projects LTD. For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,

*M. George Stephenson*

George Stephenson,

HR Admin ,  
AIIMS Nagpur project.





Date: 21 June 2018

TO WHOMSOEVER IT MAY CONCERN

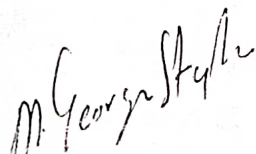
Dear Madam/Sir,

This is to certify that **Suvan Paul** student of **J D College of Engineering & Management** MIHAN village, Nagpur-441108, has successfully completed his academic project entitled "Summer Internship" with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,



George Stephenson,



HR Admin,  
AIIMS Nagpur project.



**TRAINING  
SOLUTION**

*Believe in your inner beyance...*

Plot No.13, Joras Housing Society, Kiran TV, Katol Road, Nagpur  
08669045380, 08788946040, 08329246378  
f6trainingsolution@gmail.com,  
www.f6trainingsolution.com

## RECEIPT

RECEIVED WITH THANKS FROM \_

Suvan Paul

Date 24/06/18 No: 165

THE SUM OF RUPEES

Twenty five thousand only

BY CHEQUE / DD / CASH / ECS.

DATE 24/06/18

CHEQUE / DD. NO

DRAWEE BANK BRANCH



25000/-

**Terms & Conditions :**

Receipt Subject to Jurisdiction Nagpur Only  
Amount is Non-Refundable in any case.

THANK YOU!

(AUTHORISED SIGNATORY)


Office of the Sub Divisional Engineer World bank Project Sub- division no 1 ,Nagpur	
Tel No:-0712-2562546	
No:- 199	Date:-30/06/2018

### CERTIFICATE

This is to Certify that Ms. Aayushi Akash Agrawal Student of civil engineering from JD College of engineering Nagpur has successfully completed the field project work Of "Improvement of existing Inner ring road with rigid road pavement in Nagpur city S.H.340 (Km 0/00 to 41/500) Rigid pavement widening of road , CD works & Bridges Nagpur, Maharashtra." For the period from 01/06/2018 to 20/06/2018.

During this period the student has undergone training on various aspect of civil work project

We found her very sincere and hard working student who carried out work diligently. We wish her Grand success in the Future Endeavour.

  
उपविभागीय अभियंता  
जागतिक बँक प्रकल्प उपविभाग क्र.१  
नागपूर





**NAGPUR IMPROVEMENT TRUST**

Station Road, Sadar, Nagpur.-440001

(Website-nitnagpur.org.)

PRAJAKTA T. LADE  
Roll No 39.

No.Esstt/Training/ 5368

Nagpur, Dated 5/6/2018

To,

Vasundhara Malhotra  
Training & Placement Officer  
J. D. College of Engineering Management,  
Nagpur

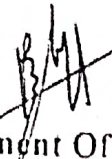
Subject :- Summer Vacation Practical Training for Civil Engineering Students.

Refence :- Your letter dated 1/6/2018.

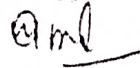
With reference to your letter cited above it is intimated that the following students are permitted to undergo training at this organization during summer vacation.

- 12/1/18
- P 1. Kirtikumār Welekar
  - P 2. Rahul Kuhikar
  - 3. Devesh Rarokar
  - 4. Pranali Thombare
  - 5. Prajakta Lade

This is for your information please.

  
Establishment Officer

Nagpur Improvement Trust, Nagpur



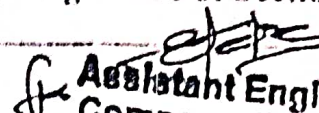
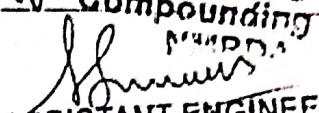
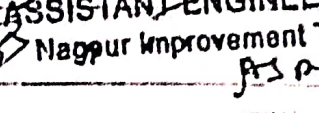
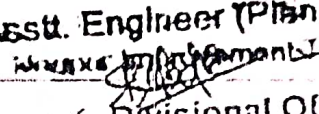
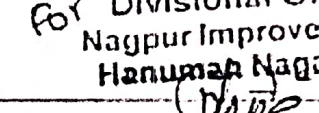

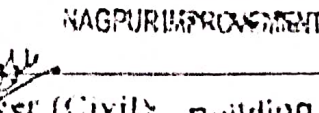
07 C

Issued to No. .... 5368 .....
Dated 05/6/18 as per Office Copy



**Summer Vacation Training For B.E. (Civil Engg.) Students Of,  
J. D. College of Engineering Management, Nagpur**

**Training Schedule**

Sr.no.	Date	Section	Signature of Section Head
1	6/6/2018 To 7/6/2018	NMRDA	 Assistant Engineer Compounding Coll
2	8/6/2018 To 11/6/2018 (9 & 10/6/2018 - Holiday)	Project Section	 ASSISTANT ENGINEER (PROJECT) Nagpur Improvement Trust, Nagpur
3	12/6/2018 To 13/6/2018	Planning Section	 Asst. Engineer (Planning) Nagpur Improvement Trust
4	14/6/2018	Division Office (South)	 For Divisional Officer (S) Nagpur Improvement Trust Hanuman Nagar, Nagpur
5	15/6/2018 To 18/6/2018 (16 & 17/6/2018 - Holiday)	PAT Section	 ASSISTANT ENGINEER TECHNICAL SECTION NAGPUR IMPROVEMENT TRUST
6	19/6/2018	Building Section (North)	 Building Engineer (North) Nagpur Improvement Trust
7	20/6/2018	Hot Mix Plant (Wanjara/Kalmana)	 Asst. Engineer (Civil) Hot Mix Plant Nagpur Improvement Trust NAGPUR

**Copy to :-**

1. Kirtikumar Welekar P
2. Rahul Kuhikar P
3. Devesh Rarokar P
4. Pranali Thombare P
5. Prajakta Lade P



Date: 21 June 2018

TO WHOMSOEVER IT MAY CONCERN

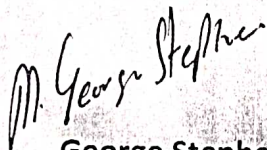
Dear Madam/Sir,

This is to certify that **Rupali Raju Hirdekar** student of **J D College of Engineering & Management** **MIHAN** village, Nagpur-441108, has successfully completed his academic project entitled "**Summer Internship**" with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

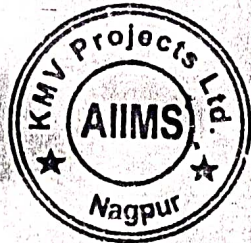
We wish him all the best for future endeavours.

For K.M.V Projects LTD,



George Stephenson,

HR Admin,  
AIIMS Nagpur project.







**TRAINING  
SOLUTION**

*Believe in your inner beyonce...*

Plot No.13, Joras Housing Society, Kiran TV, Katol Road, Nagpur.  
08669045380, 08788946040, 08329246378  
f6trainingsolution@gmail.com,  
www.f6trainingsolution.com

**RECEIPT**

RECEIVED WITH THANKS FROM

Rupal Hiedekar

**166**

Date 21/06/18 No.

THE SUM OF RUPEES

Fifteen thousand only

BY CHEQUE / DD / CASH / ECS.

DATE

CHEQUE / DD / NO

DRAWEE BANK BRANCH

₹ 15000/-

**Terms & Conditions :**

Receipt Subject to Jurisdiction Nagpur Only  
Amount is Non-Refundable in any case.

THANK YOU!

(AUTHORISED SIGNATORY)



Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

Dear Madam/Sir,

This is to certify that **Shubham Dhananjay Mahatme** student of **J D College of Engineering & Management** MIHAN village, Nagpur-441108 , has successfully completed his academic project entitled "**Summer Internship**" with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,



George Stephenson,



HR Admin ,  
AIIMS Nagpur project.



Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

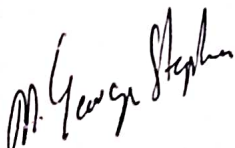
Dear Madam/Sir,

This is to certify that Ankit Madan Patle student of J D College of Engineering & Management MIHAN village, Nagpur-441108 , has successfully completed his academic project entitled "Summer Internship" with K.M.V Projects LTD. For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,



George Stephens,



HR Admin ,  
AIIMS Nagpur project.

Office of the  
Sub Divisional Engineer  
World bank Project  
Sub- division no 1 ,Nagpur

Tel No:-0712-2562546

No:- 205


Date:-30/06/2018

CERTIFICATE

This is to Certify that Ms. Sneha Jageshwar Rodke Student of civil engineering from JD College of engineering Nagpur has successfully completed the field project work Of "Improvement of existing Inner ring road with rigid road pavement in Nagpur city S.H.340 (Km 0/00 to 41/500) Rigid pavement widening of road , CD works & Bridges Nagpur, Maharashtra." For the period from 01/06/2018 to 20/06/2018.

During this period the student has undergone training on various aspect of civil work project

We found her very sincere and hard working student who carried out work diligently. We wish her Grand success in the Future Endeavour.

  
उपनिर्देशक अभियंता  
जागतिक बँक प्रकल्प उपविभाग क्र.१  
नागपूर



# R.N. CONSTRUCTION

(NMC Contractor)

Rg. No. PWD/0000000917/JUN 2017  
GST No. - 27APWPN5668L1ZQ

Office :- House No. 1028/201, Ekatmata Nagar, Jaitala Road, Nagpur.

## CERTIFICATE

This is to certify that PALLAVI SHAILENDRA GHODICHORE student of J.D College of Engineering & Management, Nagpur, has successfully completed her internship for field training program at our construction sites from 01.06.2018 to 17.06.2018. We observed her sincere attendance and keen interest in learning and knowing day to day activities, workmanship, curiosity to ask and discuss with our Directors, project engineers, contractors & labors at work.

We wish her a successful career in the field of civil engineering.

For R. N. Construction

Proprietor





*G. V. Enterprises*  
CIVIL ELECTRICAL ALUMINIUM

52, Ganesh Colony, Ranapratap Nagar, Nagpur - 22 Phone : 9822463994  
email : gv.enterprises65@gmail.com, rajeshdhage19@gmail.com

Ref No:-AA1/2016

Date: 11/06/2018

## CERTIFICATE

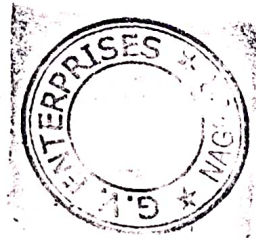
This is to certify that Mr. ANKUR H. AKRE Student of J D College of Engineering & Management, Nagpur-441501, has successfully completed his Project Work in this organization from 15<sup>th</sup> May 2018 to 30<sup>th</sup> May 2018.

During this period, the student did Project work "Plinth and foundation work" in G.V Enterprises Project of (NMRCL). It is further certified that during the period the student has been sincere and his conduct has been satisfactory

Thank you

G.V Enterprises

(Rajesh Dhage)





*G. V. Enterprises*  
CIVIL ELECTRICAL ALUMINIUM

52, Ganesh Colony, Ranapratap Nagar, Nagpur - 22 Phone : 9812463994  
email : gv.enterprises65@gmail.com, rajeshdhage19@gmail.com

Ref No:-AA2/2016

Date: 11/06/2018

## CERTIFICATE

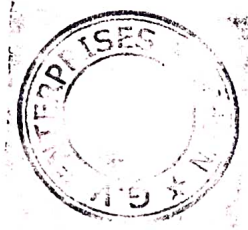
This is to certify that **Mr. PRATIK M. THAKRE** Student of J D College of Engineering & Management, Nagpur-441501, has successfully completed his Project Work in this organization from 15<sup>th</sup> May 2018 to 30<sup>th</sup> May 2018.

During this period, the student did Project work "**Plinth and foundation work**" in **G.V Enterprises** Project of **(NMRCL)**. It is further certified that during the period the student has been sincere and his conduct has been satisfactory

Thank you

**G.V Enterprises**

(Rajesh Dhage)



Date: 18/07/2018

## Internship Certificate

This is to certify that Mr. Anmol P. Chachane student of J.D. College of Engineering and Management pursuing his B.E. 3rd year has successfully completed summer internship at Jaika Infinity, Nagpur from 28 May to 30 June 2018.

We found him sincere, hardworking, technically sound and result oriented. He works well as a part of team during his tenure. We take this opportunity to thank him and wish him all the best for his future.

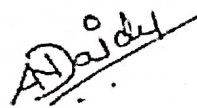
Name: Mr. Amit D. Naidu

Designation: Director

Place: Nagpur

Date:

Office Stamp :





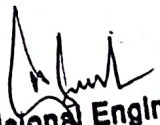
Office of the Sub Divisional Engineer special Project Sub- division no 4 ,Nagpur	
Tel No:-0712-2562546	
No:- 718 /2018	Date: 26/06/2018

## CERTIFICATE

This is to Certify that Mr. Rahul Prabhakar Pawar Student of civil engineering from J. D College of engineering Nagpur has successfully completed the field project work Of "Improvement of existing Inner ring road with rigid road pavement in Nagpur city S.H.340 (Km 0/00 to 41/500) Rigid pavement widening of road , CD works & Bridges Nagpur, Maharashtra." For the period from 01/06/2018 to 20/06/2018.

During this period the student has undergone training on various aspect of civil work project

We found him very sincere and hard working student who carried out h work Diligently. We wish him Grand success in the Future Endeavour.

  
 Sub-Divisional Engineer  
 S.D. Sub-Division No. 4  
 Nagpur



|| Bhrushand Prasanna ||



**Atul S. Hadge**

Civil Engineer

Planner & Estimator

Regd. No. 62/2012-13

Mobile No. : 9049090918

M. Resi : 9657293804

OFFICE : Flat No. : F-2, Brass Residency, Station Road, Bhandara - 441904.

Ref. No. :

Ref No. AH/SC/BHD/038/2018

Date :

Date : 05.07.2018

## CERTIFICATE

This is to certify that **Mr. Sanjay P. Bagade** Student of **J.D. College of Engineering and Management, Nagpur**, has undergoes practice training of Construction of Residential Building at our various Bhandara sites during the period of 1<sup>st</sup> June 2018 to 1<sup>st</sup> July 2018.

He has been in very good Character and I wish to him for his bright future.

**ATUL S. HADGE**

Engineer / Planner

Reg. No. 62/2012-13

Flat No.F-2, Brass Residency

Station Road, Bhandara

Mob. No.:- 9049090918

Date: 18/07/2018

## Internship Certificate

This is to certify that Mr. Shubham R. Raut student of J.D. College of Engineering and Management pursuing his B.E. 3rd year has successfully completed summer internship at Jaika Infinity, Nagpur from 28 May to 30 June 2018.

We found him sincere, hardworking, technically sound and result oriented.

He works well as a part of team during his tenure. We take this opportunity to thank him and wish him all the best for his future.

Name: Mr. Amit D. Naidu

Designation: Director

Place: Nagpur

Date:

Office Stamp :



*A. D. Naidu*





Office Address

G - 14, 15, Sai Regency, Ravi Nagar Square, Amravati Road,  
Ravi Nagar, Nagpur-440033 Maharashtra, India

Date: 18/07/2018

## Internship Certificate

This is to certify that Mr. Sachin P. Meshram student of J.D. College of Engineering and Management pursuing his B.E. 3rd year has successfully completed summer internship at Jaika Infinity, Nagpur from 28 May to 30 June 2018.

We found him sincere, hardworking, technically sound and result oriented.

He works well as a part of team during his tenure. We take this opportunity to thank him and wish him all the best for his future.

Name: Mr. Amit D. Naidu

Designation: Director

Place: Nagpur

Date:

Office Stamp :



*A. Naidu*

Date: 21 June 2018

**TO WHOMSOEVER IT MAY CONCERN**

Dear Madam/Sir,

This is to certify that **Swapnil Arun Alone** student of **J D College of Engineering & Management** MILHAN village, Nagpur-441108 , has successfully completed his academic project entitled "Summer Internship" with **K.M.V Projects LTD.** For a period of 20 days i.e., from 29-May-2018 to 19-Jun-2018.

This was strictly for his academic requirements and not for any type of employment or engagement with the organization.

We wish him all the best for future endeavours.

For K.M.V Projects LTD,



George Stephenson,

HR Admin ,  
AIIMS Nagpur project.



Date: 18/07/2018

## Internship Certificate

This is to certify that Mr. Lokesh Doyeskar Walde student of J.D. College of Engineering and Management pursuing his B.E. 3rd year has successfully completed summer internship at Jaika Infinity, Nagpur from 28 May to 30 June 2018.

We found him sincere, hardworking, technically sound and result oriented.

He works well as a part of team during his tenure. We take this opportunity to thank him and wish him all the best for his future.

Name: Mr. Amit D. Naidu

Designation: Director

Place: Nagpur

Date:

Office Stamp :



*A. D. Naidu*



# **FIELD PROJECT REPORT**

**on**

## **“Soft simulation of GSM Mobile design”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

**Computer Science &**

**Engineering**

**Submitted by:**

**Roll no. 1-70**

**Under the Guidance of**

**Prof. Madhuri Pal**



Education to Eternity

## **Department of Computer Science & Engineering**

J D College of Engineering and Management, Nagpur-441501

(An Autonomous Institute, with NAAC "A" Grade)

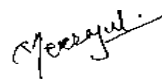
Affiliated to DBATU, Lonere

**Year 2019-2020**

## CERTIFICATE

This is to certify that the filed visit report on, “**Soft simulation of GSM Mobile design**” in the subject **Computer Science & Engineering** in the faculty of Science and Technology submitted by following students to **DBATU, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
1	AACHAL RAKESH KASHYAP	41	NIKHIL GAYAPRASAD MISHRA
2	ABHISHEK RAJU VISHWAKARMA	42	PALLAVI SANJAY BANSOD
3	ABHISHEKH NANDKISHOR BANSOD	43	PAYAL HIRAJI PAUNIKAR
4	ACHAL KAILAS BAWANE	44	PAYAL SUDHAKAR FUKTE
5	ADITI MOHAN SALODKAR	45	PIYUSH DILIP HEDAOO
6	AKASH NAND MISHRA	46	PRADNYA DEVANAND JADHAV
7	AKSHAY SANJAY SHETE	47	PRAGATI RAMESH KOKATE
8	AKSHAYKUMAR VISHWANATH TALANJE	48	PRAVEEN CHANDRAPRATAP SHUKLA
9	AMEER RAMESH MESHRAM	49	PREM SANJAY JAWANE
10	AMEYA SANJAY SHARMA	50	PUNAM SURENDRA MADAVI
11	AMISHA PRASHANT DHABEKAR	51	RAJAT KAILAS GAJBHIYE
12	ANIKET SUNIL JAISWAL	52	RITIK UMESH ZILPE
13	ANKIT KAMESHWAR SHAH	53	SAMYAK GAUTAM GAIKWAD
14	ARTI NANDKUMAR BHIMTE	54	SANKET CHANDRAKUMAR MESHRAM
15	ARYA GANESH BHAVATE	55	SATISH TARACHAND DHAKATE
16	ASHISH RAMDAS UMREDKAR	56	SEJAL VILAS DHENGE
17	ASHWINI R. MARBATE	57	SHASHANK CHANDRAHAS VERMA
18	ASLAM ANWARHUSEN GHODKE	58	SHOAIB AKHTAR SHEIKH
19	BHAGYASHRI GUNESHWAR TEKADE	59	SHREYA DNYANESHWAR SONARE
20	CHITISHA SATISH BARBATE	60	SONALI DIGAMBAR WAKODIKAR
21	DHANANJAY KISHOR PIMPALKAR	61	SONALI KAMLESH SHENDE
22	DHANASHRI MOHAN GULHANE	62	SONAM VILAS HEMANE
23	DIKSHA RAMCHANDRA GOKHULE	63	SUDHANSHU MILIND PURUSHE
24	DIVYA RAJKUMAR LANJEWAR	64	SUJATA DUDHARAM SARDARE
25	GANESH KUSAN NANHE	65	TANMAY VINDO SAKHARKAR
26	GEETA ASHOK BHANDARKAR	66	TANUJA LAKHANSINGH BAIS
27	HARSHAD DARSHAN NIKHARE	67	TINA CHANDRASHEKHAR NAIR
28	JAGDISH UMESH KORE	68	VAISHNAVI PARESHRAM BHAD
29	KARAN WASUDEO GHORMARE	69	VEDANT DILIP MOHOD
30	KAUSTUB RAJENDRA CHARDE	70	YOGESH TUKADIDAS ASUTKAR
33	KOMAL BALWANT BAGDE		
34	KUNDANKUMAR DURYODHAN RAHANGDALE		
35	MANISHA KESHAV DHARMIK		
36	MAYURI PRAFULLA KHOBRADE		
37	MOHINI SANDIP LAD		
38	NACHIKET VIJAY GONDANE		
39	NANDINI NARENDRA AGRAWAL		
40	NAYAN INDRARAO JAMBHULKAR		



**PROF. MERAJUL HAQUE**  
Internship Coordinator, CSE

**Forwarded to:**



**Prof. Madhuri Pal**

**Head of Department**

Group Members

Roll No.	UNIQUE CODE	STUDENT NAME	Sign
1	JBTECH19246	AACHAL RAKESH KASHYAP	
2	JBTECH18042	ABHISHEK RAJU VISHWAKARMA	
3	JBTECH18059	ABHISHEKH NANDKISHOR BANSOD	
4	JBTECH18123	ACHAL KAILAS BAWANE	
5	JBTECH18394	ADITI MOHAN SALODKAR	
6	JBTECH18317	AKASH NAND MISHRA	
7	JBTECH18117	AKSHAY SANJAY SHETE	
8	JBTECH18380	AKSHAYKUMAR VISHWANATH TALANJE	
9	JBTECH18221	AMEER RAMESH MESHAM	
10	JBTECH18203	AMEYA SANJAY SHARMA	
11	JBTECH18082	AMISHA PRASHANT DHABEKAR	
12	JBTECH18043	ANIKET SUNIL JAISWAL	
13	JBTECH18320	ANKIT KAMESHWAR SHAH	
14	JBTECH18067	ARTI NANDKUMAR BHIMTE	
15	JBTECH18251	ARYA GANESH BHAVATE	
16	JBTECH18387	ASHISH RAMDAS UMREDKAR	
17	JBTECH18344	ASLAM ANWARHUSEN GHODKE	
18	JBTECH18121	BHAGYASHRI GUNESHWAR TEKADE	
19	JBTECH18044	CHITISHA SATISH BARBATE	
20	JBTECH18061	DHANANJAY KISHOR PIMPALKAR	
21	JBTECH18265	DHANASHRI MOHAN GULHANE	
22	JBE16272	DIKSHA RAJKUMAR DONGRE	
23	JBTECH18238	DIKSHA RAMCHANDRA GOKHULE	
24	JBTECH18062	DIVYA RAJKUMAR LANJEWAR	
25	JBTECH18046	GANESH KUSAN NANHE	
26	JBTECH19153	GEETA ASHOK BHANDARKAR	
27	JBE17055	HARSH ASHOK BAGDE	
28	JBTECH18353	HARSHAD DARSHAN NIKHARE	
29	JBTECH18084	JAGDISH UMESH KORE	
30	JBTECH18389	KARAN WASUDEO GHORMARE	
31	JBTECH18209	KAUSTUB RAJENDRA CHARDE	
32	JBTECH18047	KAVISH KAVISH HUMANE	
33	JBTECH18122	KISHORI VISHWASRAO KOTANGALE	
34	JBTECH19326	KOMAL BALWANT BAGDE	
35	JBTECH18341	KUNDANKUMAR DURYODHAN RAHANGDALE	
36	JBTECH19369	MANISHA KESHAV DHARMIK	
37	J017465	MAYUR DNYANESHWAR NANDESHWAR	
38	JBE15162	MAYURI PRAFULLA KHOBRADE	
39	JBTECH19367	MOHINI SANDIP LAD	
40	JBTECH18319	NACHIKET VIJAY GONDANE	
41	JBTECH18060	NANDINI NARENDRA AGRAWAL	
42	JBTECH18268	NAYAN INDRARAO JAMBHULKAR	
43	JBTECH18321	NIKHIL GAYAPRASAD MISHRA	
44	JBTECH18086	PALLAVI SANJAY BANSOD	
45	JBTECH19279	PAYAL HIRAJI PAUNIKAR	
46	JBTECH18228	PAYAL SUDHAKAR FUKU	
47	JBTECH18204	PIYUSH DILIP HEDAOO	



48	JBTECH18340	PRADNYA DEVANAND JADHAV	Pradnya
49	JBTECH18211	PRAGATI RAMESH KOKATE	Pragati
50	JBTECH18214	PRAVEEN CHANDRAPRATAP SHUKLA	Praveen
51	JBTECH18237	PREM SANJAY JAWANE	Prem
52	JBTECH19248	PUNAM SURENDRA MADAVI	Punam
53	JBTECH19327	RAJAT KAILAS GAJBHIYE	Rajat
54	JBTECH18045	RITIK UMESH ZILPE	Ritik
55	JBTECH18212	SAMYAK GAUTAM GAIKWAD	Samyak
56	JBTECH18206	SANKET CHANDRAKUMAR MESHRAM	Sanket
57	JBTECH18242	SATISH TARACHAND DHAKATE	Satish
58	JBTECH18065	SEJAL VILAS DHENGE	Sejal
59	JBTECH18253	SHASHANK CHANDRAHAS VERMA	Shashank
60	JBTECH19167	SHOAIB AKHTAR SHEIKH	Shoaib
61	JBE16228	SHREYA DNYANESHWAR SONARE	Shreya
62	JBE16155	SIDDHESH AVINASH UPADHYE	Siddhesh
63	JBTECH19166	SONALI DIGAMBAR WAKODIKAR	Sonali
64	JBTECH18066	SONALI KAMLESH SHENDE	Sonali
65	JBTECH18087	SONAM VILAS HEMANE	Sonam
66	JBTECH18222	SUDHANSHU MILIND PURUSHE	Sudhanshu
67	JBTECH18085	SUJATA DUDHARAM SARDARE	Sujata
68	JBTECH18083	TANMAY VINDO SAKHARKAR	Tanmay
69	JBTECH18076	TANUJA LAKHANSINGH BAIS	Tanuja
70	JBTECH18322	TINA CHANDRASHEKHAR NAIR	Tina
71	JBTECH18201	VAISHNAVI PARESHRAM BHAD	Vaishnavi
72	JBTECH18064	VEDANT DILIP MOHOD	Vedant
73	JBTECH18345	YOGESH TUKADIDAS ASUTKAR	Yogesh
74			

## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S. R. Chaudhary**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

I express our sincere gratitude towards **Dr. S. V. Sonekar** Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and guidance.

The constant guidance and encouragement received from **Prof. Madhuri Pal**, Head, Department of Computer Science & Engineering, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks. I would like to thank **PROF. MERAJUL HAQUE**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Ankit K. Kshirsagar** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Computer Science & Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

# **FIELD PROJECT REPORT**

**on**

## **“Computer Network Technologies”**

Submitted in partial fulfilment of the requirement for the award of the degree of

**Bachelor of Technology**

**In**

**Computer Science &**

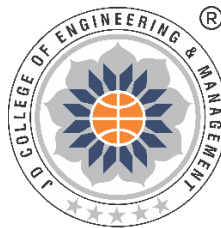
**Engineering**

**Submitted by:**

**Roll no. 1-59**

**Under the Guidance of**

**Prof. Madhuri Pal**



Education to Eternity

**Department of Computer Science & Engineering**

J D College of Engineering and Management, Nagpur-441501

(An Autonomous Institute, with NAAC "A" Grade)

Affiliated to DBATU, Lonere

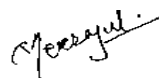
**Year 2019-20**



## CERTIFICATE

This is to certify that the filed visit report on, “**Computer Network Technologies**” in the subject **Computer Science & Engineering** in the faculty of Science and Technology submitted by following students to **DBATU, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
1	ABHISHEK PRAKASH BARVE	31	KISHORI PURUSHOTTAMJI KSHIRSAGAR
2	ABOLI RAMAJI PADOLE	32	KRUTI SUMEDHJI SONTAKKE
3	ACHAL MANIK DIGHORE	33	MANALI BHIMRAO CHAHANDE
4	ADITYA NARAYAN BADALE	34	MEGHA RAJESH DONGRE
5	ANAGHA VIJAY WANDHE	35	MITHUN GAJANAN CHIDE
6	ANKIT RAM KULKARNI	36	MONA SUBRAMHANYAM CHAWARE
7	ANKITA ARUN THAKRE	37	NAINA SHIVKUMAR MAHILE
8	ASHTHIKAR PAYAL DILIP	38	NAKUL GOVINDRAO GOPAL
9	ASMITA SIBASIS DAS	39	NIKITA RAMESH KOTANGALE
10	AYUSHI RAM AGASHE	40	PENDYALA SHRAVINKUMAR GAJANAN
11	BHARGAV JAYESHKUMAR DITANI	41	PRAGITA NANDALAL BAGDE
12	BHAVE ASHWINI SIDDHARTH	42	PRAJJWAL.P.JAMBHULKAR
13	CHARDE MITALI AJAY	43	PRATIKSHA RAMCHAND TANDEKAR
14	CHITRA SANTOSH BHUJADE	44	RAMTEKE PRASHIK SEVAKRAM
15	DHARALE DIKSHA GANESH	45	ROHAN SANJAY LADE
16	DHOTE KALYANI RATNAKAR	46	SAGAR SHRIKANT KADWE
17	DIKSHITA BHASKAR TAMBE	47	SAKSHI RAJENDRA BHONDE
18	DIPALI DILIP CHAKOLE	48	SANJEEVANI CHANDRASHEKHAR TUMDAM
19	DIPALI TULSHIRAM ITANKAR	49	SHALINI VERMA
20	DIVYA RAMPRAKASH PATHAK	50	SHRUTIKA SUNIL BHONDE
21	DIVYA ANIL BORKAR	51	SNEHARSH RANJIT SHENDE
22	GAURAV ISHWAR HABAD	52	SONALI REWATKAR
23	GAURAV JADVENDRA KSHIRSAGAR	53	SWAMI RAJENDRA SHENDE
24	HARSHADA DEVIDS MOHINKAR	54	TEJAS SUBHASH JAISWAL
25	HARSHAL KESHAV MESHRAM	55	TRIVENI YADAV PENDAM
26	HARSHAL TUKARAM BHOYAR	56	VANASHRI UDARAMJI MOHURLE
27	JAMBHULKAR MAYURI BABANRAO	57	VIBHA HEMRAJ CHUTE
28	JAY PRAVIN PATEL	58	VISHWAKARMA APURVA RAMAKANT
29	JEEVAN HOMESHWAR KHADSE	59	YASH HIRACHAND PAUNIKAR
30	KARLAWAR VIVEK VILASRAO		



**PROF. MERAJUL HAQUE**  
**Internship Coordinator, CSE**

Forwarded to:



**Prof. Madhuri Pal**

**Head of Department CSE**

Group Members			
Roll No.	UNIQUE CODE	STUDENT NAME	Sign
1	40413820171124210018	ABHISHEK PRAKASH BARVE	Barve
2	40413820171124210004	ABOLI RAMAJI PADOLE	Padole
3	40413820171124210013	ACHAL MANIK DIGHORE	Achal
4	40413820171124210003	ADITYA NARAYAN BADALE	Badale
5	40413820171124210021	ANAGHA VIJAY WANDHE	Wandhe
6	40413820171124210044	ANKIT RAM KULKARNI	Kulkarni
7	40413820181124210054	ANKITA ARUN THAKRE	Thakre
8	40413820181124210061	ASHTHIKAR PAYAL DILIP	Ashtikar
9	40413820171124210017	ASMITA SIBASIS DAS	Asmita
10	40413820171124210056	AYUSHI RAM AGASHE	Agashe
11	40413820171124211001	BHARGAV JAYESHKUMAR DITANI	Ditani
12	40413820181124210063	BHAVE ASHWINI SIDDHARTH	Bhave
13	40413820171124210039	CHARDE MITALI AJAY	Charde
14	40413820171124210019	CHITRA SANTOSH BHUJADE	Bhujade
15	1941381242033	DHARALE DIKSHA GANESH	D.D. Ganesh
16	40413820181124210060	DHOTE KALYANI RATNAKAR	Dhote
17	40413820171124210026	DIKSHITA BHASKAR TAMBE	Tambe
18	40413820171137210047	DIPALI DILIP CHAKOLE	Chakole
19	40413820171124210016	DIPALI TULSHIRAM ITANKAR	Itankar
20	40413820171124210035	DIVYA RAMPRAKASH PATHAK	Pathak
21	40413820171124210046	DIVYA ANIL BORKAR	Borkar
22	40413820171124210022	GAURAV ISHWAR HABAD	Habad
23	40413820171124210032	GAURAV JADVENDRA KSHIRSAGAR	Kshirsagar
24	40413820171124210041	HARSHADA DEVIDS MOHINKAR	Mohinkar
25	40413820171124210040	HARSHAL KESHAV MESHRAM	Meshram
26	40413820171124210005	HARSHAL TUKARAM BHOYAR	Bhoys
27	40413820181124210059	JAMBHULKAR MAYURI BABANRAO	Babarrao
28	40413820171124210058	JAY PRAVIN PATEL	Patel
29	40413820171124210030	JEEVAN HOMESHWAR KHADSE	Khadse
30	40413820181124210065	KARLAWAR VIVEK VILASRAO	Vilasrao
31	40413820171124210009	KISHORI PURUSHOTTAMJI KSHIRSAGAR	Kshirsagar
32	40413820171124210034	KRUTI SUMEDHJI SONTAKKE	Sontakke
33	40413820171124210012	MANALI BHIMRAO CHAHANDE	Chahande
34	40413820171124210014	MEGHA RAJESH DONGRE	Dongre
35	40413820171124210008	MITHUN GAJANAN CHIDE	Chide
36	40413820171124210048	MONA SUBRAMHANYAM CHAWARE	Chaware
37	40413820171124210052	NAINA SHIVKUMAR MAHILE	Naina

38	40413820171124210045	NAKUL GOVINDRAO GOPAL	<i>Nakul</i>
39	40413820171124210057	NIKITA RAMESH KOTANGALE	<i>Nikita</i>
40	1941381242034	PENDYALA SHRAVINKUMAR GAJANAN	<i>Pendyala</i>
41	40413820171124210010	PRAGITA NANDALAL BAGDE	<i>P. Bagde</i>
42	40413820171124210002	PRAJJWAL.P.JAMBHULKAR	<i>Prajwal</i>
43	40413820171124210036	PRATIKSHA RAMCHAND TANDEKAR	<i>Pratiksha</i>
44	40413820181124210026	RAMTEKE PRASHIK SEVAKRAM	<i>Prashik</i>
45	40413820171124210047	ROHAN SANJAY LADE	<i>Rohan</i>
46	40413820171124210001	SAGAR SHRIKANT KADWE	<i>Sagar</i>
47	40413820171124210037	SAKSHI RAJENDRA BHONDE	<i>Sakshi</i>
48	40413820181124210006	SANJEEVANI CHANDRASHEKHAR TUMDAM	<i>Sanjeevani</i>
49	40413820181124210064	SHALINI VERMA	<i>S.V.</i>
50	40413820171124210023	SHRUTIKA SUNIL BHONDE	<i>S. Shrutika</i>
51	40413820171124210054	SHRUTIKA SUNIL BHONDE	<i>S. Shrutika</i>
52	40413820171124210024	SNEHARSH RANJIT SHENDE	<i>Sneharsh</i>
53	40413820171124210053	SONALI REWATKAR	<i>Sonali</i>
54	40413820171124210043	SWAMI RAJENDRA SHENDE	<i>Swami</i>
55	40413820171124210027	TEJAS SUBHASH JAISWAL	<i>Tejas</i>
56	40413820171124210033	VANASHRI UDARAMJI MOHURLE	<i>Vanashri</i>
57	40413820171124210042	VIBHA HEMRAJ CHUTE	<i>Vibha</i>
58	40413820181124210055	VISHWAKARMA APURVA RAMAKANT	<i>Vishwakarma</i>
59	40413820171124210006	YASH HIRACHAND PAUNIKAR	<i>Yash</i>



## ACKNOWLEDGEMENT

express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S. R. Chaudhary**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

I express our sincere gratitude towards **Dr. S. V. Sonekar** Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and guidance.

The constant guidance and encouragement received from **Prof. Madhuri Pal**, Head **Department of Computer Science & Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks. I would like to thank **PROF. MERAJUL HAQUE**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Dr. Abhay Kuthe** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Computer Science & Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

# **An Efficient Attribute Based Multi Keyword Search Scheme In Encrypted Keyword**

A Project Report submitted in partial fulfilment of the requirements for  
the award of the degree of

**Bachelor of Engineering  
In  
Computer Science Engineering**

**Submitted by**

**Archana Ibitdar  
Ashwini Kale  
Priya Kale  
Prajakta Bagde**

**Under the Guidance of  
Prof. Supriya Sawwashere**



Education to Eternity

**Department of CSE – IT**

**J D College of Engineering and Management, Nagpur-441501**

Affiliated to Rashtrasant Tukadoji Maharaj Nagpur

**YEAR- 2019-2020**

# **PROJECT REPORT**

## **The arrangement of parts of B.E. Final Year Project Report**

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover Page
2. Inside Cover Page
3. Declaration Page
4. Certificate
5. Certificate of Approval
6. Index
7. Acknowledgement
8. List of Figures
9. List of Table
10. Abbreviation and Symbols
11. Abstract
12. All Chapters
13. References
14. Annexure
15. List of Papers Published Based on Project
16. Copyright Certificate
17. Plagiarism Report
18. Photo Gallery
19. Bibliography



The sample Templates are given below

<b>Templates</b>		<b>Page Number</b>
Cover Page	See Template 1	4
Inside Cover Page	See Template 2	5
Declaration	See Template 3	6
Certificate	See Template 4	7
Certificate of Approval	See Template 5	8
Index	See Template 6	9
Content at Glance	See Template 6	9 – 10
Acknowledgement	See Template 7 Should not exceed one page	11
List of Figures	See Template 8	12
List of Tables	See Template 9	13
Abbreviation and Symbols	See Template 10	14
Abstract	See Template 11	15
References	See Template 12	50
<b>ANNEXURES</b>		
Paper Published	Annexure I	53 - 58
NPTEL Elite Certificate	Annexure II	59 - 62
Copyright Certificate	Annexure III	63 - 64
Plagiarism Report	Annexure IV	65
Photo Gallery	Annexure V	66
Bibliography	Annexure V	66
Binding Details	(Only for information. Not to be included in Project Report)	

# **An Efficient Attribute Based Multi Keyword Search Scheme In Encrypted Keyword**

A Project Report submitted in partial fulfilment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Computer Science Engineering**

**Submitted by**

**ARCHANA IBITDAR  
ASHWINI KALE  
PRIYA KALE  
PRAJAKTA BAGDE**

**Under the Guidance of  
Prof. Supriya Sawwashere**



Education to Eternity

**Department of CSE – IT**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur**

**YEAR- 2019 -2020**

## **DECLARATION**

We hereby declare that the work presented in this project report entitled, **"An Efficient Attribute Based Multi Keyword Search Scheme In Encrypted Keyword"** in the subject **Computer Science of Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Supriya Sawwashere**, Name of the Department, **J D College Of Engineering and Management, Nagpur**. This work has not been submitted to any other University or Institution for the award of any degree or certificate course.

Name of Student/ Students

**ARCHANA IBITDAR  
ASHWINI KALE  
PRIYA KALE  
PRAJAKTA BAGDE**

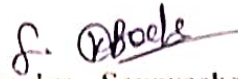
**Place: J D College of Engineering and Management, Nagpur,  
441501.**


Date:




## CERTIFICATE

This is to certify that the project report entitled, "An Efficient Attribute Based Multi Keyword Search Scheme In Encrypted Keyword" in the subject Computer Science of Engineering in faculty of Science and Technology submitted by Archana Ibitdar, Ashwini Kale, Priya Kale, Prajakta Bagde to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor Of Engineering is a bonafide recorded of work carried out by them under project report. In full or in part, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

  
Prof. Supriya Sawwashere  
(Name of the Guide)  
Computer Science and Engineering

Forwarded to:  
  
Prof. Supriya Sawwashere  
(Name of the Project Coordinator)  
Project Coordinator

  
Prof. Supriya Sawwashere  
(Name of the HOD)





Dr. S. V. Sonekar  
(Name of the Principal)  
Principal  
J D College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



### CERTIFICATE OF APPROVAL

This is to be certify that the Project Report on “An Efficient Attribute Based multi Keyword Search Scheme in Encrypted Keywords” is approved work done by Archana Ibitdar , Ashwini Kale , Priya Kale , Prajakta Bagde in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Computer Science Engineering at J D College Of Engineering and Management , Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University , Nagpur during this academic year 2019-2020.

  
Prof. Supriya Sawwashrere  
Name of Guide

  
Prof. Supriya Sawwashrere  
Name of  
Head of the Department

---

Project Examination held on \_\_\_\_\_

  
Internal Examiner/ Examiner

External Examiner

# **DESIGN AND IMPLEMENTATION OF INTEGRATED APPROACH FOR SMART RURAL DEVELOPMENT**

**A Project Report submitted in partial fulfillment of the  
requirements for the award of the degree of**

**Bachelor of Engineering  
in  
Computer Science & Engineering**

**Submitted by  
Anusuma Choudhary**

**Under the Guidance of  
Prof. Supriya Sawwashere**



**Education to Eternity**

**Computer Science & Engineering**

**J D College of Engineering and Management, Nagpur-441501  
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University,  
Nagpur.**

**Year 2019-2020**




## CERTIFICATE

This is to certify that the project report entitled, "Design and Implementation of Integrated Approach for Smart Rural Development" in the subject Computer Science & Engineering in the faculty of Science and Technology submitted by Anusuma Choudhary to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

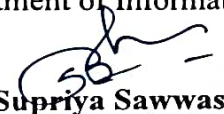


**Prof. Supriya Sawwashere**  
Project Guide  
Department of Computer Science  
& Engineering

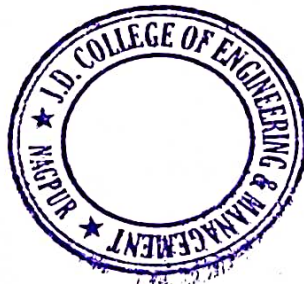
Forwarded to:



**Prof. Rohan Kokate**  
B.E. Project In-Charge  
Department of Information Technology



**Prof. Supriya Sawwashere**  
Head of the Department  
Computer Science & Engineering  
JDCOEM, Nagpur



**Dr. S. V. Sonekar**  
Principal

**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **DESIGN AND IMPLEMENTATION OF INTEGRATED APPROACH FOR SMART RURAL DEVELOPMENT** is approved work done by

**Anusuma Choudhary**

in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Computer Science & Engineering at J D College of Engineering & Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during the academic year 2019-2020.



**Prof. Supriya Sawwashere**  
Guide



**Prof. Supriya Sawwashere**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/Guide**  
**Examiner**

**External**



## ABSTRACT

Human culture is creating with fast energy and accomplished different triumphs for improving its occupation. Human progress is an observer for different changes identified with its development through various impetuses like mechanical development, green revaluation, science and technology, and so forth. The current period is increased in Information and Communication Technology. This technology has demonstrated its potential in different divisions of development in urban and rural landscapes. Urban territories appear to increasingly slanted to acknowledge and embrace Information and Communication Technology because of points of interest of proficiency and better framework when contrasted with rural regions. Because of such appropriate circumstances of urban landscapes great measure of accomplishment of this technology is noticeable as shrewd urban areas and better vocations of living people. Be that as it may, the issues, outcomes, and openings in urban zones are diverse for powerful usage of Information and Communication Technology for practical development of rural masses. The current research article talks about rural development in the creating scene for the Upliftment of work of the rural masses and to take a 'look-ahead' at logical developments and advances that may be powerful throughout the following 10 - 20 years. The driving inspiration driving the idea on "Brilliant Village" is that the technology should go about as an impetus for development, empowering instruction and neighborhood business openings, improving wellbeing and government assistance, upgrading law-based commitment and by and large improvement of rural town occupants. The "Savvy Village" idea intends to understand its objective through giving policymakers shrewd, base up examinations of the difficulties of town development.

**Keywords—** Information Technology, Rural, Smart Village, Sustainable Development



## ACKNOWLEDGEMENT

I express my sincere gratitude, for giving me the opportunity to work on the project during our final year of B.E. I owe my sincerest gratitude towards **Dr. S. R. Choudhari**, Principal of J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities. I also express my sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from our project guide, **Prof. Supriya Sawwashere**, Head, CSE-I.T Department, J D College of Engineering & Management, and Nagpur, has been of great help in carry in gout the project work and is acknowledged with reverential thanks. I would like to thank **Prof. Supriya Sawwashere**, Project Coordinator, and J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

I would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. I express gratitude to other faculty members of Computer Science & Engineering Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Anusuma Choudhary

## **DECLARATION**

We hereby declare that the work presented in this project report entitled, **"Design and Implementation of Integrated Approach for Smart Rural Development"** in the subject of **Computer Science & Engineering** in the faculty of **Science and Technology** is the original contribution carried out by us under the guidance of **Prof. Supriya Sawwashere, Computer Science & Engineering J D College of Engineering and Management, Nagpur**. This work has not been submitted to any other University or Institution for the award of any degree or diploma certificate course.

Place: Nagpur

Date:

Name of Students:

**Anusuma Choudhary**

# **DETECTING DISEASES IN CROPS USING IMAGE PROCESSING**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science and Engineering**

Submitted by

**Shraddha Pradeep Tirpude**

**Pragati Khushal Kohad**

**Priti Shamrao Sakhare**

**Pallavi Pramod Kawade**

**Omeshwari Gajendra Mohabanshi**

Under the Guidance of

**Prof. Madhuri M. Pal**



Education to Eternity

**Department of Computer Science and Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019 -2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Detecting Diseases In Crops Using Image Processing**" in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Madhuri M. Pal**, Computer Science & Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

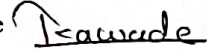
Shraddha Pradeep Tirpude

Pragati Khushal Kohad

Priti Shamrao Sakhare

Pallavi Pramod Kawade

Omeshwari Gajendra Mohabanshi



## CERTIFICATE

This is to certify that the project report entitled, "**Detecting Diseases In Crops Using Image Processing**" in the subject **Computer Science and Engineering** in the faculty of Science and Technology submitted by **Shraddha Pradeep Tirpude, Pragati Khushal Kohad, Priti Shamrao Sakhare, Pallavi Pramod Kawade, Omeshwari Gajendra Mohabanshi** to **Rashtrosant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

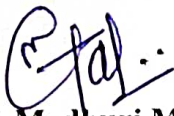


(Prof. Madhuri M. Pal)  
Project Guide  
Computer Science and Engineering

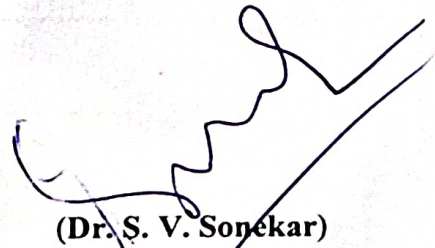
Forwarded to:



(Prof. Supriya Sawwashere)  
Project Coordinator



(Prof. Madhuri M. Pal)  
Head of the Department  
CSE/IT



(Dr. S. V. Sonekar)  
Principal

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **Detecting Diseases In Crops Using Image Processing** is approved work done by

**Shraddha Pradeep Tirpude**

**Pragati Khushal Kohad**

**Priti Shamrao Sakhare**

**Pallavi Pramod Kawade**

**Omeshwari Gajendra Mohabanshi**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science and Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Madhuri M. Pal**  
Guide



**Prof. Madhuri M. Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



# **DEVELOPMENT OF ANDROID APPLICATION FOR MEDICINAL SEARCH SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science and Engineering**

**Submitted by**

**Prajakta Gawali**

**Sonal Chaudhari**

**Mayuri Jawade**

**Mrunali Gawande**

**Shubham Ghodeswar**

**Under the Guidance of**

**Prof. Supriya Sawwashere**



**Education to Eternity**

**Department of Computer Science and Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, **“DEVELOPMENT OF ANDROID APPLICATION FOR MEDICINAL SEARCH SYSTEM”** in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Supriya Sawwashere, Computer Science and Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Prajakta Gawali

Sonal Chaudhari

Mayuri Jawade

Mrunali Gawande

Shubham Ghodeswar



Place:

Date:

## CERTIFICATE

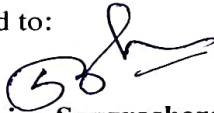
This is to certify that the project report entitled, “**DEVELOPMENT OF ANDROID APPLICATION FOR MEDICINAL SEARCH SYSTEM**” in the subject **Computer Science and Engineering** in the faculty of Science and Technology submitted by **Prajakta Gawali, Sonal Chaudhari, Mayuri Jawade, Mrunali Gawande, Shubham Ghodeswar** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Supriya Sawwashere**

Department of Computer Science and Information Technology

Forwarded to:



**Prof. Supriya Sawwashere**  
Project Coordinator



**Prof. Madhuri Pal**  
Head of the Department

Department of Computer Science and Information Technology



**Dr. S. R. Chaudhari**  
Principal

**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

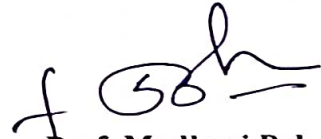
This is to certify that the Project Report on **DEVELOPMENT OF ANDROID APPLICATION FOR MEDICINAL SEARCH SYSTEM** is approved work done by

Prajakta Gawali  
Sonal Chaudhari  
Mayuri Jawade  
Mrunali Gawande  
Shubham Ghodeswar

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science and Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Supriya Sawwashere**  
Guide



**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# Identification of Living & Non-living Objects Using Image Processing

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science Engineering**

**Submitted by**

Diksha Patil

Pranali Kirnapure

Rakesh Bansod

Samrudhi Sukhdeve

Samrudhi Gundalwar

Supriya Nitnaware

**Under the Guidance of**

Prof. Ashish Nanotkar



Education to Eternity

**Department of Computer Science**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "Identification of Living & Non-living Objects Using Image Processing" in the subject **Computer Science Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Ashish Nanotkar, Department of Computer Science , J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Date:

Diksha Patil

Pranali Kirnapure

Rakesh Bansod

Samrudhi Gundalwar

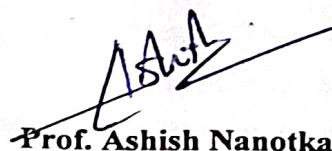
Samruddhi Sukhdeve

Supriya Nitnaware




## CERTIFICATE

This is to certify that the project report entitled, "Identification of Living & Non-living Objects Using Image Processing" in the subject Computer Science & Engineering in the faculty of Science and Technology submitted by Diksha Patil, Pranali Kirnapure, Rakesh Bansod, Samrudhi Gundalwar, Samruddhi Sukhdev and Supriya Nitnaware to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.




**Prof. Ashish Nanotkar**  
Department of Computer Science  
& Engineering

Forwarded to:



**Prof. Supriya Sawwashere**  
Project Coordinator



**Prof. Madhuri Pal**  
Head of the Department  
Department of Computer Science  
& Engineering

Principal

## CERTIFICATE OF APPROVAL

to certify that the Project Report on Identification of Living & Non-living  
Using Image Processing is approved work done by

**Diksha Patil**

**Pranali Kirnapure**

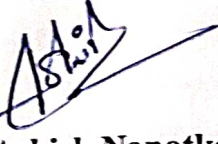
**Rakesh Bansod**


**Samrudhi Gundalwar**

**Samruddhi Sukhdeve**

**Supriya Nitnaware**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

  
**Prof. Ashish Nanotkar**  
Guide

  
**Prof. Madhuri Pal**  
Department of Computer Science &  
Engineering

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **IMPLEMENT EMERGENCY MEDICAL FACILITY THROUGH UAV**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

in

**Computer Science & Engineering**

**Submitted by**

**Lakhan Mangtani**

**Aniket Khanorkar**

**Samrudhi Titarmare**

**Rushali Badhane**

**Rajani Pande**

**Swati Baghele**

**Under the Guidance of**

**Prof. M. M. Baig**



Education to Eternity

**Computer Science & Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Implement Emergency Medical Facility through UAV**" in the subject **Computer Science & Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. M. M. Baig**, Computer Science & Engineering J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma certificate course.

Place: Nagpur

Date: 12/03/2021

Name of Students

Lakhan Mangtani Lakhan M.

Aniket Khanorkar Aniket

Samrudhi Titarmare Samrudhi

Rushali Badhane Rushali

Rajani Pandeale Rajani

Swati Baghele Swati

## CERTIFICATE

This is to certify that the project report entitled, “Implement Emergency Medical Facility Through UAV” in the subject **Computer Science & Engineering** in the faculty of Science and Technology submitted by **Lakhan Mangtani, Aniket Khanorkar, Samrudhi Titarmare, Rushali Badhane, Rajani Pande, Swati Baghele** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. M. M. Baig**  
Project Guide

Department of Computer Science & Engineering

Forwarded to:



**Prof. Madhuri Pal**  
Head of the Department  
Computer Science & Engineering  
JDCEM, Nagpur



**Prof. Supriya Sawwashere**  
B.E. Project In-Charge  
Department of Information Technology

**Dr. S. V. Sonekar**  
Principal

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **IMPLEMENT EMERGENCY MEDICAL FACILITY THROUGH UAV** is approved work done by

**Lakhan Mangtani  
Aniket Khanorkar  
Samrudhi Titarmare  
Rushali Badhane  
Rajani Pande  
Swati Baghele**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. M. M. Baig**  
Guide



**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/Guide**

**External Examiner**



# **IMPLEMENTATION OF BLOCK CHAIN TECHNOLOGY IN PUBLIC DISTRIBUTION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
in  
Computer Science and Engineering**

*Submitted by*

**Pratik Thakare  
Ankit Chopkar  
Aakash Chauhan  
Nitin Dighore  
Diksha Bhagat**

*Under the guidance of*  
**Prof. Milind Tote**



**Education to Eternity**

**DEPARTMENT OF CSE-IT**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, **"Implementation of Block Chain Technology in Public Distribution System"** in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Milind Tote**, Computer Science and Engineering Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: **Nagpur**

Date:

Name of Students

**Pratik Thakare**

**Nitin Dighore** *Dighore*

**Aakash Chauhan** *Aakash*

**Ankit Chopkar**

**Diksha Bhagat**

## CERTIFICATE

This is to certify that the project report entitled, "Implementation of Block Chain Technology in Public Distribution System" in the subject Computer Science and Engineering in the faculty of Science and Technology submitted by Pratik Thakare, Nitin Dighore, Ankit Chopkar, Aakash Chauhan, Diksha Bhagat to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Milind Tote**  
Department of CSE-IT

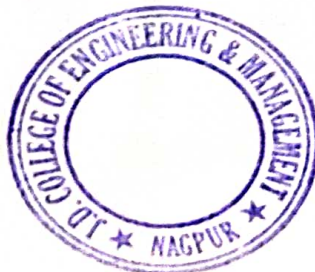
Forwarded to:



**Prof. Supriya Sawwashere**  
Project Coordinator



**Prof. Madhuri Pal**  
Head of the Department  
Department of CSE-IT



**Dr. Shrikant V. Sonekar**  
Principal  
Principal

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **IMPLEMENTATION OF BLOCK CHAIN TECHNOLOGY IN PUBLIC DISTRIBUTION SYSTEM** is approved work done by

**Pratik Thakare  
Nitin Dighore  
Ankit Chopkar  
Aakash Chauhan  
Diksha Bhagat**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science and Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Milind Tote**  
Guide



**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **ROAD ACCIDENT DETECTION AND TRAFFIC CONGESTION MANAGEMENT USING RF COMMUNICATION, GPS AND GSM**

A Project Report submitted in partial fulfillment of the requirements

For the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science and Engineering**

**Submitted by**

**Sharvari Urane**

**Tanvi Bopche**

**Vaishnavi Parteki**

**Prerna Meshram**

**Sonali Kaleshwar**

**Under the Guidance of**

**Dr. Shrikant V. Sonekar**



Education to Eternity

**Department of CSE-IT**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## **DECLARATION**

We hereby declare that the work presented in this project report entitled, “**Road Accident Detection and Traffic Congestion Management Using RF Communication, GPS and GSM**” in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Dr. Shrikant V Sonekar, CSE-IT Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Sonali Kaleshwar

Prerna Meshram

Vaishnavi Parteki

Tanvi Bopche

Sharvari Urane

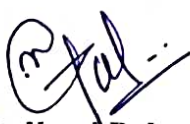


## CERTIFICATE

This is to certify that the project report entitled, "Road Accident Detection and Traffic Congestion Management Using RF Communication, GPS and GSM" in the subject Computer Science and Engineering in the faculty of Science and Technology submitted by Sonali Kaleshwar, Prerna Meshram, Sharvari Urane, Tanvi Bopche, Vaishnavi Parteki to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.


Forwarded to

  
**Prof. Supriya Sawwashire**  
Project Coordinator

  
**Prof. Madhuri Pal**  
Head of the Department  
CSE-IT Department

  
**Dr. Shrikant V Sonekar**  
CSE-IT Department

**Principal**  
J.D. College of Engineering & Management  
Khandala, Khandala Road  
Nagpur-462001

  
**Dr. Shrikant V Sonekar**  
Principal

**Principal**  
J.D. College of Engineering & Management  
Khandala, Khandala Road  
Nagpur-462001

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on “**ROAD ACCIDENT DETECTION AND TRAFFIC CONGESTION MANAGEMENT USING RF COMMUNICATION, GPS and GSM**” is approved work done by

**Sonali Kaleshwar**

**Prerna Meshram**

**Sharvari Urane**


**Tanvi Bopche**

**Vaishnavi Parteki**

In partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science and Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Dr. Shrikant V Sonekar**  
Guide



**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **THE REAL TIME EVIDENCE GRABBER SYSTEM FOR CRIME CONTROL**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science and Engineering**

**Submitted by**

Abhimanyu Ramesh Pagade

Gaurav Baluji Manwatkar

Himanshu Chandrashekhar Kale

Mohammed Munaf Dharar

Rajat Rajkumar Sahare

**Under the Guidance of**

Prof. Aniket Vijayrao Bhoyar



Education to Eternity

**Department of Computer Science & Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Na**



# **THE REAL TIME EVIDENCE GRABBER SYSTEM FOR CRIME CONTROL**

**A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of  
Bachelor of Engineering  
In  
Computer Science & Engineering**

**Submitted by**

**Abhimanyu Ramesh Pagade  
Gaurav Baluji Manwatkar  
Himanshu Chandrashekhar Kale  
Mohammed Munaf Dharar**

**Rajat Rajkumar Sahare**

**Under the Guidance of  
Prof. Aniket Vijayrao Bhoyar**



**Education to Eternity**

**Department of Computer Science & Engineering  
J D College of Engineering and Management, Nagpur-441501  
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.  
Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**The Real Time Evidence Grabber System For Crime Control**" in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Dr./Prof. **Aniket V. Bhoyar**, Dept. of Computer Science & Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: **Nagpur**  
Date: **30-01-2021**

Abhimanyu Ramesh Pagade

Gaurav Baluji Manwatkar

Himanshu Chandrashekhar Kale

Mohammed Munaf Dharar

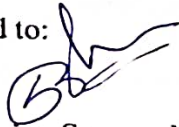
Rajat Rajkumar Sahare

## CERTIFICATE

This is to certify that the project report entitled, "**The Real Time Evidence Grabber System for Crime Control**" in the subject **Computer Science & Engineering** in the faculty of Science and Technology submitted by **Abhimanyu Pagade, Gaurav Manwatkar, Himanshu Kale, Mohammed Dharar, Rajat Sahare** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

Dept. of Computer Science & Engineering

Forwarded to:



**Prof. Supriya Sawwashere**

Project Coordinator



**Prof. Madhuri M. Pal**

Head of the Department

Name of Department

**Dr. S. R. Choudhary**

Principal



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **THE REAL TIME EVIDENCE GRABBER SYSTEM FOR CRIME CONTROL** is approved work done by

**Abhimanyu Ramesh Pagade**


**Gaurav Baluji Manwatkar**

**Himanshu Chandrashekhar Kale**

**Mohammed Munaf Dharar**

**Rajat Rajkumar Sahare**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Aniket V. Bhoyar**

Guide



**Prof. Madhuri M. Pal**

Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **THE REAL TIME IOT BASED HEALTH CARE MONITORING FOR PREDICTION AND ANALYSIS FOR RURAL AREA**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Computer Science & Engineering**

**Submitted by**

Ashwini Dayaram Bhotmange

Naheena Parveen Khan

Ashwariya Pramod Manvatkar

are

**Under the Guidance of**

**Prof. Manoj Titre**



Education to Eternity

**Department of Computer Science & Engineering**

**JD College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

**Project Guide: Prof. Supriya Sawwashere**

**HOD :- Prof. Mdhuri Pal**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**The Real Time Iot Based Health Care Monitoring For Prediction And Analysis For Rural Area**" in the subject **Computer Science and Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Dr./Prof. **Manoj Titre**, Dept. of Computer Science & Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

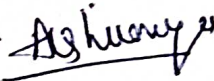
Date:



Ashwini D Bhotmange

Naheena P Khan 

Aishwarya p Manvatkar





## CERTIFICATE

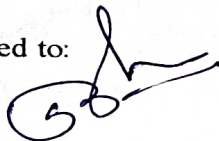
This is to certify that the project report entitled, "The Real Time Iot Based Health Care Monitoring System For Rural Area" in the subject Computer Science & Engineering in the

faculty of Science and Technology submitted by, Ashwini Dayaram

Bhotmange, Aishwarya Pramod Manwatkar, Naheena Parveen Khan Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of his Project Report, in full or in parts have not been submitted or published to any other Institute or University for the award of any degree or diploma.

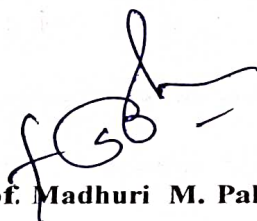
Dept. of Computer Science & Engineering

Forwarded to:



**Prof. Supriya Sawwashere**

Project Coordinator



**Prof. Madhuri M. Pal**

Head of the Department

Name of Department

**Dr. S. R. Choudhary**

Principal

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **The Real Time Iot Based Health Care Monitoring For Prediction And Analysis For Rural Area** is approved work done by

**Ashwini Dayaram Bhotmange**

**Naheena ParveenKhan**

**Ashwariya Manvatkar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at J D College of Engineering & Management, Nagpur affiliated to **RashtersantTukadojiMaharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Manoj Titre**

Guide



**Prof. Madhuri M. Pal**

Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/Guide**

**External Examiner**

# **V2V COMMUNICATION APPROACH TOWARDS AUTONOMOUS DRIVING USING VANET & TELEMATICS**

**A Project Report submitted in partial fulfillment of the requirements**

**for the award of the degree of**

**Bachelor of Engineering**

**In**

**Computer Science & Engineering**

**Submitted by**

**Anant Sinha**

**Vishal Mahesh Dixit**

**Ganesh Viththal Gawali**

**Vaishnavi Vijayrao Bhoyar**

**Santoshi Ashok Nawkhare**

**Under the Guidance of**

**Prof. Pranjali B. Ulhe**



**Education to Eternity**

**Computer Science & Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019 - 20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, “V2V Communication Approach Towards Autonomous Driving Using VANET & Telematics” in the subject Computer Science & Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Pranjali B. Ulhe, Computer Science & Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Anant Sinha

Date:

Vishal Mahesh Dixit

Ganesh Vitthal Gawali

Vaishnavi Vijayrao Bhoyar

Santoshi Ashok Nawkhare

## CERTIFICATE

This is to certify that the project report entitled, "V2V Communication Approach Towards Autonomous Driving Using VANET & Telematics" in the subject Computer Science & Engineering in the faculty of Science and Technology submitted by Anant Sinha, Vishal Mahesh Dixit, Ganesh Vitthal Gawali, Vaishnavi Vijayrao Bhoyar, Santoshi Ashok Nawkhare to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Pranjali B. Ulhe**  
Computer Science & Engineering

Forwarded to:



**Prof. Supriya Sawashre**  
Project Coordinator



**Prof. Madhuri Pal**  
Head of the Department  
Computer Science & Engineering  
**H.O.D.**  
Department of CSE-IT  
JDCEM, Nagpur

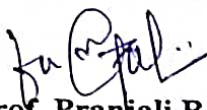
**Dr. S.R. Choudhari**  
Principal

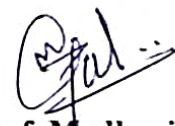
## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **V2V Communication Approach Towards Autonomous Driving Using VANET & Telematics** is approved work done by

**Anant Sinha  
Vishal Mahesh Dixit  
Ganesh Viththal Gawali  
Vaishnavi Vijayrao Bhoyar  
Santoshi Ashok Nawkhare**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019 - 2020.

  
**Prof. Pranjali B. Ulhe**  
Guide

  
**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide** **External Examiner**



# **WOMEN'S SAFETY SYSTEM BY VOICE RECOGNITION**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of  
**Bachelor of Engineering**

**In  
Computer Science and Engineering**

**Submitted by**

- 1. Vinay Mishra      2. Sandip Shinde      3. Nilesch Shivankar**  
**4. Mohd. Amaan Khan      5. Sanam Gadpayle**

**Under the Guidance of  
Prof. Sonali Zunke**



Education to Eternity

**Department of Computer Science and Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019 - 2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, “Women’s Safety System by Voice Recognition” in the subject Computer Science and Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Sonali Zunke, Computer Science & Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Date:

Vinay Mishra  
Sandip Shinde  
Nilesh Shivankar  
Sanam Gadpayle  
Mohd. Amaan Khan

Education to Eternity



## CERTIFICATE

This is to certify that the project report entitled, "Women's Safety System by Voice Recognition" in the subject Computer Science & Engineering in the faculty of Science and Technology submitted by Vinay Mishra, Sandip Shinde, Nilesh Shivankar, Mohd. Amaan Khan and Sanam Gadpayle to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Prof. Sonali Zunke**

Department of Computer Science & Engineering

Forwarded to:

**Prof. Supriya Sawwashere**  
Project Coordinator

**Prof. Supriya Sawwashere**  
Head of the Department  
Department of Computer Science & Engineering

**Dr. Shrikant Sonekar**  
Principal



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **Women's Safety System by Voice Recognition** is approved work done by

**Vinay Mishra**

**Sandip Shinde**

**Nilesh Shivankar**

**Mohd. Amaan Khan**

**Sanam Gadpayle**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Computer Science & Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019 - 2020.

**Name of Guide**

Prof. Sonali Zunke

**Name of HOD**

Prof. Supriya Sawwashere

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **FIELD PROJECT REPORT**

**on**

## **“MD TRANSCON Pvt.Ltd”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

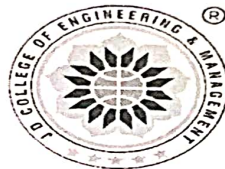
**Electrical Engineering**

**Submitted by:**

**Roll no. 01 to 25**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



Education to Eternity

**Department Of Electrical Engineering**  
**J D College of Engineering and Management, Nagpur-441501**

(An Autonomous Institute, with NAAC "A" Grade)  
Affiliated to DBATU ,Lonere

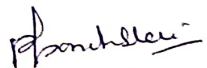
**Year 2019-20**




## CERTIFICATE

This is to certify that the filed visit report on, "MD TRANSCON Pvt.Ltd" in the subject **Electrical Engineering** in the faculty of Science and Technology submitted by following students to **DBATU ,Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
1	AAMRAPALI MANOJ TEMBHURMIKAR	17	DIPALI MURARI RAMTEKE
2	ABHIJEET RAMESH MESHRAM	18	SHAMAL RAMESH DORSHETWAR
3	ADVET PYARELAL GAJBHIYE	19	PRASHIK KAWADUJI FULZELE
4	AJAY ACHYUTRAO KANDE	20	HARIOM RAMESH TEKADE
5	AKSHAY ANIL SONTAKKE	21	HARSHAD CHANDANLAL RAUT
6	AKSHAY RAMESH ZARODIYA	22	HARSHAL KAILASH WASNIK
7	ANKIT RAJENDRA GAJBE	23	HARSHAL RAJU SAKHARE
8	ARCHANA YUWARAJ GAHANE	24	HEMANT SHAMRAO PRADHAN
9	ASHVINI TUKARAM PARISE	25	JATIN NARESH DOLAS
10	AVINASH SHALIKRAM PATIL		
11	BADAL JAIRAM RAHANGDALE		
12	BHAGYASHREE BHOLESWAR BADGE		
13	BHUSHAN DEVIDAS GIRI		
14	CHANDANI MAHENDRA BANSOD		
15	DEVID BHAURAO JAMBHULKAR		
16	MONIKA MAROTI DHURVE		

  
**Prof. P.P.Panchbhavi**  
**Internship Coordinator, EE**

Forwarded to:

  
**Dr. S.R.Vaishnav**  
**Head of Department**  
**Electrical Engineering**

**Date:22/01/2020**



## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. Arvind Gaure**, MD TRANSCON Pvt.Ltd for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

## CHAPTER 1: EXECUTIVE SUMMARY

132 KV Substation to supply power to the extent of 18 MVA to M/S Ordnance factory, Ambajhari Unit (ofaj), Nagpur, Maharashtra.

The project work is assigned to design a 132/33KV EHV substation. We considered incoming power at 132KV and the power was transferred to main bus through isolator-circuit breaker-isolator combination. The power from main bus was fed into 18MVA transformer which stepped the voltage down to 33KV. The power is then fed into a 33KV bus from which different loads were tapped. In the process, the surge impedance loading of 132KV and 33KV lines were calculated and they were used to estimate the maximum power that can be transferred by one transmission line. The design of the entire substation was made keeping in mind the most basic requirements.

## **CHAPTER 2 : ABOUT THE FIRM**

Over the years, MD Transcon Pvt. Ltd. has evolved into a one of the major players in the field of EHV turnkey projects. We have more than two & half decade experience in EHV turnkey projects. We believe in professional business practices, sustainable growth, continuous improvement in management practices and collaborative approach to have win-win results for all the entities involved. Our passion is to explore ideas and take up new challenges, which has given us a unique distinction in this sector. We aim to achieve excellence through Quality execution, Care for employees health, Safe workplace practices and protection of Environment, in every project we undertake.

Execution of EHV Sub- station projects up to 400 KV

Execution of EHV Transmission line projects up to 400 KV

Pile foundation, Erection & Stringing in Water logged, Dam and Creek area EHV transmission line emergency breakdown work

Capable to execute projects in difficult terrains and tough conditions Operation & maintenance of EHV substation

GIS & AIS Substation

EPC in EHV Cable in 400 KV

Restoration of EHV lines using ERS (Emergence Restoration System)

Monopole foundation and Erection HTLS ( High Temperature Low Sag)

stringing on the existing towers

### **GLOBAL PRESENCE**

We are working in Nigeria from last 11 years, with office in Abuja. Our firm is doing projects of PHCN -TCN (Transmission Company of Nigeria, government of Nigeria). At present we have three 132/ 33 KV/ 60 MVA substations and two 132 KV Transmission lines in Nigeria. We have entered into these projects through joint venture with competent local firm. The main job of our JV partner is to assist us in erection and commissioning of the substation/transmission line.



### **CHAPTER 3: ABOUT THE WORK DONE/PROJECTS**

132 KV Substation to supply power to the extent of 18 MVA to M/S Ordnance factory, Ambajhari Unit (ofaj), Nagpur, Maharashtra. The project work is assigned to design a 132/33KV EHV substation. We considered incoming power at 132KV and the power was transferred to main bus through isolator-circuit breaker-isolator combination. The power from main bus was fed into 18MVA transformer which stepped the voltage down to 33KV. The power is then fed into a 33KV bus from which different loads were tapped. In the process, the surge impedance loading of 132KV and 33KV lines were calculated and they were used to estimate the maximum power that can be transferred by one transmission line. The design of the entire substation was made keeping in mind the most basic requirements. The design is then submitted to our mentor for verification.

Keywords : 1) Bus bar 2) Control Cable 3) Earthing 4) Insulation-Coordination 5) Insulator 7) Lightning Arrested 8) Current

Transformer 9) Power Transformer 10) Control Panels

1 1) Switchgear

In this project I have assigned a work of Store Incharge and Supervisor. As a store In charge I have done work of all materials details to come at site. When I starting internship from first days I get the tower pieces materials sorting work. After that S and, Murum, Aggregates measures quantity come at site on daily basis.

## CHAPTER 4: SWOC ANALYSIS

### Strengths :-

The strength of MD Transcon Pvt.Lts is that the customer centric Deliver best results to client expectation. It have Go getter attitude always ready explore new things in projects.

### Weaknesses :-

To face new challenges and to problem in resolving is most difficult. From the clients of company have come pressure on every next day on site engineer and also on project manager.

### Opportunities :-

In this organization have more opportunities than other like In EHV Transmission line projects up to 765 KV, SCADA Communication projects, Allied Infrastructure projects. And organizations have connected with most famous clients in India like Adani, Tata, JSW, Reliance Industries, Mahatransco, Larsen and Turbo.etc.

### Challenges :-

Sometimes company faces Funds management problems to executefurther works, and companyfaces challenges through clientsforfast working but it is not easy to work fast, many problems throughsuppliers for material in site works.

## CHAPTER 5: LEARNING

The practical training that I got from 132Kv ordnance factory substation of MD Transcon Private Limited, made me learn many thing about the Transmission system deployed for transmission of electricity from power plants to power houses.

The substation allotted to me was Ordnance factory 132Kv in Nagpur. It was a great experience and I learnt a lot there. The substation has of two 18MVA transformers which determine the capacity of the substation. I have also learnt about the foundation of Current transformers, FH Gantry and FG Gantry, Power Transformer, Lightning Arrestor, Circuit Breaker, Bus post insulator, Circuit Breaker and all equipments structures erection as well as all types of tower erections.

The hands on experience I had like learn about Earth mat welding and Erection of Tower and using temporary measures to ensure supply were all very interesting. The most important thing that I learnt was that Thus, doing my practical training at the 132Kv substation had been a great experience and very helpful for me.

I have learn the installation process of Isolator, Circuit Breaker, Current Transformer, Power Transformer, Bus post Insulator, Lightning Arrest or, Light marks and Disc Insulator. I have learn also the stringing or wiring process of one tower to second tower of 132KV.



**FIELD PROJECT REPORT**

**on**

**“SEE Tech Solutions Pvt.Ltd”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

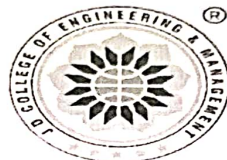
**Electrical Engineering**

**Submitted by:**

**Roll no. 26 to 50**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



Education to Eternity

**Department Of Electrical Engineering**  
**J D College of Engineering and Management, Nagpur-441501**

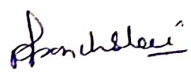
**(An Autonomous Institute, with NAAC "A" Grade)**  
**Affiliated to DBATU ,Lonere**

**Year 2019-20**


### CERTIFICATE

This is to certify that the filed visit report on, "SEE Tech Solutions Pvt.Ltd" in the subject **Electrical Engineering** in the faculty of Science and Technology submitted by following students to DBATU ,Lonere for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
26	JYOSNA RAMESH SATPUTE	42	PRACHI FIRENDRA JAMBHULKAR
27	KAJAL ASURAJ MESHARAM	43	PRAJWAL DURYODHAN DEVENDRA DURYODHAN
28	KRUNAL CHARAN ZODAPE	44	PRAVINKUMAR JANRAO GADEKAR
29	MANGESH BALA WANDHARE	45	PRIYAL YUVRAJ POUNIKAR
30	MANSI JITENDRA SOMKUWAR	46	RAVINA BRAMHIDAS NAGDEVE
31	MOHINI DIGAMBARRAO SHINDE	47	RISHABH NARAYAN DARWAI
32	NAINA RAMESH NEWARE	48	ROHIT MADHU NIRAPURE
33	NIHAR RASITRAPAL GODHAWA	49	RUCHI YURAJ SHIURKAR
34	NIKESH RAJESH GAJBHIYE	50	RUPALI GANGADHAR WADKAR
35	NIKITA HEMANTRAO TIPLE		
36	NITIN ABHIMANYU BADWAIK		
37	PALLAVI PREMSHANKAR CHAUBEY		
38	PAYAL SUKHADEORAO REWATKAR		
39	PIYUSH HARISHCHANDRA KUMBHARE		
40	POONAM DINESH BAGADE		
41	PORNIMA DEWAJI PATIL		

  
**Prof. P.P.Panchbhai**  
**Internship Coordinator, EE**

Forwarded to:

  
**Dr. S.R.Vaishnav**  
**Head of Department**  
**Electrical Engineering**

**Date:24/01/2020**

## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, Department of Electrical Engineering, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. Sandip Sahare**, SEE Tech Solutions Pvt.Ltd for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of Department of Electrical Engineering, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.



## CHAPTER 1: EXECUTIVE SUMMARY

Seetech Solutions Private Limited is a 24 years 1 month old Private Limited Indian Non-Government Company incorporated on 26 Feb 1999. Its registered office is in Nagpur, Maharashtra, India.

Electricity is boon for mankind. Electricity is good servant but Bad Master. It makes human life very easy & comfortable but it can prove to be very dangerous if circuits are not properly protected. Electricity constitutes one of the major sources of ignition for fire accidents and explosions. Over 20% of fire world wide and 40% fire in India are due to faulty electric circuits. Besides equipment damage and property loss, electrical hazards also include injuries and fatalities to personnel due to electric shock. Electricity having become an indispensable part of our life, electrical risks is to be managed effectively. Electrical Safety Audit, in Brief covers Inspection of electrical equipment's & panels based on Indian Electricity Rules, 1956, Electricity Act 2003 & CEA Regulations 2010, National Electric Code-2011 Evaluation of earthing system (installation and maintenance) in the plant based on IS 3043 and to suggest recommendations.

Verification of statutory compliance and approvals with respect to Indian Electricity rules and other statutory / mandatory requirement

Study of Electrical Fire Hazards, System & Human Safety

Review of Electrical Protection System and Electrical Preventive Maintenance Practices and Permit system

Review of Competency and Adequacy of Electrical Personnel

Inspection and review of electrical installation as per applicable IS and standard engineering practices. Detailed scope will be decided depending on size and nature of installation.

## CHAPTER 2 : ABOUT THE FIRM

### 2.1 Brief history

SEE-Tech Solutions Pvt Ltd is led by people who have been passionately working for Energy Conservation for Industries and Commercial buildings with more than 25 years of experience and more than 500 energy conservation projects and delivering more than 20% savings

- Started working as Energy Saving Consulting Partner to Petroleum Conservation Research Association till 2008
- Started Electrical Safety Audit for Retail Outlets of Hindustan Petroleum Corp Ltd & Indian Oil Corp. Ltd in 2006
- Developed Regional Energy Efficiency Center to demonstrate the energy conservation measure actually working with the help from USAID in 2009
- Signed first Major Energy Project Contract with Mahangar Telephone Nigam Limited (MTNL) for 5 years 2010
- Started Energy Savings Projects with Taj Group of Hotels and delivered savings for 13 hotels in 2013

### 2.2 Policy of the organization

- Inspection of electrical equipment's & panels based on Indian Electricity Rules, 1956, Electricity Act 2003 & CEA Regulations 2010, National Electric Code-2011
- Evaluation of earthing system (installation and maintenance) in the plant based on IS 3043 and to suggest recommendations.
- Verification of statutory compliance and approvals with respect to Indian Electricity rules and other statutory / mandatory requirement

- Study of Electrical Fire Hazards, System & Human Safety
- Review of Electrical Protection System and Electrical Preventive Maintenance Practices and Permit system

Review of Competency and Adequacy of Electrical Personnel Inspection and review of electrical installation as per applicable IS and standard engineering practices. Detailed scope will be decided depending on size and nature of installation.

#### **2.2.1 Policy of Company Quality**

- To provide quality products and services that meet the customer expectations with no field failures.
- To achieve leadership in quality and delivery.
- To achieve and sustain a reputation for quality in global market by continuous technology upgradation.
- To foster a spirit of pride and creativity among the employees in respect of the company's quality performance and to stimulate a sense of responsibility for maximizing individual contribution.
- To comply with all applicable legal requirements, and strive for continual improvement, in occupational Health, safety and environmental aspects to avoid land, water, air, noise pollution and physical injuries.

#### **2.2.2 Policy objectives:-**

The objectives of the company as per schedule VII of the companies Act, 2013 are as follows:

- Eradicating hunger, poverty, and malnutrition, promoting preventive health care and sanitation and making available safe drinking water.
- Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently abled and livelihood enhancement projects.



- Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air, and water.
- Contribution to the prime minister's national relief fund or any other fund set up by the central government for socio – economic development and relief and welfare of the scheduled castes, the scheduled tribes, other backward classes, minorities, and women.

## CHAPTER 3: ABOUT THE WORK DONE/PROJECTS

### 3.1 Work Done

The audit has covered the requirements of Electrical safety & energy conservation for the following:

1. Substation equipment i.e. isolator, breaker panels, transformers, PMCC, lighting distribution boards wherever applicable.
2. Flame proof equipment with respect to flame proof characteristics, cable glanding and terminations at dispersing units.
3. Flame proof and non flame proof motors.
4. Flame proof lighting fixtures, junction boxes and distribution boards, etc.
5. Earthing system and hardware used, continuity test.
6. DG sets and accessories wherever applicable
7. Lighting poles.
8. Electrical equipment used in the administrative building and other amenity blocks.
9. Environmental protection provided to the equipment.
10. Capacitors and panels for improvement of the power factor wherever applicable.
11. Any other equipment.
12. Load balancing on all three phases of supply.
13. Scope for energy saving.
14. Evaluation of electrical safety for retail equipments at hazardous zones and suggesting ways of rectification.
15. Specific attention also to be paid on the following points:

Cabling distribution to be studied and checked for healthiness of the cable.  
Cable layout is to be prepared. Insulation resistance test is to be carried out for all the cables to ascertain the healthiness of the cable.

The earthing for all the equipments and loading/unloading points to be

checked and reported along with suggestions for proper earthing for all the equipments/points.

Separate earthing pits are required for Automation, Electrical equipments and dispensing units, Loading/unloading points. The suggestions to be brought out in the reports.

The requirement of servo stabilizer to be recommended for meeting the load of dispensing units, canopy light and automation system.

16. Check whether adequate illumination is provided for all the working space around service equipment, switchboards and motor control centers installed indoor/outdoor.
17. Budgetary estimates for any major work required to be done subsequent to the audit.
18. Single line diagram for electrical layout and earthing layout for the respective Retail Outlets.
19. Maintenance schedule specific to the retail outlet to be prepared.

### **3.2 Execution of the Assignment - Electrical Safety audit of Retail Outlets**

In order to achieve the said objectives and perform, the assignment teams of consulting engineers has been deployed to carry out the required observations, tests and checks the unloading points at dispensing unit. It includes data collection, measurement of resistance offered by earth grid at various earth pits, checking of continuity, check for adequacy of earth pits to minimize the hazard potential, insulation resistance of cables, checking electrical equipments like lighting system, motors, button switches for their flame proof nature and check the cable glands for their effectiveness.

In order to make the audit systematic and methodical, based on scope of work, OISD guidelines, PET & Indian Electricity Rules, a detail checklist and formats for recording measurements has been developed and used during the audit.



Outcome of the Assignment, Findings & Recommendations

- Outcome of the Electrical Safety Audit has resulted in:
  1. Thorough examination of electrical systems from safety point of view as per scope of the work in Chapter 2
  2. Recommendations to improve electrical systems from safety point in Chapter 2
  3. Computation of Specific Energy Consumption in Chapter 2
  4. Recommendations for Energy Saving in Chapter 2

### 3.3 Approach for the Audit

Timely inspection & preventive maintenance of electrical equipments to avoid formation of ignition source due to electrical faults is a better practice; which is being followed in petroleum industry as per OISD recommendations. To find out possible electrical faults in the system, two types of inspections have been carried out at the Retail Outlet. On-stream inspection and Shutdown inspection were carried out. On stream inspection facilitates to find out any abnormal noises, vibrations in motors, pumps and shut down inspection facilitates the measurement of insulation resistance of electrical equipments, check earthing connections of equipment and body etc.

An Insulation Tester (Megger), which measures the insulation resistance of cables in Mega Ohm (MW), has been used to find out the insulation condition of various cables laid at the retail Outlet. Earthing and connection with Earth pit of all equipment's, utilities and tankshave been checked. The resistance offered for leakage current, earth fault current and lightning surges at the earth pits have been measured by using Earth Tester in Ohm (W).

### **3.4 Area Wise Analysis for Electrical Hazards**

Area wise analysis for identification and evaluation of electrical hazards at the Retail Outlet has been focused upon Electrical Mains Panel, Dispensing Units, Truck Unloading Point, DG Set & Accessories, Administrative Block, Lighting system, Air Compressors, Lighting, High Mast Towers & Lighting Poles, Protection from Lightening and any Other Equipment used at the Retail Outlet. Based on scope of work and objectives of the Electrical Safety Audit a check list has been prepared for thorough examination of the existing system from Electrical Safety point of view



Fig:- 1 Electrical Panel





Fig:- 1 Electrical Panel



Fig2 :- Busbar

A busbar is a metallic bar in a switchgear panel used to carry electric power from incoming feeders and distributes to the outgoing feeders. In simple terms, busbar is a electrical junction where incoming and outgoing currents exchange

Electrical Busbar consists the number of lines electrically, which are operating at the same voltage and frequencies. Generally, copper or aluminum conducting material is used in the construction of bus bars.

### 3.5 Busbar Specification as per Current Rating.

Table 1: Aluminium Busbar Specification.

Busbar Size (Al)	Sleeve Size	Current rating
25/6 mm	42 mm	150 A
20/10 mm	45 mm	200 A
25/10 mm	50 mm	250 A
30/10 mm	55 mm	300 A
40/6 mm	57 mm	240 A
40/10 mm	65 mm	400 A
50/6 mm	67 mm	300 A
50/10 mm	75 mm	500 A
60/10 mm	85 mm	600 A
75/10 mm	100 mm	750 A
80/10 mm	105 mm	800 A
100/10 mm	125 mm	1000 A
125/10 mm	140 mm	1250 A
150/10 mm	175 mm	1500 A
200/10 mm	225 mm	2000 A

**Table2 : Copper Busbar Specification.**

<b>Busbar Size (Cu.)</b>	<b>Sleeve Size</b>	<b>Current Rating</b>
20/3 mm	42 mm	120 A
25/6 mm	42 mm	300 A
25/10 mm	50 mm	500 A
30/10 mm	55 mm	600 A
40/6 mm	57 mm	480 A
40/10 mm	65 mm	800 A
50/6 mm	67 mm	600 A
50/10 mm	75 mm	1000 A
60/10 mm	85 mm	1200 A
75/10 mm	100 mm	1500A
80/10 mm	105 mm	1600 A
100/10 mm	125 mm	2000 A
125/10 mm	140 mm	2500 A
150/10 mm	175 mm	3000 A
200/10 mm	225 mm	4000 A





Fig 3:- Clamp Meter

**3.5 To measure current using a clamp-on ammeter, the following procedure is applied:**

Determine if AC or DC current is to be measured.

Select the ammeter required to measure the circuit current (AC or DC). If both AC and DC measurements are required, select an ammeter that can measure both AC and DC.

Determine if the ammeter range is high enough to measure the maximum current that may exist in the test circuit. If the ammeter range is not high enough, select an accessory that has a high enough current rating, or select an ammeter with a higher range. If the ammeter includes fused current terminals, check to ensure that the ammeter fuses are good.

Set the function switch to the proper current setting (600 A, 200 A, 10 A, 400 mA, etc.). If there is more than one current position or if the circuit current is unknown, select a setting greater than the highest possible circuit current.

Open the jaws by pressing against the trigger.

Enclose one conductor in the jaws. Ensure that the jaws are completely closed before taking readings. Care should be taken to ensure that the meter does not pick up stray magnetic fields. Whenever possible, conductors under test should be separated from other surrounding conductors by a few inches. If this is not possible, several readings should be taken at different locations along the same conductor.

Read the current measurement displayed.

If required, plug the clamp-on current probe accessory into the DMM. The black test lead of the clamp-on current probe accessory is plugged into the common jack. The red test lead is plugged into the mA jack for current measurement accessories that produce a current output. The red test lead is plugged into the voltage (V) jack for current measurement accessories that produce a voltage output. The current measurement accessories that produce a current output are designed to measure AC only and deliver 1 mA to the DMM for every 1 A of measured current (1 mA/A). Current accessories that produce a voltage output are designed to measure AC or DC and deliver 1 mV to the DMM for every 1 A of measured current (1 mV/A).

#### Voltage and resistance measurement

Perform the following steps to measure voltage using a clamp meter:

- Use the rotary selector to set the clamp meter to AC/DC voltage or  $\Omega$  function.
- Plug the test probes into the clamp meter. Connect the black probe to the COM jack and the red probe to the V  $\Omega$  jack.
- Select the range for measurement.
- Touch the probe tips on the conductor and note the voltage/resistance reading.

### Current Measurement

Load Details	1PHASE/3PHASE	Current (Ampere) R-Phase	Current (Ampere) Y-Phase	Current (Ampere) B-Phase
1. All 1 & 3 Ph loads ON, but all lights OFF		11.28	10.42	6.03
2. All 1 & 3 Ph loads OFF, but all lights ON		1.29	4.36	4.18
3. All 1 & 3 Ph loads ON, but all lights ON		12.58	14.76	10.18

Observations	YES/ NO	Recommendation
1. Whether voltage level is within limits for R Y B (Phase-Phase)	YES	No Recommendation
2. Whether voltage level is within limits for R Y B (Phase-Neutral)	YES	No Recommendation
3. Whether earth to neutral voltage level is within limits.	YES	No Recommendation

### Voltage Measurement

THREE PHASE RY	THREE PHASE YB	THREE PHASE BR	SINGLE PHASE RN	SINGLE PHASE YN	SINGLE PHASE BN	Earth to Neutral Voltage (EN)
415	420	426	230	229	230	0.34



### 3.6 Testing

After Completion of Wiring of panel before dispatch we must do different testing on a particular Panel.

The different types of Tests we must conduct are: -

- Voltage check between Phase and neutral, between RY, YB, RB.
- While there is NO, NC components checking of No & Nc using Multimeter.
- Equipment as per BOM and SLD have been used or not.
- Wiring should be Tight, there should be no loose wiring which may cause damage in future,
- Ferule should be put as per SLD.
- Metering Parameter should be set.
- Main Incomer Checking like ACB its proper charging & discharging or not.
- Indication Lamp should be illuminated as per their Indication, like ON, OFF, TRIP, START, STOP.
- MPCB trip function should be checked.
- Emergency Push Button and Auto Manual Selector Switch properly operating or not.
- Continuity Testing through Multimeter. This test mainly done in connector side where field wire, incoming wire will come.
- Megger Test for high insulation test, Analog or Digital.
- HV Test.
- No load Test.
- Full Load Test.

### 3.7 Cable Insulation Testing

#### Megger Test for Cables

Insulation resistance test for cable using megger is a continuity test, where the power of the circuit is off.

For example, if the cable is of the capacity of 5Amps, we can send current less than or equal to 5Amps and not more than that. If we send more than 5Amps this may cause the failure of the cable. Hence we do an insulation resistance test, to know how much resistance it can withhold. Insulation resistance is always measured in Mega Ohms. The device used to measure IR is known as Megger.

### 3.8 Insulation testing

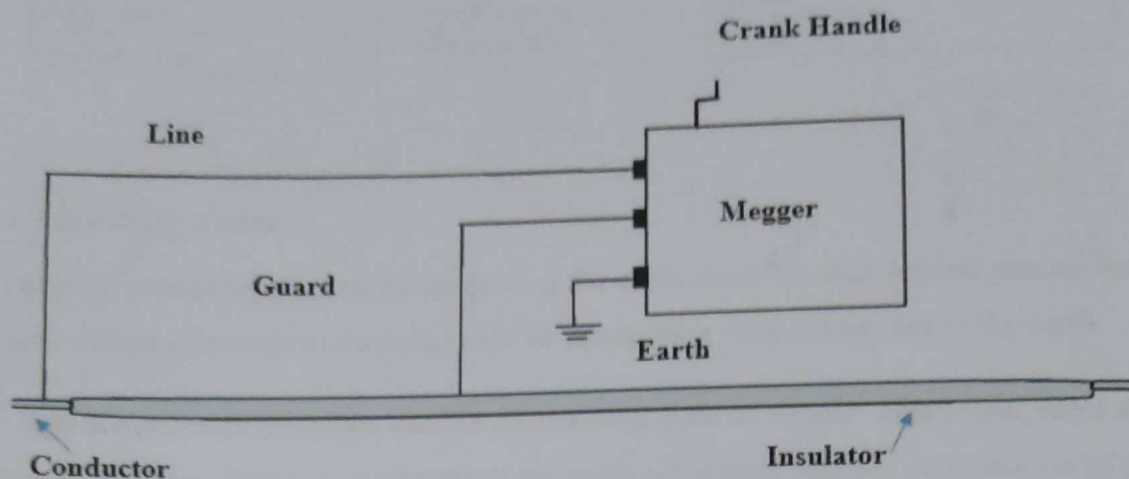


Fig 4 Megger testing

Megger testing for Insulation Checking.

Test Connection	Insulation (M ohm)	Current Rating (nA)	Acceptance Criteria
Red / Earth	> 200 Gohm	5.01 nA	≥ 20 Mohm  (Applied)
Yellow / Earth	> 200 Gohm	5.01 nA	
Blue / Earth	> 200 Gohm	5.01 nA	
Neutral / Earth	> 200 Gohm	5.01 nA	
Red / Neutral	> 200 Gohm	5.01 nA	
Yellow/Neutral	> 200 Gohm	5.01 nA	
Blue / Neutral	> 200 Gohm	5.01 nA	

Red / Yellow	> 200 Gohm	5.01 nA	Voltage = 1000V)
Red / Blue	> 200 Gohm	5.01 nA	
Yellow / Blue	> 200 Gohm	5.01 nA	

### 3.9 Earthing Tester

Earthing connections are made by driving the earth electrode into several places. An earth electrode consists of a metal pipe or conducting plate connected to the earth.

There are different materials used in the making, such as copper, aluminium, steel or galvanized iron. Various factors affect the earth resistance, like the composition of the soil, temperature, moisture content and depth of electrode. Earthing enables leakage current to flow away safely and is linked to an automatic cut off device (which ensures power supply). There are different components included in an earthing system like earth electrodes, main earth terminals or bars, earthing conductors, protective conductors, equipotential bonding conductors, electrically independent earth electrodes (for measurements), termination fittings, bonding, welding kits and other materials.



**Fig 5 Earth Pit**





Fig 6 Earthing Pit Testing

### 3.10 Certificate Of Earthing Pit Testing

**Earth Pit Testing Report**

MSHSD HAMARA PUMP - GADA KHERA, 16594700 20/03/2023

SIKAR RETAIL S.A., JAIPUR, NWZ

Contractor Name		Contractor License Number	Technician Name	Earth Tester Serial Number	Earth Tester Calibration Date	Earth Tester Calibration Due Date
speetech solutions		A29450	Yash Ramtekkar	372988	09/03/2023	09/09/2023

Name of Earth Pit	Location	Equipment Connected	Grid Earth (ohm)	Isolated Earth (ohm)	Test Date	Next Testing Date	Grid Remarks	Isolated Remarks
EP-1	Forecour 1 Area	Electrical Room, Dispensing Units, Sales Room, Office Equipments	NA	0.150	20/03/2023	16/09/2023		
EP-2	Forecour 1 Area	Automation	NA	0.560	20/03/2023	16/09/2023		
EP-3	TT Unloading Area	TT Decantation Point, Tanks	NA	0.170	20/03/2023	16/09/2023		
EP-4	Forecour 1 Area	DG Set, Body	NA	0.100	20/03/2023	16/09/2023		
EP-5	Forecour 1 Area	DG Set, Neutral	NA	0.340	20/03/2023	16/09/2023		

\_\_\_\_\_  
Signature

3/20/2023 9:28:50 PM

### 3.11 Lighting Arrester

Lightning arresters, or surge arresters, are a device that is installed to protect homes, structures, and power lines from dangerous surges of power. As you might expect, the primary defense is against lightning and the damage it can cause, however, residential surge arresters also provide defense against surges from other sources as well.

You've actually seen these before, whether you know it or not! Ever notice those cylindrical, ribbed bits on power lines? They're usually a foot or two long, sometimes longer. These are commercial arresters used to protect power lines from the dangers of lightning storms.



#### HOW DOES AN ARRESTER WORK?

You might be thinking about a lightning rod. And you wouldn't be too far off. But lightning rods are actually limited in comparison and have far less versatility in use.

Though the real difference is simple: An arrester is charged and “operates” when working, while the rod simply attracts and diverts incoming lightning.

Arresters are typically installed near critical appliances or points of entry, such as an electrical panel or near a generator. When potentially dangerous lightning strikes, the arrester activates and diverts the lightning to the ground, where it will disperse harmlessly. It’s important to note that an arrester does not stop lightning. It does limit and mitigate the electrical charge, but “diverts” is the accurate term, as it gives the lightning a safe route to travel rather than through your important electrical devices. You can think of it as a detour for dangerous electricity.

Arresters are a whole-home defense against lightning damage and help to drastically reduce the risks of damage. Something we can all be happy to have here in Tampa, where our storms can get extreme.



## CHAPTER 4: SWOC ANALYSIS

### Strengths:

Opportunity to work with a team of experienced professionals and learn from their expertise.

Chance to gain hands-on experience with wiring, designing, and troubleshooting of different panels.

Exposure to various industrial processes and technologies, which can help in developing a deeper understanding of the field.

Potential to build a professional network and establish connections with industry leaders.

### Weaknesses:

Limited time frame of only 3 months may not provide enough time to gain a comprehensive understanding of the field.

Possibility of encountering challenging and complex problems with limited resources.

May face difficulty in adjusting to the work culture and work environment in the initial days.

### Opportunities:

Potential to gain industry-specific skills and knowledge that can boost future career prospects.

Possibility of securing a job offer or recommendation letter from the company after the internship.

Chance to attend training sessions, workshops, and seminars that can help in enhancing technical and soft skills.

Option to explore and learn from different departments within the company, gaining a more comprehensive understanding of the overall industry

### Challenges:

May face stiff competition from other interns or employees within the department.

Need to balance work and learning while also demonstrating a proactive attitude and eagerness to take on new tasks.

May face difficulty in adapting to a new work culture or company policies.

Need to manage time effectively to achieve the goals and objectives set out for the internship.

## CHAPTER 5: LEARNING

Verification of statutory compliance with respect to Indian Electricity standards

- Physical inspection to identify electrical hazards (shock, fire, explosion, overloading) and to suggest electrical safety solutions
- Review of plant lightning protection system (need, adequacy, installation and maintenance)
- Review of static electricity hazards in plant operations (if applicable)
- Review of hazardous area classification and selection of flameproof electrical equipment in the plant, including maintenance aspects (if applicable)
- Review of electrical preventive maintenance system (including tests, documentation, history cards, etc).
- Review of electrical accidents and near misses in the plant to identify root causes
- Review of electrical systems & procedures (work permits, interlocks, lockout tags, etc).
- Review of the importance given to electrical safety in the company safety policy, safety committee, continuous electrical risk identification, etc.
- Assessing the integrity of insulation of cables by carrying out insulation resistance tests on a sample basis



- Review of the earthing system (installation & maintenance aspects), including sample earth resistance tests
- To identify areas of overloading by carrying out load current measurements and compare against cable current carrying capacity calculation

**FIELD PROJECT REPORT**

**on**

**“Technogrip Industries Pvt.Ltd”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

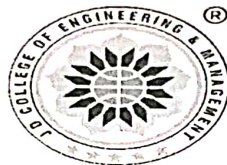
**Electrical Engineering**

**Submitted by:**

**Roll no. 51 to 66**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



Education to Eternity

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**(An Autonomous Institute, with NAAC "A" Grade)**

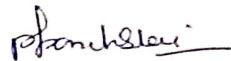
**Affiliated to DBATU ,Lonere**

**Year 2019-20**


### CERTIFICATE

This is to certify that the filed visit report on, "Technogrip Industries Pvt.Ltd" in the subject Electrical Engineering in the faculty of Science and Technology submitted by following students to DRATU, Lameche for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
51	SAMIKSHA ANANDIRAO THAWARI	67	SIRAJ RAJENDRA BHUYAR
52	SAMIKSHA GYANCHANDLIKLEY	68	SWAPNIL NARAYANCHHURAGATE
53	SANJAY GOVIND JADHAV	69	SWAPNIL PANDHARI DANGARE
54	SANKU SHANATRAM DESHMUKH	70	SWATI ARVIND PRAJAPTI
55	SANKU TRAYINDRA SHYAMKUL	71	TILESH SHIVCHARN LILHARE
56	SANKU SURESH THAKRE	72	VISHAKHA DILIP INDURKAR
57	SAPNA BABAN DUPARE	73	YOGESH HEMRAJ PRADHAN
58	SARANG GANESH GATE		
59	SAYALI VIJAY GAJBHIYE		
60	SHARVARI SHILWAN DOKE		
61	SHRADDHA GANESH PATLE		
62	SHUBHAM BHAURAO BAWANE		
63	SHUBHAM MORESHWAR DONGARWAR		
64	SONAM SUKHDEO KAMBLE		
65	SRUSHTI DEEPAK DHONE		
66	SUBHASH MOHAN YADAV		

  
**Prof. P.P. Panchbhai**  
Internship Coordinator, EE

Forwarded to:

  
**Dr. S.R. Vaishnav**  
Head of Department  
Electrical Engineering

Date: 21/01/2020



## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. Sahil Sinha**, **Technogrip Industries Pvt.Ltd** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

## CHAPTER 1: EXECUTIVE SUMMARY

**Technogrip Industries Private Limited** has a very good market share in the state of Maharashtra and other state. technogrip company makes vehicle parts of Mahindra. Almost all Mahindra vehicles are manufactured here.

The company is offering good services, which is reflected on the satisfaction of the customer. Majority of the customer are satisfied with the design of the vehicle and company is providing better facilities compared with other Global brands.

customer satisfaction is been given top priority in today's competitive world. In view of this, a detailed study of customer preferences, levels of satisfaction and their complaints and suggestions was undertaken.

the 3-months summer internship program at jd college of engineering and management is a vital part of the 4-year b.tech course.

since majority of the students come without any prior work experience, the summer internship adds worth to their cvs by giving each student immense learning.

at jd college of engineering and management, a student can bag an internship through various means since the institute gives us ample opportunities to interact with industry experts.

this is an attempt to know how the theories can be applied to practical situation. as student of b.tech it is a part of study to undergo some project at a good institute or organization. so for this purpose I got an internship opportunity to pursue internship at jd college of engineering and management, Nagpur.

i have learned many points and skills by working under the my supervisor. as i working in technogrip industries, it was quite good experience and i have learned many technical terms there and many techniques for professional life.

internship is an on-the-job training programmed offered to students to balance the gap between class room theories and industry expectations.

it is an on-field training programmed, which may last from 2 weeks to 3 months period. during the internship period, the candidate may be paid or not paid with monetary benefits for the services rendered by him, but definitely compensated with work experience and real-life learning that benefits his career in the long run.

internship is a great opportunity even to employers to recognize the talents in the market, as in the competitive environment and high rate of unemployment, finding a right person + for a right job has become a difficult task. this indirectly makes internship programmed effective as the employer can see a candidate's potential and dedication towards his work and his skills, strengths, weakness, etc., throughout the internship period.

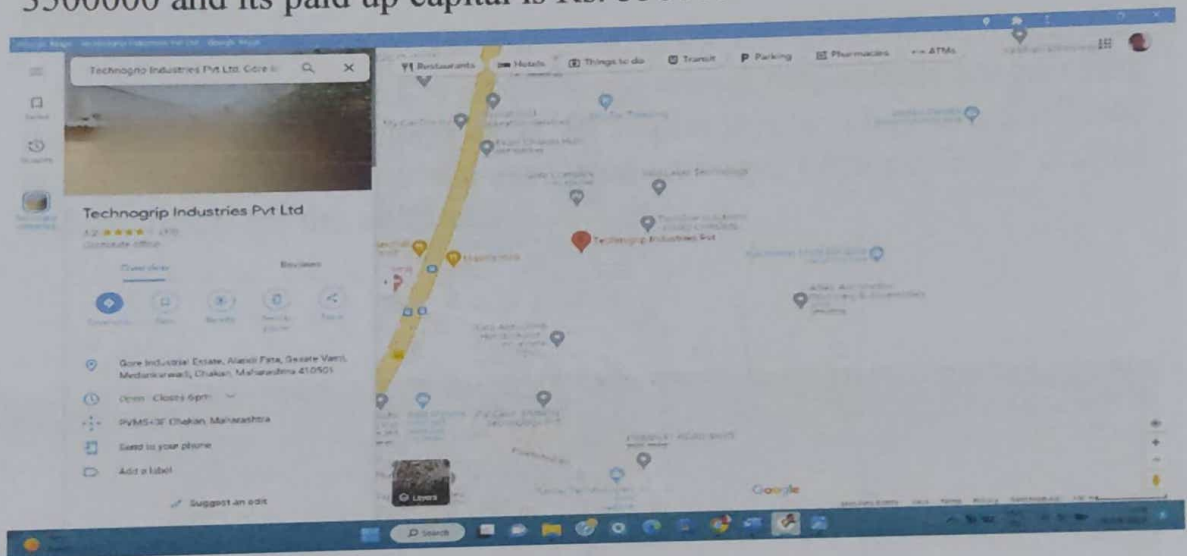
an employer can encourage the right and eligible candidates with pre-placement offer which will help his organization to hire a suitable candidate who can contribute to the organization well.



## CHAPTER 2 : ABOUT THE FIRM

Technogrip industries private limited is a private company, which cin number is **u74999pn2019ptc183324**, was incorporated 4 year(s) 0 month(s) 16 day(s) ago on dated 04-apr-2019 . Technogrip industries private limited is classified as non-government and is registered at registrar of companies located in roc-pune.

As regarding the financial status on the time of registration of technogrip industries private limited company its authorized share capital is Rs. 3500000 and its paid up capital is Rs. 3500000.



Technogrip industries private limited is an subcontract manufacturing company located in Chakan, pune. Technogrip industries operates from a 28,000 sq.ft.

Manufacturing facility making use of a wide range of the very latest machining cells including multi pallet horizontal milling, multi axis mill-turn machining, robotic and bar fed lathes through to swiss style sliding head lathes to provide a flexible, competitive and reliable production solution.

Two directors are associated with the organization. Ganesh bhausaheb londhe and hemant sudam jagdale are presently associated as directors.

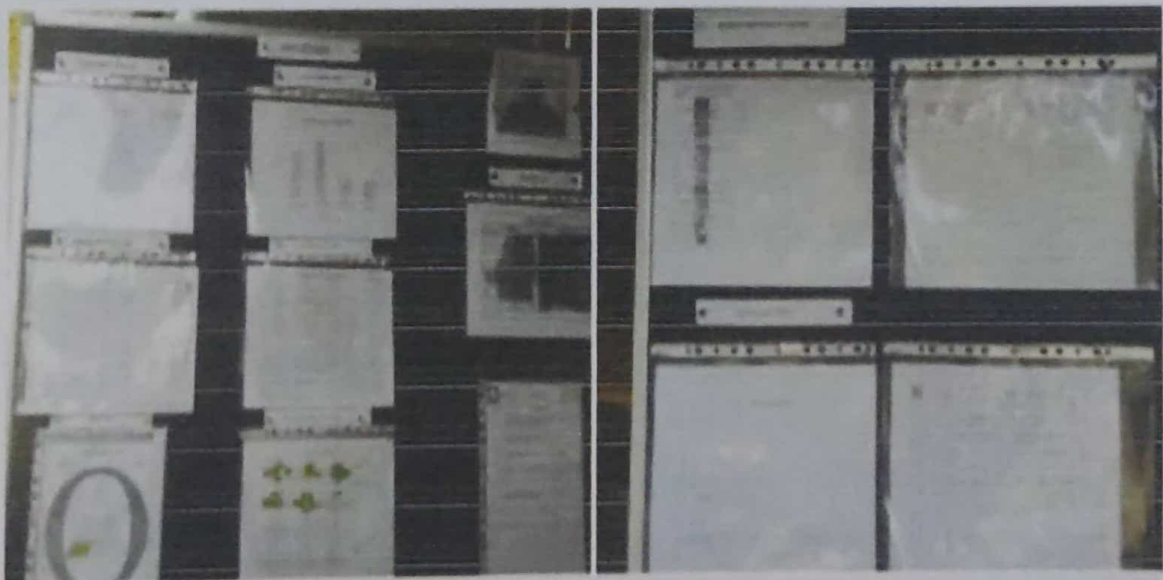
Its registered address is b-9, sai Gaurav society, Ekta Nagar, Chakan, taluka-khed, pune pune (MH 410502 in).

### CHAPTER 3: ABOUT THE WORK DONE/PROJECTS

I have been trained in the company for the 15 days. After my training was over, I was given a job in quality department. My senior and my supervisor have told me everything about my work.

Working in the quality department is not an easy job at all, it is a very responsible job. you have to be alert all the time. the standard of the company has to be maintained. When you make products of a renowned company like Mahindra and Mahindra, you have to keep the quality standard high.

A Quality Inspector is a professional who is responsible for ensuring that manufactured products meet all requirements. They use tools and company guidelines to make sure products have been perfectly crafted and are ready for the consumer.



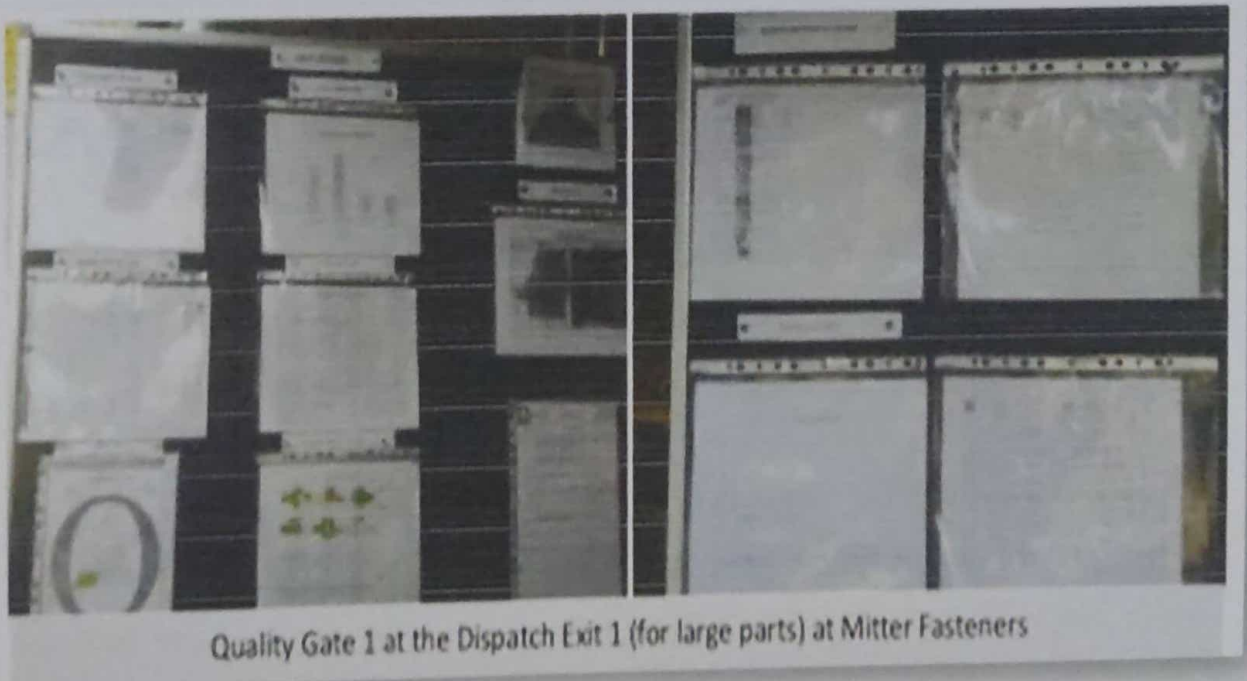
Quality Gate 1 at the Dispatch Exit 1 (for large parts) at Mitter Fasteners

### CHAPTER 3: ABOUT THE WORK DONE/PROJECTS

I have been trained in the company for the 15 days. After my training was over, I was given a job in quality department. My senior and my supervisor have told me everything about my work.

Working in the quality department is not an easy job at all, it is a very responsible job. you have to be alert all the time. the standard of the company has to be maintained. When you make products of a renowned company like Mahindra and Mahindra, you have to keep the quality standard high.

A Quality Inspector is a professional who is responsible for ensuring that manufactured products meet all requirements. They use tools and company guidelines to make sure products have been perfectly crafted and are ready for the consumer.





A quality inspector monitors the quality of incoming and outgoing products or materials for a company. Also known as quality control inspector, they are tasked with conducting tests, analyzing measurements, and overseeing production processes. They work in assembly lines or production departments.



QUALITY GATE NO.2

### **Quality Control Specialist Duties and Responsibilities: -**

- 1) Identify Product Defects.
- 2) Support Process Improvements.
- 3) Make Necessary Repairs.
- 4) Recommend Adjustments To The Assembly Or Production Process.
- 5) Inspect, Test, Or Measure Materials.
- 6) Measure Products With Calipers, Gauges, Or Micrometers.
- 7) Disassemble Product Parts To Inspect Them Individually.
- 8) Write Reports To Document Deficiencies And Errors Of Products.
- 9) Reject All Products And Materials That Fail To Meet Quality Expectations.
- 10) Resolve Quality-related Issues In A Timely Manner.

**Qualifications for Quality Control Inspector:-**

- 1) Bachelor's degree in a related field preferred.
- 2) An eye for detail, to catch defects.
- 3) Critical thinking skills, to help work through customer problems and production issues.
- 4) Proficient in computer word processing and Microsoft Office applications.
- 5) Good knowledge about industry products and processes.
- 6) Excellent oral and communication skills.
- 7) Excellent presentation and reporting skills.
- 8) Good team player who can work efficiently.

## **DIFFERENTS DEPARTMENTS OF TECHNOGRIP INDUSTRIES**

The TIPL group has its own structure, organization and internal regulations. TIPL is organized into seven departments. We can summarize the missions of each department as follows:

### **Quality Department (QM)**

Qualified as an observer and detector of quality anomalies, ensures continuous improvement of the company within the framework of total quality.

### **Administrative and Financial Department (AF)**

Enables the financial and accounting functions of the company, to develop and implement financial procedures and management control that affect the financial health of the company.

### **Computer Department (IT)**

This department is responsible for analyzing, designing, implementing, operating and administering the company's computer and technological systems.

### **Technical Department (PTS)**

This department, made up of: Process, maintenance and facilities, is responsible for ensuring the proper functioning of the machines.

### **Production department (PPR)**

The main mission of this department is to carry out production programs while ensuring good product quality by respecting the deadlines set beforehand and by optimizing performance to increase production capacity.



### **Logistics Department (LOG)**

Manages the sourcing, receiving, shipping and storage of raw material and must ensure delivery of the finished product with the minimum possible load.

### **Planning Department (PPE)**

This work is mainly focused on the technical documentation, the list of components, the operating mode or the working method in the area with the aim of achieving the following objectives:

- Develop production processes
- Analyze and translate customer changes
- Evaluate feasibility and implement customer / internal changes.
- Optimize costs / product development time.

## 5W2H ANALYSIS

The 5W2H method makes it possible to have on all the dimensions of the problem, elementary information sufficient to identify its essential aspects. She adopts a constructive critical analysis approach based on systematic questioning.

- What? What is the nature of the problem?
- Who? Who is affected by the problem? Who suffers it?
- Where? Where does the problem appear? On which machine or on which workstation is it detected?
- When? When does the problem start?
- Why? Why do we have to solve the problem?
- How? 'Or' What? How does the problem happen? What material or procedure are affected?
- How much? How much money?

### 5W2H ANALYSIS TABLES

<b>What?</b>	Waste of time and money in manual storage operation.
<b>Who?</b>	The TIPL factory in general.
<b>Where?</b>	Storage area in TIPL.
<b>When?</b>	It depends on the worker.
<b>Why?</b>	Each minute gained we will have more boxes to store.
<b>Time</b>	costs money.
<b>How?</b>	Stopping or delay in the storage operation.
<b>How much?</b>	Workers' salary payment.

*Safety Measures Taken In The Technogrip Industries Private Limited*

**Safety Helmets: -**

Safety helmets are designed to provide complete protection to the workers from strong head impacts, electric injuries and injury penetration, which can be caused by falling of heavy objects. In **TIPL** it is made compulsory to use helmet to protect in case of any accident.

**Safety Goggles: -**

Safety goggles protect the eyes from flying debris, dust, smoke and corrosive chemicals following accidents or equipment failure.

**Safety Gloves:-**

Gloves help protect you when directly handling potentially infectious materials or contaminated surfaces.

**Safety Gowns:-**

Gowns help protect you from the contamination of clothing with potentially infectious material.

**Masks:-**

Surgical masks help protect your nose and mouth from splattered of body fluids, respirators filter the air before you inhale it.

**Earplug:-**

An earplug is a device to protect the ears from loud noises, intrusion of water, dust or excessive wind.

**Safety Shoes: -**

The purpose of safety shoes is to protect feet against a wide range of injuries including cuts, burns, punctures and other workplace injuries. In **TIPL** it is also made compulsory to use shoes to protect in case of any accident.



### **Rubber Mat:-**

It is placed on floor in control room to protect against electric shock.

Rubber matting is mostly used as essential safety flooring equipment to increase comfort underfoot, provide relief from fatigue, prevent slipping and absorb impact. Rubber matting can be used in a number of different locations and applications, from factory matting to stable flooring.

### **Fire Extinguishers: -**

There are four classes of fire extinguishers – A, B, C and D – and each class can put out a different type of fire.

- i) Water.
- ii) CO<sub>2</sub> fire extinguisher.
- iii) Dry Powder fire extinguisher.
- iv) Foam fire extinguisher.

<b>Class of Fire</b>	<b>Description</b>
Class A Fires	Fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.
Class B Fires	Fires in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases.
Class C Fires	Fires that involve energized electrical equipment.
Class D Fires	Fires in combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium.
Class K Fires	Fires in cooking appliances that involve combustible cooking media (vegetable or animal oils and fats).

According to the National Fire Protection Agency (NFPA), the five most common causes of fires include: -

- 1) cooking
- 2) heating
- 3) electrical Spark
- 4) smoking
- 5) candles.

**PASS**

To use a fire extinguisher, follow the acronym **PASS**

## HOW TO USE A FIRE EXTINGUISHER



**P**ULL THE PIN



**A**IM AT THE BASE OF FIRE



**S**QUEEZE THE LEVER



**S**WEEP SIDE TO SIDE



## **PRODUCT OF TECHNOGRIP INDUSTRIES**

### **MAHINDRA BOLERO**

Mahindra Bolero is one of the most successful and popular utility vehicles of the Mahindra and Mahindra Group. The car is robust in appearance and it has been elegantly designed, keeping in mind the conditions of the Indian roads. Mahindra Bolero is also among the best fuel- efficient cars of India as the manufacturer has equipped it with a 2500 cc diesel engine with 5 speed transmission.

### **MAHINDRA XUV300**

The Mahindra XUV 300 is a subcompact SUV product. It is based on the X100 platform of sang young and has been sold in Indian market since Feb 2019.

### **MAHINDRA SCORPIO**

Mahindra & Mahindra Limited launched Mahindra Scorpio as its first Sports Utility Vehicle in India in 2002.

This SUV has redefined the expectations for the design of SUVs with its sturdy looks and powerful performance, the sophisticated interior design adds to the further glory to the appearance.

### **MAHINDRA THAR**

Mahindra Thar is a compact, mid-sized, four-wheel drive, off-road Jeep CJ-like SUV launched in the Indian market in 2010. The Thar also comes with a seven seater option, though it can be converted into a two-seater.



### **MAHINDRA XUV500**

Mahindra XUV500 is a compact sport utility vehicle. Launched in 2011. 2.2L engine (Diesel), 6 speed both manual and auto. Mahindra XUV500 secured first place in the 2014 Desert Storm Rally. The car is clocked the fastest time in three sections of rally.

### **MAHINDRA KUV100 NXT**

Mahindra KUV100 NXT stands for Kool utility vehicle is a compact mini sport utility vehicle, 5 door hatchback, 1.2L engine comes both in petrol and diesel.

### **MAJOR PLAYERS IN INDIAN AUTOMOTIVE INDUSTRY.**



## PRODUCT PROFILE

MAHINDRA "SCORPIO"



MAHINDRA "BOLERO"



MAHINDRA "XYLO"



MAHINDRA "VERITO"



Mahindra Thar



Mahindra XUV 700



## SAFETY PRECAUTIONS: -

In training duration, we came to know that Tata Power invests a large number of resources to reduce workplace accidents and ensure a safe working environment.

The company protects the interests of its employees by providing them with appropriate and up-to-date training and access to development programmers.

Notice Board Are Placed In Different Location At TIPL Campus





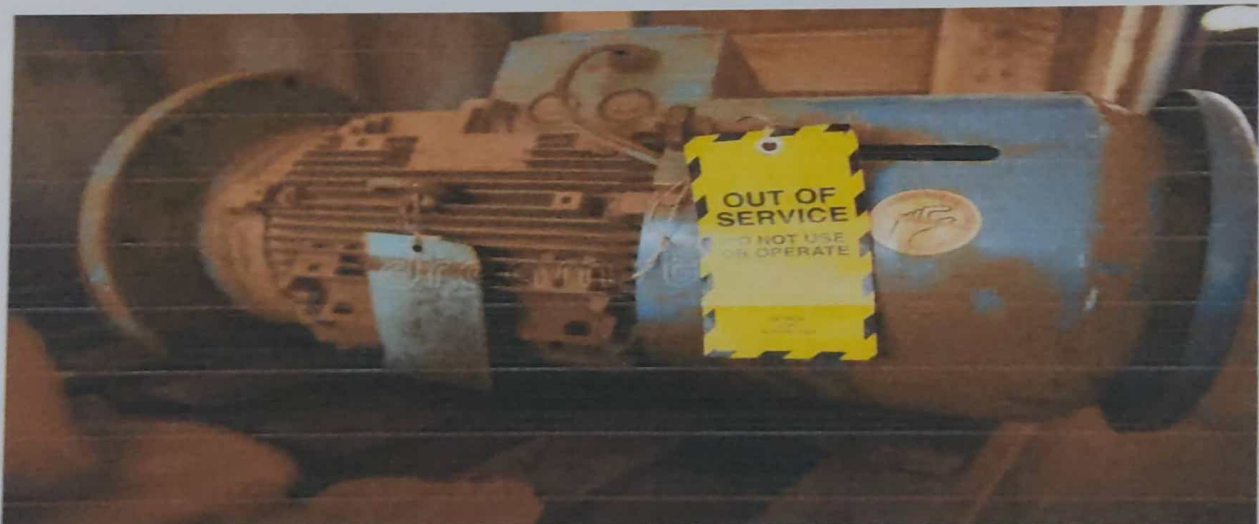
By adhering to world safety standards, promoting product and operational safety, encouraging the active participation of every employee.

Technogrip Industries has created a healthy work environment that complements its superior business performance.

## LOCK OUT / TAG OUT



Maintenance Tag



Placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that energy isolating device and equipment being controlled cannot be operated until lockout device is removed.

### Test And Maintenance Of Transformer: -

A transformer is a device that transfers electric energy from one alternating-current circuit to one or more other circuits, either increasing (stepping up) or reducing (stepping down) the voltage.



### Main causes of power transformer failure

- 1) Tap Changer (OLTC) Failure.
- 2) Bushing Failure.
- 3) Winding failure.
- 4) Cooling system failure.
- 5) Core failure.
- 6) Tank failure.





### **Transformer Testing:-**

- 1) Transformer winding resistance measurement.
- 2) Transformer ratio test.
- 3) Transformer vector group test.
- 4) Measurement of impedance voltage/short circuit impedance (principal tap) and load loss (Short circuit test).
- 5) Measurement of no-load loss and current (Open circuit test).
- 6) Measurement of insulation resistance. (meggering)
- 7) Dielectric tests of transformer.
- 8) Temperature rises test of transformer.
- 9) Tests on on-load tap-changer.
- 10) Vacuum tests on tank and radiators.

### **Transformer Maintenance: -**

#### **Quarterly: -**

- 1) Test the oil for dielectric strength.
- 2) Clean the bushings with dry and clean cloth.
- 3) Examine bushings for surface cracks and oil leakages.
- 4) Check connections for tightness and inspect for any discolorations of H.T. bushings, conductors/clamps which may be due to heating. the same is to be attended.
- 5) Check for any gas collection in Buchholz relay and if any, gas is to be collected and tested to investigate the type of fault or defect.
- 6) Clean glass cover of Buchholz relay.
- 7) Check silica gel, if crystals have turned pink-change with reactivated silica gel.
- 8) Check oil level indicator carefully. if float operated mechanism is provided, check the float and mechanism for correct indication of oil level in conservator, check and try operation of alarm.
- 9) Check diaphragm of explosion vent for any possible damage or oil leakage.



### **Transformer Testing:-**

- 1) Transformer winding resistance measurement.
- 2) Transformer ratio test.
- 3) Transformer vector group test.
- 4) Measurement of impedance voltage/short circuit impedance (principal tap) and load loss (Short circuit test).
- 5) Measurement of no-load loss and current (Open circuit test).
- 6) Measurement of insulation resistance. (meggering)
- 7) Dielectric tests of transformer.
- 8) Temperature rises test of transformer.
- 9) Tests on on-load tap-changer.
- 10) Vacuum tests on tank and radiators.

### **Transformer Maintenance: -**

#### **Quarterly: -**

- 1) Test the oil for dielectric strength.
- 2) Clean the bushings with dry and clean cloth.
- 3) Examine bushings for surface cracks and oil leakages.
- 4) Check connections for tightness and inspect for any discolorations of H.T. bushings, conductors/clamps which may be due to heating. the same is to be attended.
- 5) Check for any gas collection in Buchholz relay and if any, gas is to be collected and tested to investigate the type of fault or defect.
- 6) Clean glass cover of Buchholz relay.
- 7) Check silica gel, if crystals have turned pink-change with reactivated silica gel.
- 8) Check oil level indicator carefully. if float operated mechanism is provided, check the float and mechanism for correct indication of oil level in conservator, check and try operation of alarm.
- 9) Check diaphragm of explosion vent for any possible damage or oil leakage.

- 10) Clean cooling fan blades, fins, dampers etc. and try auto operation of cooling fans if possible.
- 11) Check and clean oil forced pump, motor and lubricate their bearings, test pump failure alarm.
- 12) Check transformer ground connection for tightness.
- 13) Megger test the transformer windings and records.

**Annual: -**

- 1) Check Buchholz relay connection and relay operation (lock out relay after dropping trip link for other equipment).
- 2) Check breathing line to breather is free and rectify any defect.
- 3) Check and test high oil temperature alarm.
- 4) Test of control cables.
- 5) Check operation of alarm and trip circuit for proper operation and indications.
- 6) test fan motor individually and record, test fan motor failure alarm.

## Maintenance Of Electrical Motor

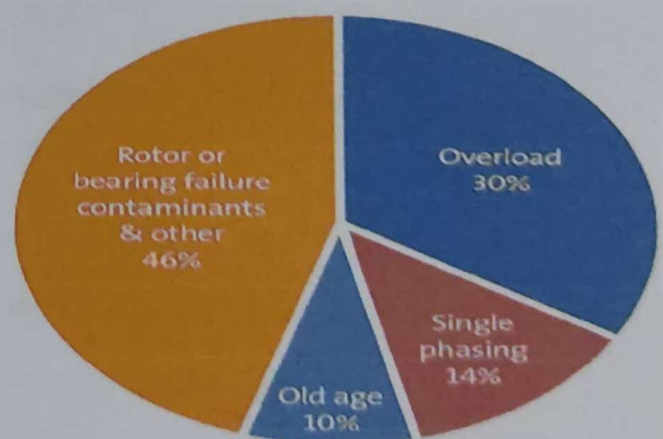
Motors need maintenance regularly in order to avoid failure and prolong their lifespan. Generally motor parts should be maintained and tested at least every 6 months. Only then is it possible to maintain a motor's life and its efficiency.



An electric motor is an electrical machine that converts electrical energy into mechanical energy.

### The main causes of fault in motor:-

- 1) Low insulation resistance.
- 2) Over-Current.
- 3) Overheating.
- 4) Vibrations.
- 5) Moisture.
- 6) Dirt.
- 7) Lack of maintenance.





**Daily Maintenance: -**

- 1) Clean motor of any dust or oil.
- 2) Check oil rings turn with shaft.
- 3) Check oil level in bearings.
- 4) Visually check for oil and grease from bearings.
- 5) Technician to examine the starter switch, fuses and tighten loose connections.
- 6) Note temperature of bearings.

**Monthly Maintenance: -**

- 1) Clean motor
- 2) Blowing out dirt from windings.
- 3) Wipe commutator and brushes.
- 4) Visually inspect commutator clamping ring.
- 5) Check and replace brushes that are more than half worn.
- 6) Examine brush holders, and clean them if dirty.

**Half-Year Maintenance**

- 1) Clean motor, blowing out dirt from windings, and wipe commutator and brushes.
- 2) Visually inspect commutator clamping ring.
- 3) Check and replace brushes that are more than half worn.
- 4) Examine brush holders, and clean them if dirty.
- 5) Check brush pressure and position.
- 6) Remove, clean out, and replace oil in sleeve bearings.
- 7) Check grease in ball or roller bearings.
- 8) Check operating speed or speeds.
- 9) Technician to examine and tighten loose connections.

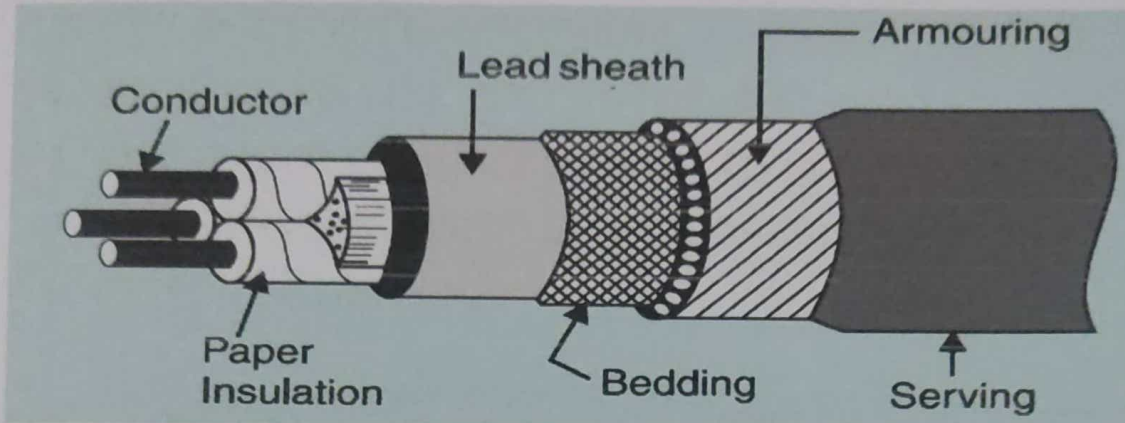
- 10) Test current input and compare it with normal.
- 11) Visually check drive, for smooth running, absence of vibration.
- 12) Check motor foot bolts.

**Annually Maintenance: -**

- 1) Remove and renew grease in ball or roller bearing.
- 2) Test insulation.
- 3) Check air gap.
- 4) Check oil.
- 5) Clean out magnetic dirt that may be attached to poles.
- 6) Check clearance between shaft and journal boxes of sleeve bearing motors.
- 7) Check the commutator for smoothness and slot damage.
- 8) Examine connections of commutator and armature coils.
- 9) Inspect armature bands.

## CABLES: -

In electrical and electronic systems, a conductor or group of conductors for transmitting electric power or telecommunication signals from one place to another.



A considerable amount of transmission and distribution of electrical energy, especially in urban areas is carried out by means of underground cables.

An electric cable has the purpose of transporting electrical energy from one point to another



JOINTING OF PILC CABLES at TIPL Workshop



The underground cables are rugged in construction and provide greater service reliability increased safety, better appearance trouble free service under a variety of environmental conditions.

### **Types Of Cables:-**

1. PVC (POLY-VINYL CHLORIDE)
2. XLPE (CROSS LINK POLY-ETHYLENE)
3. PILC (PAPER INSULATED LEAD COVER)
4. EPR (ETHYLENE PROPYLENE RUBBER)
5. PE (POLY-ETHYLENE)

### **Testing Of Cables:-**

1. Megger testing
2. Continuity Test (Phasing)
3. Serving Test
4. Preliminary Test
5. Murrey Test
6. H.T Slide wire bridge Test
7. Current direction Test
8. Open/Closed loop Test

### **Preventive Maintenance Of Cables**

- 1) Prevent any type of crushing or impact on cable covering that compromises its durability.
- 2) Ensure there are no run-overs and tension.
- 3) Consult a specialist on the right cable and wire use for a factory setup that may have unique requirements.

- 4) Prevent any form of twisting and kinking during the installation.
- 5) Always ensure that the cables and wires do not come in contact with any element (such as flame) that can damage them.

### **Follow The Recommendations**

- 1) They should be able to endure the mechanical strength that a certain installation will put on them.
- 2) Safety and the carrying capacity of cables and wires should not be overlooked.
- 3) Proper training should be given on proper cable and wire maintenance to the staff.

### **Proper Cable Adjustments**

- 1) Cable ends can be reversed if possible, to prevent only one end being exposed to harsh environments.
- 2) They should also be checked for any drop in voltage as that can affect the operating machines.
- 3) Proper tension must be maintained at all times.

### **Repairing**

- 1) Repair damaged cables immediately and always look for any visible damages to cables.
- 2) Remove all damaged parts of cables and replace them with spare cables if a temporary fix has been applied.
- 3) Maintain spare cables.

### **Record Keeping**

- 1) Installation date of cables and wires.
- 2) Noting down areas where breakdowns usually occur due to damaged cables and wires.

- 3) Noting down the underlying causes of cable failure in the past.
- 4) Preparing a preventive plan to identify and fix cable failures.
- 5) Procedures to remove and replace damaged cables and wires.
- 6) A plan for periodic analysis of cables and wires.



## CHAPTER 4: SWOC ANALYSIS

### Strengths: -

- My strength in the internship is I am a good team builder. I worked with my supervisor and the employee, we worked in a team, as a member of team, I am responsive in group discussion and giving my own opinions.
- Main strength is skilled manpower.
- Capability to be a good leader.
- Team management skills.

### Weaknesses:-

- My weaknesses during the internship were, I am not comfortable to work under pressure.
- I realized that, I am not able to do many things at the same time.
- Time management for personal, study and work life.
- I need to improve my English vocabulary.
- No solid work experience as a electrical engineer.

### Opportunities:-

- The opportunities that I have gained from this internship are, I am able to gain more experiences and knowledge, and also build a relationship with my colleagues and my teammates.
- There are great opportunities in TIPL to join as a trainee engineers.

### Challenges:-

- So much competition in present time.
- It is very difficult to work standing continuously for 12 or 16 hours, with a loud sound.
- There are uneducated employees in an organization, working with them is a challenge.
- If there will any union, it will cause problem for the any organization.

## CHAPTER 5: LEARNING

During twelve weeks of internship, I have accumulated various experiences and wider new knowledge through activities and tasks had been assigned to me.

My beloved supervisor, Mahesh sir, Jaidev sir, Patil sir encouraged me to do diverse task across the department. However, in this section, I am going to relate my experience with courses that I have taken in electrical engineering.

During my internship, I learned how to communicate and build relationships with the people I worked with. I learned how to introduce myself, talk about my interests, knowledge and skills with my teammates and supervisor, as well as how to ask questions and gain a better understanding of my work.

This process overall helped me develop my professional network and the importance of creating these connections.

The internship program was a great opportunity for me to interact with electrical machines and they operate. It gave me a better understanding about the process of manufacturing.

During my internship, I had a journal and took notes every day about new things I learned, feedback I was given by my supervisor, strengths and weaknesses I noticed, and things I wanted to research and learn more about. This helped me understand myself more and identify the areas that I needed to improve in.

Apply skills and knowledge learned in the classroom to practical planning.

**In Short, Some Of The Key Skills And Knowledge That I Learnt During The Internship Are As Follows: -**

- 1) Understood How To Show Respect To Employers And Customers.
- 2) I Am Now Able To Demonstrate Interpersonal Skills Better After The Internship.
- 3) Leading Skills Was Develop While Controlling The Customers In Rush Hour Especially Sunday And Friday That Was Rush Day For Bank.
- 4) Negotiating And Arriving At A Decision.
- 5) Working With Diversity/Diverse Populations.
- 6) Identifying, Understanding And Working With Professional Standards.
- 7) Acquiring And Evaluating Information.
- 8) Improving Problem-solving And Critical Thinking Skills.
- 9) The Need And Use Of Organizational Commitment And Job Involvement Is Learnt.
- 10) Improved Communicating And Convincing Skills After Having To Deal With Customers In Rush Hours And Difficult Situation.
- 11) Confidence Was Developed. As An Intern In Bank Facing With Rush Customer Boost Up The Confidence Level When We Need To Interact With Them Regarding Their Queries And Problems.



# **FIELD PROJECT REPORT**

**on**

**“CSTPS, Chandrapur”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

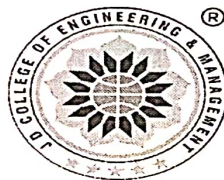
**Electrical Engineering**

**Submitted by:**

**Roll no. 21 to 40**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



Education to Eternity

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**(An Autonomous Institute, with NAAC "A" Grade)**

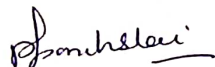
**Affiliated to DBATU ,Lonere**

**Year 2019-20**


### CERTIFICATE

This is to certify that the filed visit report on, "CSTPS, Chandrapur" in the subject **Electrical Engineering** in the faculty of Science and Technology submitted by following students to **DBATU, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
21	LOKESH BALUJI ZADE	37	SHAMAL RAJU MESHRAM
22	LOKESH DILIP AARIKAR	38	SHILPA LAXMICHAND MESHRAM
23	MANJEET KUMAR SARDARI LAL	39	SHREYA SANJAY RAMTEKE
24	MONIKA HARIDAS WAGHADE	40	SHREYASH RAJESH SONTAKKE
25	MRUNALI DIWAKAR BOMANWAR		
26	NIKHITA GAJANAN GADPAYLE		
27	PAWAN MORESHWAR TANGLE		
28	PAYAL MANGALADAS JAMBHULKAR		
29	PRAJKTA RAVINDRA PATIL		
30	PUJA SURESH NIKHADE		
31	ROHINI ANIL PACHARE		
32	RUSHIKESH GAJANANRAO WAGH		
33	SAHIL AJAY AJMANI		
34	SAMIKSHA PRABUDDHA WAGHMARE		
35	SAURABH PRASHANT LONARE		
36	SAURABH PURUSHOTTAMRAO JODH		

  
**Prof. P.P. Panchbhair**  
Internship Coordinator, EE

Forwarded to:

  
**Dr. S.R. Vaishnav**  
Head of Department  
Electrical Engineering

**Date: 28/01/2020**

## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. R.J.Gimekar**, **CSTPS, Chandrapur** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.



## CHAPTER 1: EXECUTIVE SUMMARY

After visiting this power station, I came to know about the practically generation process of electrical energy.

I understood the function of various components in thermal power station, there importance, there arrangements and precaution to be used for the safety in the power plants.

In our engineering we studied about the various components in theory, thus by visiting CSTPS we came to know about this components and their working practically.

This Internship to CSTPS Chandrapur was an exciting experience, since the hard work of MAHAGENCO and mutual cooperation of their staff and workers is really appreciable.

I would like to thank our staff members for arranging this quality internship.

The practical experience that we have gathered during the overview training of large thermal power plant having large capacity of 3340 MW for unit 1 to 9 in three weeks will be very useful as a stepping stone in building bright professional career in future life. It gave us large spectrum to utilize the theoretical knowledge and to put it into practice. The trouble shooting activities in operation and decision making in case of crisis made me more confident to work in the industrial atmosphere. Moreover, this overview training has also given a self-realization and hands on experience in developing the personality, interpersonal relationship with the professional executives, staffs and to develop the leadership ability in industry dealing with workers of all categories.

We would like to thank everybody who has been a part of this training.



## CHAPTER 2: ABOUT THE FIRM

- MAHAGENCO has the highest overall generation capacity and the highest thermal installed capacity amongst all the state power generation utilities in India. In terms of installed capacity, it is the second highest generation company after NTPC.
- MAHAGENCO having generation capacity of 11237 MW comprising 7980 MW thermal, 2585 MW hydel and 672 MW gas turbine; was established by government of Maharashtra under the central electricity act-2003 with the principal objective of engaging in the business of generation of electricity, & MAHAGENCO produces cheapest power for consumers in state.
- MAHAGENCO is committed to expanding the generation capacity to meet the ever-growing power supply need of Maharashtra. The company is implementing a huge capacity addition program.
- MAHAGENCO generates power for more than 1,50,00,000 end consumers in Maharashtra at economical and affordable rates.
- MAHAGENCO believes in quality management. All major thermal, hydel and gas turbine power stations have adopted the ISO 9001:2000 certification.
- MAHAGENCO is an eco-friendly power generating company and has received certification under ISO:14001 and ISO:18001 for its major power stations at Chandrapur, Koradi, Khaperkheda, Nasik, Parli and at Koyna and Uran power stations also.
- MAHAGENCO has a gross fixed asset base of Rs. 28346 crores (March 2014) with an annual turn over of about Rs. 16538 crores (March 2014).
- MAHAGENCO is powered by a dedicated and committed highly skilled work force of more than 15000.
- **Chandrapur Super Thermal Power Station** (often abbreviated as CSTPS) is a thermal power plant located in Chandrapur district in the Indian state of Maharashtra. The power plant is one of the coal based power plants of MAHAGENCO. The coal for the power plant is sourced from Durgapur and Padmapur Collieries of Western Coalfields Limited. The plant was officially inaugurated by the then Prime Minister Indira Gandhi on 8 October 1984. With the total capacity of 3340MW, the plant is largest power plant in the Maharashtra. It accounts to more than 25% of total Maharashtra needs. The plant gets water supply from Erai Dam when in normal conditions. In the summer of 2010 due to less water in Erai dam, the plant also got water supply from Chargaon Dam.



**Capacity:**

Stage	Unit Number	Installed capacity (MW)	Date of commissioning
1 <sup>st</sup>	1	210	1983 August
1 <sup>st</sup>	2	210	1984 July
1 <sup>st</sup>	3	210	1985 May
1 <sup>st</sup>	4	210	1986 March
2 <sup>nd</sup>	5	500	1991 March
2 <sup>nd</sup>	6	500	1992 March
2 <sup>nd</sup>	7	500	1997 October
3 <sup>rd</sup>	8	500	2015 May
3 <sup>rd</sup>	9	500	2016 March
Total		3340	

The Mahanirmiti or MAHAGENCO (Maharashtra State Power Generation Company Limited – (MSPGCL) formerly known as MSEB (Maharashtra State Electricity Board) is the major power generating company in the state of Maharashtra, Western India. With a total generation of 10,737 MW, it is the second largest power producing company in India. The power generated by MAHAGENCO is supplied to the State of Maharashtra. It was a part of Maharashtra State Electricity Board (MSEB) until 06th June 2005 MSEB is trifurcated in 3 companies as follows

- Mahanirmiti or MAHAGENCO (Maharashtra State Power Generation Company Limited MSPGCL)
- Mahapareshan or Mahatransco (Maharashtra State Electricity Transmission Company Limited (MSETCL)
- Mahavitaran or Mahadiscom (Maharashtra State Electricity Distribution Company Limited (MSEDCL)

With the total capacity of 3340MW, the plant is largest power plant in the Maharashtra and formerly second largest in 1997 in world. It accounts to more than 35% of total Maharashtra needs. The plant gets water supply from Erai Dam when in normal conditions. In the summer of 2010 due to less water in Erai, the plant also got water supply from Chargaon Dam. In thermal power station, steam driven turbine is a prime mover of electrical generator. When water is heated in boiler, turns into steam and spins a steam turbine which drives an electrical generator. After it passes through the turbine, the steam is condensed in a condenser and recycled to where it was heated; this is known as a Rankine cycle.



Following energy conversion steps are used in the thermal power station-

- Chemical energy of coal  
Heat energy of water due combustion of coal
- Kinetic energy of steam in nozzle  
Mechanical energy due to rotation of turbine
- Electrical energy developed in generator armature due to rotation

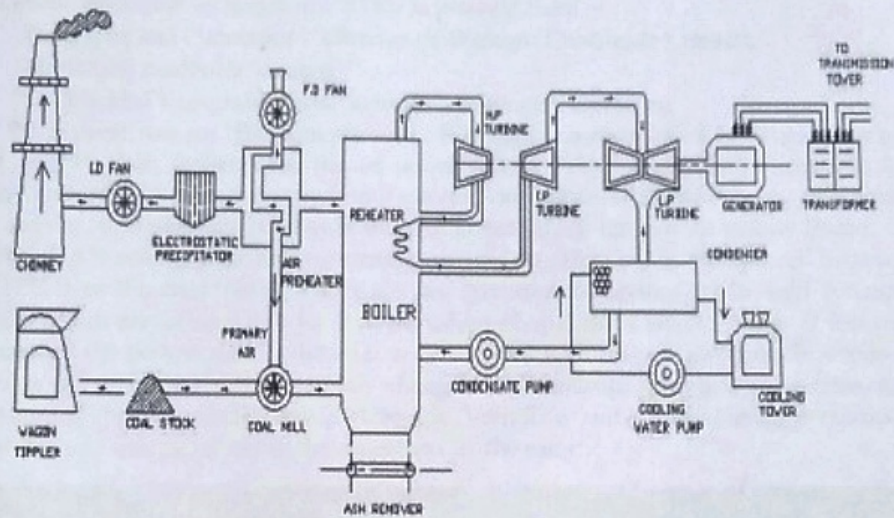


Fig 2.1: Diagram of Thermal Power Plant

## 2.1 WORKING OF THERMAL POWER PLANT

The thermal power station converts heat energy of coal into electrical energy. The coal handling plant supplies coal to the boiler. The ash formed in the boiler is disposed of by ash handling plant. Air is taken from atmosphere by induced or drought fans and thus air is heated in preheated before fed to the boiler. The flue gases pass through the dust collector, air preheated and economizer before being discharged to the atmosphere through chimney. The boiler vaporizes water into steam which is further heated in super heater and fed to the high pressure turbine. After expanding gear system the steam is heated again in the boiler and fed to the pressure turbine. The exhaust steam from low pressure turbine is condensed by condenser as shown in fig and condensate along with the makeup water is passed through economize before being fed to the boiler in this way electrical energy is produced by rotating turbine using steam which is coupled to the alternator of required rating.



## CHAPTER 3: ABOUT THE WORK DONE/PROJECTS

### 3.1 Coal Handling Plant (CHP)

Following is the function of the coal handling plant-

- Unloading of the coal received from coal mines.
- Carry coal to the bunker, & maintain bunker level.
- Storing of the coal in case of emergency.

Coal for operation of boiler in CSTPS is provide from –

- Durgapur and Padmapur Collieries of Western Coalfields Limited.
- Mahanadi coalfields limited.
- Coal is also impetrated from Indonesia and other countries.

From WCL mine, we get 'Bituminous coal'. It is dark brown to black in colour. It is of higher quality than lignite coal but of poorer quality than anthracite. Formation is usually the result of high pressure being exerted on lignite. It also called as soft coal. This contains high percentage of volatile substances which burnt with yellow flame.

4600 MT/DAY coal is used for sustainable generation .The coal is transported by train to CSTPS from the coal mines .There are two government sectors are in used for coal gov. coal mines are in used and for transportation of coal railways are in use .After the train reaches the power station the coal is get unload within a surtain/specific time (if the coal is not unloaded in time railway charges ' Dummurage Charges '(penalties) for it).The coal is comes from Balarsa ,Telangana ,Vani.The coal is stored in huge quantity in the plant you can say these is the outer part of the plant.

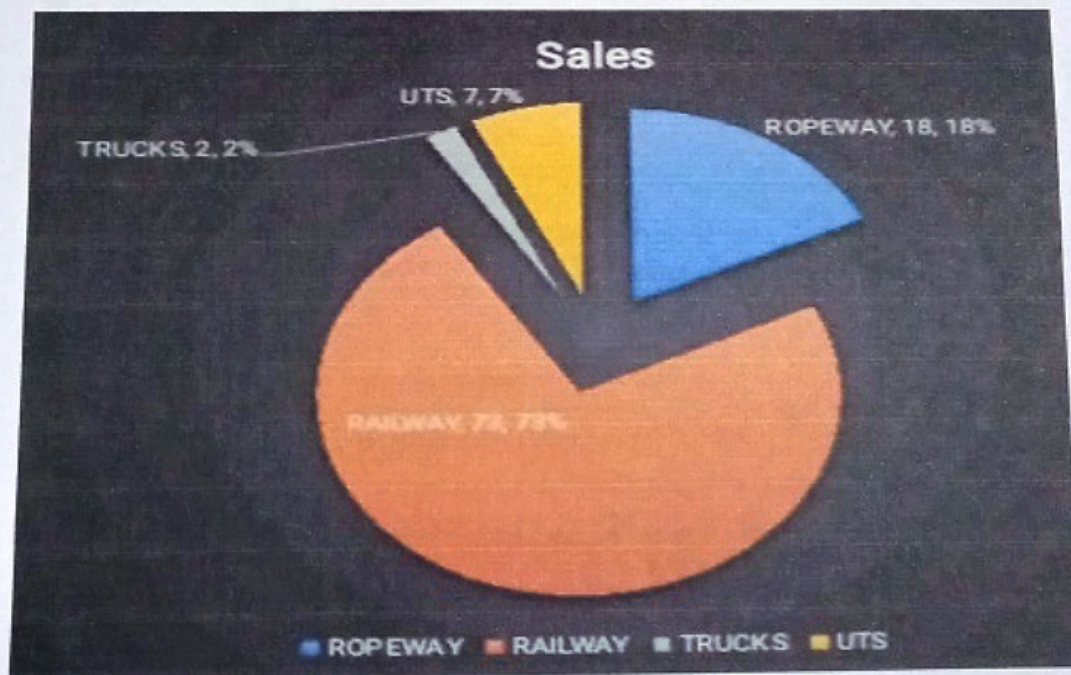


Fig 3.1: Pie Chart Coal Handling Plant



The huge amount of coal is usually supplied through railways. A railway siding line is taken into the power station and the coal is delivered in the storage yard. The coal is unloaded from the point of delivery by means of wagon tippler. It is rack and pinion type. The coal is taken from the unloading site to dead storage by belt conveyors. The belt deliver the coal to 0m level to the pent house and further moves to transfer point 8. The transfer points are used to transfer coal to the next belt. The belt elevates the coal to breaker house. It consists of a rotary machine, which rotates the coal and separates the light dust from it through the action of gravity and transfer this dust to reject bin house through belt.

The belt further elevates the coal to the transfer point 7 and it reaches the crusher through belt. In the crusher a high-speed 3- phase induction motor is used to crush the coal to a size of 50mm so as to be suitable for milling system. Coal rises from crusher house and reaches the dead storage by passing through transfer point 8.



**Fig 3.3: Wagon Tippler**





**Fig 3.5: Railway**

### **3.5 Boiler**

Boiler is a very important component of the thermal power plant. It is used to generate steam to drive the turbine. It is a closed vessel in which liquid is heated. This boiler is made up of steel. Temperature of the boiler is in the range of 1400-1600 degree Celsius.

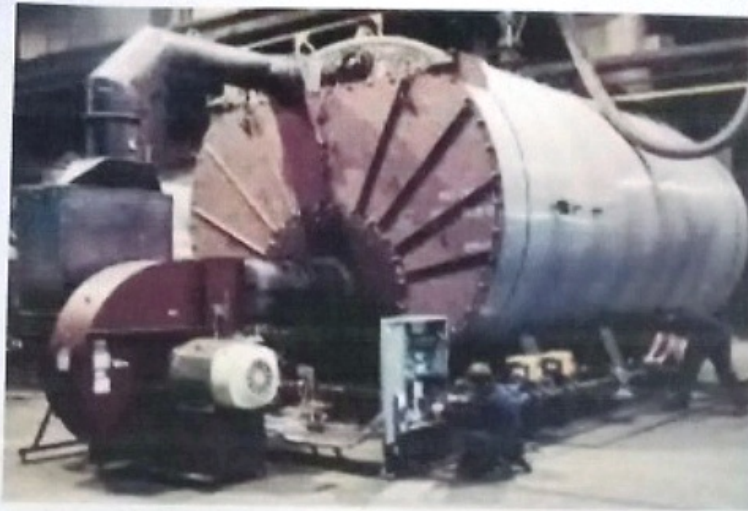


**Fig 3.6: Boiler**

A boiler is a steel pressure vessel in which water under pressure is converted into steam by the application of combustion. In other words, it is simply a heat exchanger which uses radiant heat and hot flue gases, liberated from burning fuel, to generate steam and hot water for heating and processing loads.



### 3.6 Boiler Auxiliaries



**Fig 3.7: Boiler Auxiliaries**

#### 3.6.1 Economizer

A feedwater economizer reduces steam boiler fuel requirement by transferring heat from the flue gas to incoming feedwater. Boiler flue gases are often rejected to the stack at temp higher than the temp of the generated steam.

#### 3.6.2 Primary heater

Air preheater is used to heat the air which is required for combustion inside boiler, before it enters in boiler. It helps in improving rate of combustion of coal in boiler.

#### 3.6.3 Final superheater

It is a device in which the steam from the boiler is dried. It means that total moisture is removed from the steam.  
Platen superheater – It is a plate type heater.

#### 3.6.4 Electrostatic precipitator

An electrostatic precipitator (ESP), or electrostatic air cleaner is a particulate collection device that removes particles from a flowing gas using the force of an induced electrostatic charge. Electrostatic precipitators are highly efficient filtration devices that minimally impede the flow of gases through the device, and can easily remove fine particulate matter such as dust and smoke from the air stream.



### 3.7.4 AIR PREHEATER (APH)

- **Specifications**
  - 2 Nos. Tri-sector APH (31.5VIMT2000)
  - Rotor Drive: Main motor Electrical and stand by Air Motor.
  - Motor: 18.5 kw
  - Total Heating Surface: 84200m<sup>2</sup>
- Boilers are classified on different basis as follows
- According to circulation of steam.

Following different method are used for circulation of steam

- **Natural circulation-** In circulation, difference in density of steam water is used to circulate steam.

- **Forced circulation-** Force circulation method is used when operating pressure is approaches to critical pressure.

According to firing type of boiler. In which portion of the boiler burner are place, according to which boiler are classified as follows-

- Front fire type
- Corner fire type



**Fig 3.11: Air Preheater**

The source of the heat in boiler is combustion coal. In CSTPS water tube type boiler is used. Water tubes filled with water are arranged Inside a furnace in a number of possible configurations: often the water tubes connect large drums, the lower ones containing water and the upper ones, steam and water; in other cases, such as a monotube boiler, water is circulated by a pump through a succession of coils. This type generally gives high steam production rates, but less storage capacity than the above. Water tube boilers can be designed to exploit any heat source and are generally preferred in high pressure applications since the high-pressure water/steam is contained within



### 3.10 Condenser

The condenser condenses the steam from the exhaust of the turbine into liquid to allow it to be pumped. If the condenser can be made cooler, the pressure of the exhaust steam is reduced and efficiency of the cycle increases.



Fig 3.13: Condenser

The function of condenser is:

- To provide lowest economic heat rejection temperature for steam.
- To convert exhaust steam to water for reserve thus saving on feedwater requirements.
- To introduce make up water. The heat absorbed by the circulating cooling water in the condenser tubes must also be removed to maintain the ability of the water to cool as it circulates. This
- is done by pumping the warm water from the condenser through either natural draft, forced draft or induced draft cooling towers (as seen in the image to the right) that reduce the temperature of the water by evaporation, by about 11 to 17 °C (20 to 30 °F)—expelling waste heat to the atmosphere. The circulation flow rate of the cooling water in a 500 MW unit is about 14.2 m<sup>3</sup>/s (500 ft<sup>3</sup>/s or 225,000 US gal/min) at full load.



- Failure of field.
- Over current.
- Over voltage.
- Over speed.
- Electrical protection.
- Unbalanced load.
- Stator winding.

### 5.12 Ash Handling Plant (AHP)



Fig 3.15: Ash Handling Plant

The ash handling system handles the ash by bottom ash handling system, coarse ash handling system, fly ash handling system, ash disposal system up to the ash disposal area and water recovery system from ash pond and Bottom ash overflow.

#### 5.13.1 Bottom Ash Handling System:

Bottom ash resulting from the combustion of coal in the boiler shall fall into the over ground, refractory lined, water impounded, maintained level, double V Section type/ W type steel- fabricated bottom ash hopper having a hold up volume to store bottom ash and economizer ash of maximum allowable condition with the rate specified. The slurry formed shall be transported to slurry sump through pipes.

#### 5.13.2 Coarse Ash (Economizer Ash) handling System:

Ash generated in Economizer hoppers shall be evacuated continuously through flushing boxes. Continuous generated Economizer slurry shall be fed by gravity into respective bottom ash hopper pipes with necessary slope.

#### 5.13.3 Air Pre Heater ash handling system

Ash generated from APH hoppers shall be evacuated once in a shift by vacuum conveying system connected with the ESP hopper vacuum conveying system.



### 5.15 Control Room

The control room, in case of remote control, houses all the necessary measuring instructions for each panel or alternator and feeder, synchronizing gear, protective gear, automatic voltage regulator, communication arrangement etc.

- **Types of Control panel:**

1. Fuel gas panel
2. Combustion Panel
3. Primary Air and coal panel
4. Steam panel(boiler)
5. Feed Water panel
6. Condensate & cooling water panel
7. Turbovisory panel



**Fig 3.18: Control Room**

### 5.16 Switch Yard

Switch yard forms an integral part of power plant. The supervisory control and data acquisition system(SCADA) of switch yard consists of operator stations, engineers station, historical storage, computers and associated peripherals and the switch yard bay control systems interconnected through a high speed network. The system constitutes several operator work stations and engineers work stations with high resolution color display monitors, touch screen function key board, mouse track ball and printers. The System collects digital and analog information available throughout the plant and presents information in various graphics display, alarms, logs, reports. The operator can perform control via CRT.

- **Features:**

- Monitoring of status of switch yard equipment's like isolators, breakers, ground switches.
- Issue of close or open commands of isolators and breakers.



- Monitoring of system parameters like voltage, current, frequency, MW, MVAR, energy.
- Presentation of information useful to operators in different forms.



**Fig 3.19: Switch Yard**

### **5.17 SOLAR POWER PLANT (CSTPS)**

#### **Overview**

- MAHAGENCO has commissioned 1.00 MWp Thin Film Solar PV Power Project on 9th April 2010, 2 MWp Thin Film Solar PV Power Project on 29th March 2012, 2 MWp Crystalline Solar PV Power Project on 2nd May 2012 at their Chandrapur Super Thermal Power Station (CSTPS) campus.
- 1 MWp Thin Film is 1st MWp capacity solar PV project in Maharashtra. Solar energy gathered by photovoltaic solar panels, intended for delivery to a power grid, must be conditioned, or processed for use, by a grid-connected inverter.
- Fundamentally, an inverter changes the DC input voltage from the PV to AC voltage for the grid. This inverter sits between the solar array and the grid, draws energy from each, and may be a large stand-alone unit or may be a collection of small inverters, each physically attached to individual solar panels see AC Module. The inverter must monitor grid voltage, waveform, and frequency. One reason for monitoring is if the grid is dead or strays too far out of its nominal specifications, the inverter must not pass along any solar energy. An inverter connected to a malfunctioning power line will automatically disconnect in accordance with safety rules, for example UL1741, which vary by jurisdiction. Another reason for the inverter monitoring the grid is because for normal operation the inverter must synchronize with the grid waveform, and produce a voltage slightly higher than the grid itself, in order for energy to



## CHAPTER 4: SWOC ANALYSIS

### Strength:

- Environmental friendly, clean renewable High degree of flexibility.
- Part of multi purpose project with additional benefits.
- Pumped storage for optimal integrate operation of grid Least operational and maintenance cost.
- Well recognized for obtaining financial support.

### Weakness:

- Mainly depends on rainfall/snowmelt. Run of river not for peaking
- High capital intensive.
- Remotely located
- Gestation period is very large.
- Relatively smaller units.
- Non standard occurrence.
- 

### Opportunities:

- Vast potential untapped
- Requirement for power peaking
- Greater concern towards increasing pollutions on land, water and in air causes leading
- Inclination towards hydro Depletion of fossil fuels.

### Challenges:

- Hyper unit Generation cost



## CHAPTER 5: LEARNING

### 5.1 Generating Transformer



**Fig 5.1: Generating Transformer**

Transformer is a static device which step up or step down electrical energy. Function of transformer in power plant is to step up the voltage level to the transmission voltage level. Following table shows the transformer component and its function.

- **Component Function:**
- **Core:** - Provide path for magnetic lines of flux.
- **Primary winding:** - Receive electrical energy from energy source & creates magnetic field.
- **Secondary winding:** - Receive electrical energy from primary winding & deliver to the load
- **Enclosure:** - Protect the above component from environmental attack

Core is made up of CRGO steel which have high magnetic properties due to which losses are reduced, & permeability is increase Transformer bushing- transformer bushing is used to take out the terminal of the secondary winding to connect it to the transmission lines. Electrical power is the product of voltage and current, the insulation in a bushing must be capable of withstanding the voltage at which it is applied, and its current carrying conductor must be capable of carrying rated current without overheating the adjacent insulation. The bushing must also be able to withstand the various mechanical forces applied to it.



poor design, assembly, handling, overloading, fault conditions or poor maintenance.

#### 6. Winding Resistance test:

Winding resistance measurements are an important diagnostic tool for assessing possible damage to transformers resulting from poor design, assembly, handling, unfavorable environments, overloading or poor maintenance.

### 5.2 WATER TREATMENT PLANT (WTP)

- Water treatment is important component of thermal power plant. water treatment plant working area are given below-
  - Water treatment.
  - Coal analysis.
  - Oil tests.
  - Flue gas analysis.
- Out of above-mentioned area water treatment has prime importance. It is because of following reasons. Water contains different types of impurities, when these impurities enters inside boiler it will produce scale formation inside boiler tube due to which heat will not transfer properly hence tubes will melt.

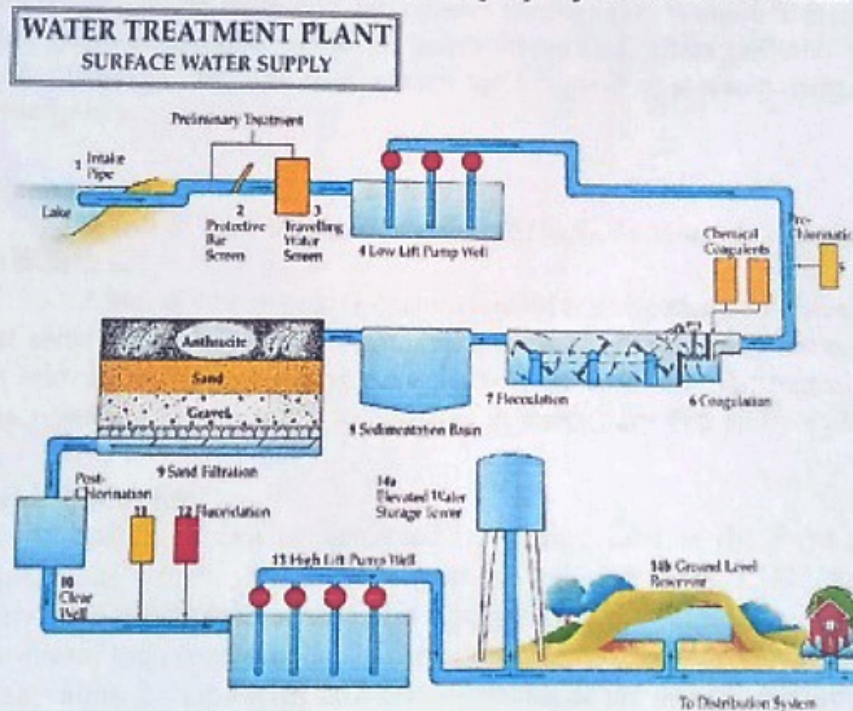


Fig 5.2: Block Diagram of Water Treatment Plant

- This impurities deposits inside the water tubes & block the water tubes. Presence of oxygen & carbon dioxide leads to corrosion of water tubes.
- In CSTPS, raw water is come from "Erai Dam" through pipelines. In Erai dam water is collected from the forest area near by it. So chemical impurities are not in raw water, therefore contamination of dam water is very less, but still following impurities are present in raw water.
- Turbidity-** It is due to mud, minerals.
- Organic Matter-** Organic present is due to the decomposition of dead animals,



be used as a filler material in certain cementitious materials such as low strength concrete.

- **Water sump**

Water sump is a water storage tank in which pretreated water is stored. From tank water is sent for post treatment. Post treatment is different for both-

- Demineralized water (D.M. water)
- Soften water

- **Demineralized water**

DM water is demineralized water. Dissolved impurities and dissolved gases in water. Sometimes water is hard, temporary hardness or permanent hardness and which badly affects the boiler which helps formation of scales in sides the boiler. In D.M. water plant, water is passed through activated carbon filter for absorbing dissolved carbon dioxide. For removing temporary hardness and permanent hardness ion exchanging process used. By Ion - exchange process from which the minerals have been removed and get Demineralized water.

During pretreatment for D.M. water, following process is carried out

- **Screening**

During screening process all the suspended particles are removed in this process.

- **Settling-**

Water is stored in one day reserve tank for one day. During this heavy particles are settled down.

- **Chemical Dosing**

In chemical dosing alum & lime is added in water.

- **Coagulation-**

Coagulation is a process is a joining small particle together to form large particles. Due to chemical dosing, floc is produced. Post-treatment of Water-Pretreated water send for post treatment.

- **Working Principle**

In pressure sand filter raw water flows down wards through the filter bed and as the suspended matter- which has usually been treated by addition of a coagulant like alum- is retained on the sand surface and between the sand grains immediately below the surface. There is steady rise in the loss of head as the filtration process continues and the flow reduces once the pressure drop across the filter is excessive. The filter is now taken out of service and cleaning of the filter is effected by flow reversal. To assist in cleaning the bed, the backwash operation is often preceded by air agitation through the under drain system. The process of airscouring agitates the sand with a scrubbing action, which loosens the intercepted particles. The filter is now ready to be put back into service.

### 5.13 Effluent Treatment Plant-I:

The ETP is clarify the waste water of the plant or we can say purify the waste water like they remove oil from water ash and dust particles from water for reuse in plant for extracting bottom ash from the boiler by making slurry of that waste ash also they maintain the pH in between 6.5 to 7.5 with the help of lime and Alum. It is the main purpose of the ETP department that to reuse the



waste water .

Main function of E.T.P. is to clean gas clean plant (G.C.P.) effluent & recycle it for further use. Sewage water is treated as per is pollution control norms in E.T.P. This water is used for ash handling.



**Fig 5.15: Effluent Treatment Plant-I**



# **FIELD PROJECT REPORT**

**on**

## **“Mansar Manganese Mine”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

**Electrical Engineering**

**Submitted by:**

**Roll no. 21 to 40**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



Education to Eternity

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**(An Autonomous Institute, with NAAC "A" Grade)**

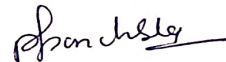
**Affiliated to DBATU ,Lonere**

**Year 2019-20**

## CERTIFICATE


This is to certify that the filed visit report on, “Mansar Manganese Mine” in the subject **Electrical Engineering** in the faculty of Science and Technology submitted by following students to **DBATU ,Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME
41	SHRUTI DILIP NARNAWARE
42	SHUBHAM BHUPENDRA ASHTANKAR
43	SHUBHAM KISHORRAO NANDANWAR
44	SHUBHAM RAJENDRA BRAMHANE
45	SIMRAN SACHIN SHAHARE
46	SNEHAL SURESH TEMBHURNE
47	SUSHIL PRAKASH GAJBHIYE
48	SUYOG JAGDISHRAO DEBE
49	TANMAY RAJESH RALE
50	VAIBHAV MAHENDRA SURYAWANSHI
51	VIKAS ASHOK RAGHORTE
52	VIKRANT RAJENDRA KAMBLE
53	VISHAKHA HEMANT AMBADE
54	VISHNU MADHUKAR MANKAR
55	YASHWANT MADHUKAR BORKAR



**Prof. P.P.Panchbhai**  
**Internship Coordinator, EE**

Forwarded to:



**Dr. S.R.Vaishnav**  
**Head of Department**  
**Electrical Engineering**

**Date:28/01/2020**

## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. S.K.Asati**, **Mansar Manganese Mine** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.



## CHAPTER 1: EXECUTIVE SUMMARY

- It was originally originally incorporated as manganese ore india limited in the year 1962.
- Moil is production of manganese metal and alloys such as ferro -manganese and silicon- manganese .
- 33 kv power supply from bhage mahiri thermal power plant to khapa MSEDCL Electrical substation.
- 33 kv converted in to 11kv via stepdown transformer to transmit power in MOIL Ltd. Feeder.
- During the internship I learn about different types of devices like relay C.B. motors.
- And operate from electrical [HT] [LT] panel.
- Enclosed inspection have to be done before assembly.
- Learn about single line diagram.
- And detail study about step down transformer is converted 1500 kva. There high voltage, low voltage ,vector group.
- Study and uses of [HT] [LT] panel components.

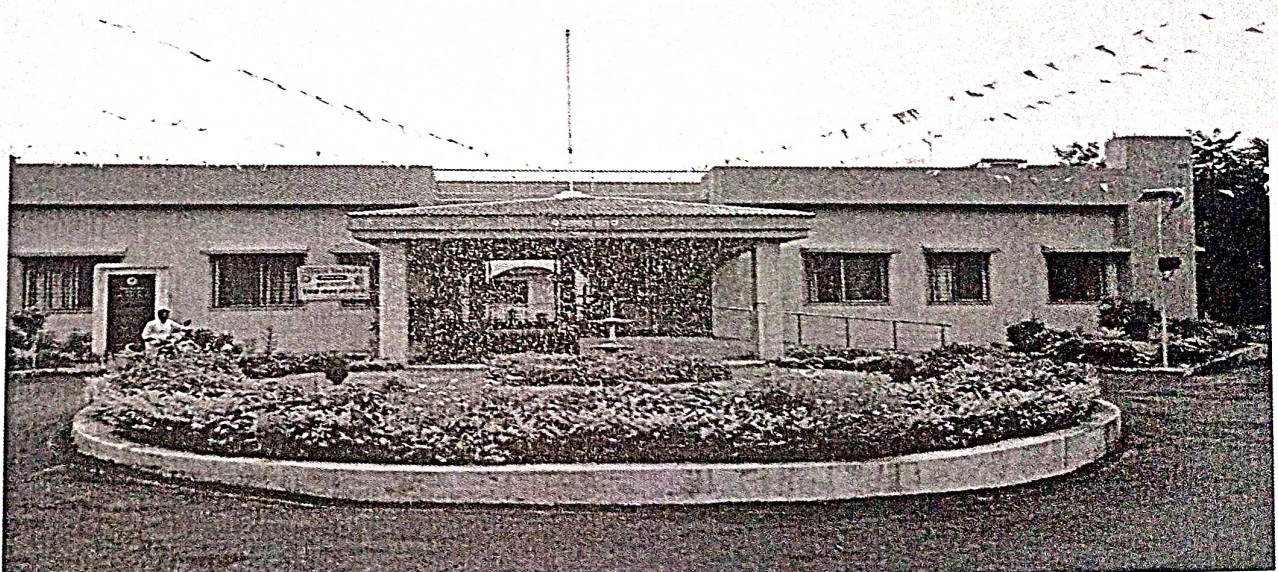


## CHAPTER 2 : ABOUT THE FIRM

- a. **Brief history:-** MOIL was originally set up as "Central Province Prospecting Syndicate" in the year 1896 in the region of Maharashtra and Madhya Pradesh. It was later renamed as "Central Provinces Manganese Ore Company Limited (CPMO)" in 1935. In 1962, the Government of India took over the mining activities from CPMO. Then, Manganese Ore (India) Limited was formed with 51% stake held between the Government of India and the Maharashtra and Madhya Pradesh State governments. The other 49% was retained with CPMO. In 1977, the balance of 49% was acquired from CPMO, and MOIL became a 100% state-owned enterprise.
- b. **Introduction of the organization:-** MOIL (earlier known as Manganese Ore (India) Limited) is a miniratna state-owned manganese ore mining company headquartered in Nagpur, India. With a market share of 50%, it is the largest producer of manganese ore in India.[2] MOIL operates 11 mines in adjoining districts of Maharashtra and Madhya Pradesh. It has been ranked #486 among the 500 top companies in India and 9th in the Mines and Metals Sector of the Fortune India 500 list for 2011.[3]

In December 2010, the Government of India divested about 20% of its equity through an IPO. Of the 20%, the Indian Government divested 10%, and the Government of Maharashtra and the Government of Madhya Pradesh each divested 5% of the total equity.[4][5] The central government holds 54% and the two state governments hold about 11% shares in MOIL.[6] and the public holds about 35% shares.

The shares were listed in 2011 at Rs. 440, went down to a low of Rs. 188 on 13 July and 15 February, before recovering currently to Rs. 351. The company issued one bonus share for every share held on 28 Sep 2017. The share price was about Rs. 140 in Januar



ADMINISTRATIVE BUILDING OF GUMGAON MINE



## Location of Units of MAHARASHTRA

<b>Beldongri Mine</b> P.O. Satuk Via. Ramtek Distt. Nagpur, Pin 441105 Office:-07102-202022 Res.	<b>Gurgaon Mine</b> P.O. Khapa, Distt. Nagpu Pin. 441101 Office : 07113-286123 Resi. 07113-286133
<b>Chika Mine</b> P.O. Chikla, Distt-Bhandara Pin : 441920 Office : 07183-220231 Resi : 07183-220314	<b>Kandri Mine</b> P.O. Kandri, Distt. Nagpur Pin : 441401 Office : 07114-202730 Resi. : 07114-268149
<b>Dongri Buzurg Mine</b> P.O. Dongri Buzurg Dist Bhandara, Pin : 441907 Office : 07183-220230 Resi : 07183-220243	<b>Munsar Mine</b> P.O Munsar, Dist Nagpur Pin : 441106 Office : 07507770641 Resi. : 07114-202127

## MADHYA PRADESH

<b>Balaghat Mine</b> P.O Bharweli, Dist. Balaghat, Pin : 481102 Office : 07632-245185 Resi : 07632 – 245189	<b>Tirodi Mine</b> P.O. Tirodi, Dist Balaghat Pin : 481449 Office : 07630-276735 Resi : 0763027673
<b>Sitapatore Mine</b> P.O Sukli, Dist Balaghat Pin : 481449 Office : 09425822506	<b>Ukwa Mine</b> P.O. Ukwa, Dist Balaghat Pin : 481449 Office : 07636-274532 Resi : 07636-274596
<b>DELHI OFFICE</b> Core6, 2nd Floor, SCOPE COMPLEX Lodhi Road, New Delhi : 110003 Office : 011-24360380, Residence : 011-25127307 Fax : 011-	



## **MOIL LTD (GUMGAON MINE)**

### **UNIT PROFILE**

MOIL Limited is the largest Manganese ore producing company of India. At present total ten nos. mines including underground and opencast mines, are in operation at Madhya Pradesh and Maharashtra.

We share about 55% of Manganese ore production of India. MOIL has established a 10000 TPA capacity Ferro-Manganese plant at Balaghat (M.P.) and a 1200 TPA capacity Electrolytic Manganese Di Oxide plant at Dongri Buzurg in Maharashtra State. For Energy conservation and clean & green environment, MOIL has installed 4.8 M.W. and 15.2 MW capacity Wind Energy Generator Plants at Dewas (M.P.), which are contributing in energy conservation.

- c. Policy of the organization:- MOIL LTD, Nagpur does not automatically capture any specific personal information from you, like name, phone number or e-mail address, that allows us to identify you individually. If the India MOIL LTD, Nagpur requests you to provide personal information, you will be informed for the particular purposes for which the information is gathered and adequate security measures will be taken to protect your personal information.

We do not sell or share any personally identifiable information volunteered on the India Portal site to any third party -public/private.

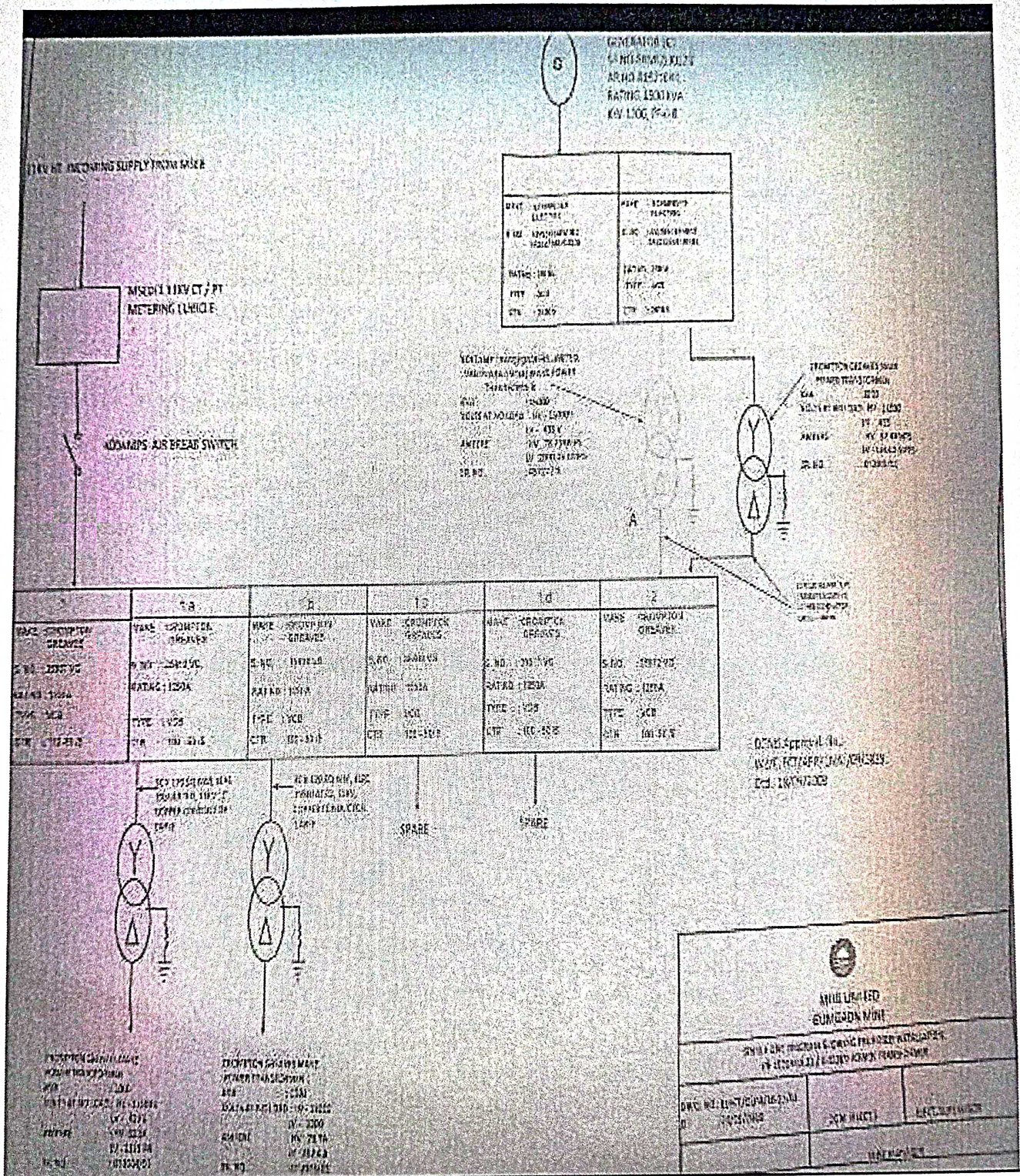
Any information provided to this website will be protected from loss, misuse, unauthorized access or disclosure, alteration, or destruction.

We gather certain information about the User, such as Internet protocol - IP addresses, domain name, browser type, operating system, the date and time of the visit and the pages visited. We make no attempt to link these addresses with the identity of individuals visiting our site unless an attempt to damage the site has been detected.



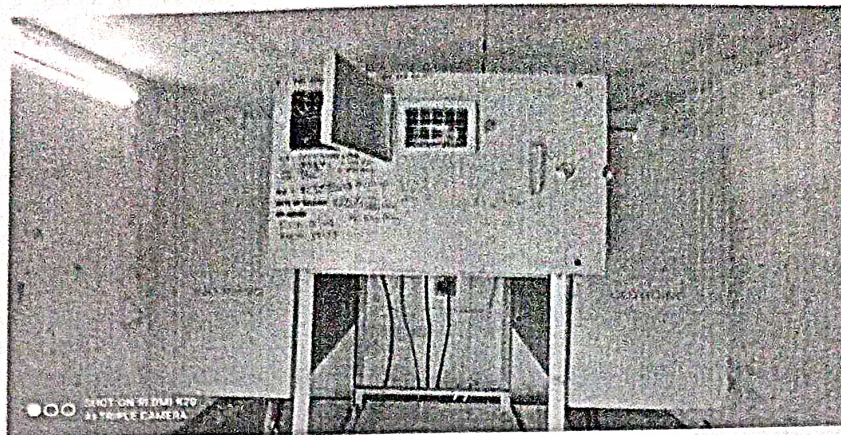
## CHAPTER 3: ABOUT THE WORK DONE/PROJECTS

## Single line diagram





## Cubical meter



- **What is cubical meter**

Metering cubical is installed between INCOMING SUPPLY and FACTORY TRANSFORMER where 11kv,22kv,33kv which INCOMING SUPPLY comes to FACTORY PREMISES. 11kv METERING CUBICAL,22kv METERING CUBICAL,33 kv METERING CUBICAL are installed from INCOMING SUPPLY 11kv,22kv,33kv. METERING CUBICAL IS CONNECTED TO FACTORY INCOMING SUPPLY AND TRANSFORMER WITH CABLE JOINTING KIT (INDOOR JOINTING KIT),

- **Use Of Metering Cubical**

Metering cubical consists of 3 NOS CURRENT TRANSFORMER (CT ) and 3 NOS OF POTENTIAL TRANSFORMER. The wiring of CT and PT is connected to the METER in the front part of the METERING CUBICAL, so the ELECTRICAL CONSUMPTION can be measured from the METER.

- **Purpose Of Metering Cubical In Msedcl**

Earlier POLE MOUNTED OUTDOOR CT AND PT were used and ENERGY bill of INDUSTRY was done by taking READING from meter in small METER BOX. In order to reduce the FAULT LEVEL (FAULTY FREQUENCY) in this method, COMPACT METERING CUBICAL was started from ELECTRICAL BOARD. METERING CUBICAL CLOSED saves space and maintains better FAULT LEVEL ACCURACY in METERING CUBICAL than OUTDOOR SYSTEM.



## Distribution system

- 3  $\phi$ , 3 wire 11kv supply being fed from MSEDCL through HT over head line, is connected to 11kv main incomer HT VCB panel for feeding various load of mine, via HT metering cubical room. In HT cubical room there is connected CT and PT for measurement of consumed electrical quantities like Kwh, kva.h, P.f. etc.
- The Cubical are divided in to two parts upper one for energy meter.
- And lower one for current and voltage transformer .
- The cubical are dust proof and pilfer resistant.

Distributed systems are generally the coordinated flow of procedures, systems, and processes designed to facilitate the movement of products and services from the production source/provider to the end-user(consumer). It constitutes all methods and equipment required to flow goods and services from the producers to the customers. Therefore, the success of a business largely depends on its distributed systems because it is the drive for obtaining more sales. Distributed systems involve controlling inventories, adhering to time in delivery, and operating from a convenient place for both business and the customers. In supply chain management, distributed systems constitute storage facilities and transportation systems that receive orders and deliver goods to customers.

Characteristics of distributed systems include;

- **Concurrency**— Distributed systems run in parallel, and operation coordination occurs consecutively to ensure efficiency in the supply chain.
- **Transparency**— An overall supervisor or distribution manager must be in a position to supervise each unit system used in distribution.
- **Scalability**— Distributed systems are capable of expanding as workload increases. When more demand for goods arises, the systems must be able to expand to register such an increase. This is to ensure the distribution process is not brought to a halt by extra demands for goods and services.
- **Replication**— Within distributed systems, information is captured in several unit systems to ensure that such information is congruent and genuine. For instance, an order invoice will be captured in the computer storage systems, inventory books, and receipt books. Such replication is necessary for distribution for accountability.
- **Heterogeneity**— Despite working towards achieving a common objective, single units in distributed systems vary in many aspects, including operating procedures, designs, and guidelines. For instance, warehousing and transportation are part of the distribution process, yet they are run and managed differently.
- **Fault tolerance**— Distributed systems have coping mechanisms for dealing with faults that may occur with single system units. There are backup plans for an eventual fallout of every component of district.



## Step down transformer



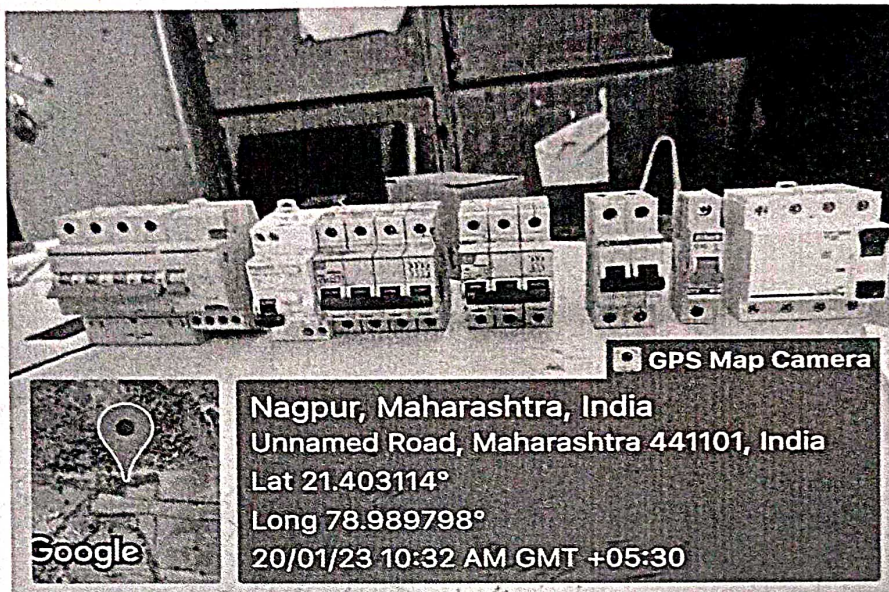
- 1) Step down transformer is converted 1500 KVA .
- 2) High voltage 78.73 AMP.
- 3) Low voltage 2000.05 amp.
- 4) High Voltage at top no. 4 11000
- 5) Low voltage 433v.
- 6) Vector group: 433v
- 7) Total taps: 7

**Step Down Transformer Working Principle** A step-down transformer operates primarily on the basis of electromagnetic induction. A conductor in a fluctuating electromagnetic field will see an induced current dependent on the rate at which the flux changes, according to Faraday's first law of electromagnetic induction. The main and secondary windings of the transformer have a high mutual induction and a common magnetic field because they are made up of two coils. As a result, the primary winding can cause a current in the secondary. Working on Step Down Transformer An emf in the second coil, coupled to the first coil, is generated by a uniform current variation in one coil. Mutual inductance is also used in the operation of an electric transformer. Two coils with a large mutual inductance are used in a step-down transformer, and these two coils are electrically isolated. In a step-down transformer, the primary or primary winding coil is the initial set of coils connected to a direct voltage and an alternating voltage source on the first side. The load is connected to the second set of coils, the secondary winding or secondary coil. This load draws the alternating result voltage. The windings of a step-down transformer carry alternating electricity. The primary winding is excited by the alternating input



voltage. This alternating current generates an alternating magnetic flux that travels through the magnetic iron core and back.

## Circuit Breakers



Internally, circuit breakers are basically made up of pairs of metallic contacts both fixed and moving, in addition to an operating coil.

Under normal conditions – closed circuit – these contacts are touching each other, allowing the flow of electric current. These moving contacts are held together thanks to mechanical pressure exerted by another mechanism – a spring or compressed air, for example.

This pressure on the moving contacts is possible thanks to the potential energy stored in the mentioned pressure mechanism. When an overload occurs in the electrical circuit, the operating coil is charged with energy and a plunger connected to the mechanism of the moving contacts, allows the energy stored in this mechanism to be released, allowing the moving contacts to separate as well. As the moving contacts separate, the circuit inside the CB (circuit breaker) opens, interrupting the flow of current and protecting the system from further damage. However, it is important that you also understand the concept of “arc”.



When electrical current passes through an air gap from an energized component to a neutral component, a plasma discharge known as arc occurs. As an example, lightning is a very large arc, crossing atmospheric space from a cloud to the ground or to another cloud. Arcing can also occur in household electrical wiring, but also within circuit breakers during operation, which can damage them and cause fires if the arc is not controlled.

#### Molded-Case Circuit Breakers (MCCB)

Molded-Case Circuit Breakers are used primarily in low voltage circuits. In this model, all the parts that carry the current, mechanisms and switching devices, are embedded inside a molded box or circuit breaker box made of insulating material.

MCCB are frequently used as the first choice in alternating (AC) or direct (DC) current systems in the industry, and their main advantages are their versatility to integrate with other control devices, their low maintenance cost and their small size.

#### Vacuum Circuit Breakers (VCB)

In VCB, the interruption of electrical current occurs within a structure normally made of ceramic known as a "vacuum blister". This blister is fully insulated and allows a high rate of vacuum inside.

Inside this blister, there are the fixed and moving contacts. The electric arc starts when the contacts separate and thanks to the vacuum and the dielectric strength (electrical insulation) in the structure, the heat generated during the arc is quickly extinguished.

The main advantage of VCB is that they considerably reduce the risk of fire and require less maintenance.

#### Air Circuit Breakers (ACB)

The Air Circuit Breaker have a compressed air storage inside. This air is released through a nozzle and produces a high-speed jet of air. This air is what is used to extinguish the arc.

ACB are usually used in high and medium voltage field services, generally up to 15KV voltages or for outdoor lines up to 220KV or more, depending on the type. Their main advantages are their small size, high-speed response time, little maintenance they need and the considerable reduction in the risk of fire.



## DC Motor

### Types of DC Motor

There are 4 major types of DC motor and they are,

- Series DC Motor
- Permanent Magnet DC Motor
- Shunt/Parallel DC Motor
- Compound DC Motors

### Construction of DC Motor

Before understanding the working of DC motor first, we have to know about their construction. There are two main parts of the DC motor.

Armature

Stator

The rotating part is the armature and the Stator is their stationary part. The armature coil is connected to the DC supply.

### Working Principle of DC Motor

A DC motor is an electrical machine which converts electrical energy into mechanical energy. The basic working principle of the DC motor is that whenever a current carrying conductor places in the magnetic field, it experiences a mechanical force. CB Fleming's left-hand rule and its magnitude decide the direction of this force.

### Fleming's Left Hand Rule:

If we stretch the first finger, second finger and thumb of our left hand to be perpendicular to each other, and first finger represents the direction of the magnetic field, the second finger represents the direction of the current, then the thumb represents the direction of the force experienced by the current carrying conductor.

$$F = BIL \text{ Newtons}$$

Where,

B = magnetic flux density,

I = current and

L = length of the conductor within the magnetic field.

When armature winding is connected to a DC supply, an electric current sets up in the winding. Permanent magnets or field winding (electromagnetism) provides the magnetic field. In this case, current carrying armature conductors experience a force due to the magnetic field, according to the principle stated above.

The Commutator is made segmented to achieve unidirectional torque. Otherwise, the direction



of force would have reversed every time when the direction of movement of the conductor is reversed in the magnetic field. This is how a DC motor works!

**Back- EMF of DC motor** According to the fundamental law of nature, no energy conversion is possible until there is something to oppose the conversion. In case of generators, magnetic drag provides this opposition, but in the case of dc motors, there is back emf. Presence of the back emf makes a dc motor 'self-regulating'.

When the armature of a motor is rotating, the conductors are also cutting the magnetic flux lines and hence according to the Faraday's law of electromagnetic induction, an emf induces in the armature conductors.

The direction of this induced emf is such that it opposes the armature current ( $I_a$ ). The circuit diagram below illustrates the direction of the back emf and armature current.

## Relay

it works on the principle of an electromagnetic attraction. When the circuit of the relay senses the fault current, it energises the electromagnetic field which produces the temporary magnetic field.

This magnetic field moves the relay armature for opening or closing the connections. The small power relay has only one contacts, and the high power relay has two contacts for opening the switch.

The inner section of the relay is shown in the figure below. It has an iron core which is wound by a control coil. The power supply is given to the coil through the contacts of the load and the control switch. The current flows through the coil produces the magnetic field around it.

Due to this magnetic field, the upper arm of the magnet attracts the lower arm. Hence close the circuit, which makes the current flow through the load. If the contact is already closed, then it moves oppositely and hence open the contacts.

- Pole and Throw

The pole and throws are the configurations of the relay, where the pole is the switch, and the throw is the number of connections. The single pole, the single throw is the simplest type of relay which has only one switch and only one possible connection.

Similarly, the single pole double throw relay has a one switch and two possible



connections.

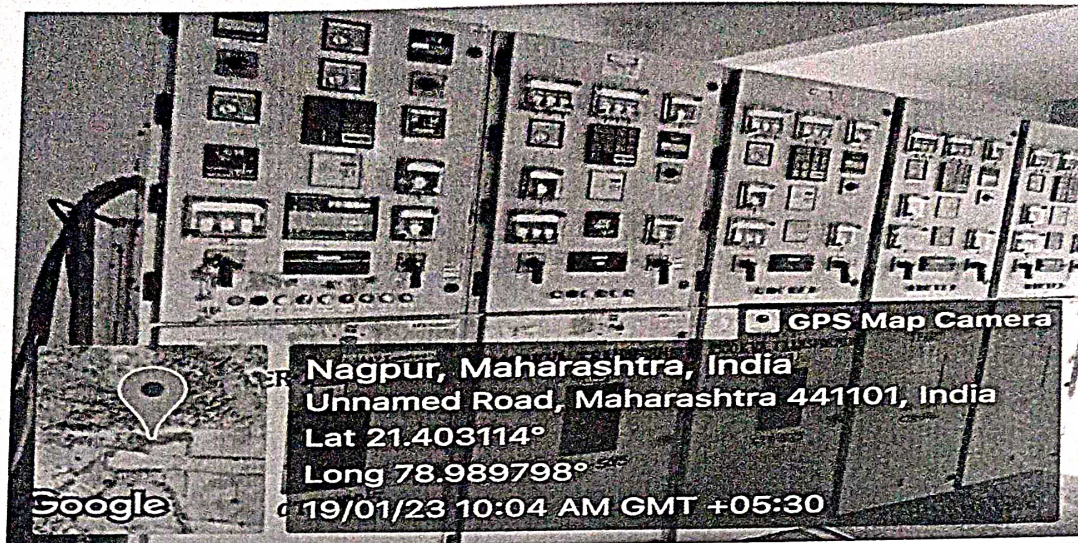
- Construction of Relay

The relay operates both electrically and mechanically. It consists electromagnetic and sets of contacts which perform the operation of the switching. The construction of relay is mainly classified into four groups. They are the contacts, bearings, electromechanical design, terminations and housing.

- Contacts – The contacts are the most important part of the relay that affects the reliability. The good contact gives limited contact resistance and reduced contact wear. The selection of the contact material depends upon the several factors like nature of the current to be interrupted, the magnitude of the current to be interrupted, frequency and voltage of operation.
- Bearing – The bearing may be a single ball, multi-ball, pivot-ball and jewel bearing. The single ball bearing is used for high sensitivity and low friction. The multi-ball bearing provides low friction and greater resistance to shock.
- Electromechanical design – The electromechanical design includes the design of the magnetic circuit and the mechanical attachment of core, yoke and armature. The reluctance of the magnetic path is kept minimum for making the circuit more efficient. The electromagnet is made up of soft iron, and the coil current is usually restricted to 5A and the coil voltage to 220V. Terminations and Housing – The assembly of an armature with the magnet and the base is made with the help of spring. The spring is insulated from the armature by moulded blocks which provide dimensional stability. The fixed contacts are usually spot welded on the terminal link



## High tension panel [HT]



This is 3011kv main incomer HT VCB panel for feeding various load of mine.

- 2nd VCB panel is for 1000 kVA power transformer and two more for spare use
- Another VCB panel is for DG set (diesel generator) for any emergency or a power failure from MSEDCL
- Equipment's connected in HT Panel.
- voltmeter
- Voltmeter switch
- Ammeter
- Ammeter Switch
- Hooter for DC fail.
- Hooter for AC fail.
- Annunciator (annunciator is for to check all the safety equipment's are working good or not).
- Multifunction meter.
- AC DC fail Scheme.
- 3 over current and 1 earth fault relay
- DC fail relay
- Trip Circuit Supervision relay
- Demand controller
- Master trip relay, LR switch, relay test terminal block, TNC switch, indicators ETC.

HT panel receives electrical Supply 11KV or 33KV) from H – pole by 3 core HT cable & then it distributes power through one or more outgoing feeders.

These outgoing feeders are connected with distribution transformers which convert HT supply into 415V, 3-phase 4 wire AC supply.



To measure electrical power consumption, Energy Meter is installed in it, Meters are installed to measure electrical Voltage, Current, frequency, power factor etc.

Transformer protection relays are installed in it such as –

For Dry type transformer – WTI (Winding Temperature Indicator) – Alarm & Trip,

For Oil type Transformers – WTI & OTI (Oil Temperature Indicator) – Alarm & Trip and Buchholz relay (gas operated relay) – Alarm & Trip.

Short circuit protection, over load protection, earth fault protection relays can be installed in it against protection from faults.

HT Circuit Breakers such as VCB, SF<sub>6</sub>, etc are available in market but VCB is the most commonly used HT breaker are used to make & break HT supply due to less maintenance.

HT circuit breakers can be switched ON & OFF either manually or electrically.

24V (or 30V) DC supply (battery charger) which is an external source to HT panel is used for various purposes like for metering, relay operations, indicating lights,

240 V ac supply is also used in HT panel for 16A power sockets provided inside panel, for panel lights & space heater.

Space heater is provided in HT panel to avoid moisture inside the panel.

To measure Incoming Supply voltage, 11KV is converted into 110V through PT (Potential Transformer). And 110V voltmeter is used for voltage measuring purpose.

To measure building load in terms of current, total current of the building is converted into 5A or 1A through CT (Current Transformer). CTs are available in different range – 600/5A, 400/5A, 300/5A ..... or 600/1A, 400/1A, 300/1A ..... A typical picture of HT panel is given below –

Safety requirement in HT panel room –

Single line diagram (SLD) – One SLD must be installed in HT room which must contain incoming & outgoing feeder details of the building.

Rescue hook – one rescue hook should be available at suitable location in the HT panel room so that in case of emergency/shock, it could be used. The purpose of rescue hook is to separate a person from electrical supply if he comes in contact with it.

Discharge rod – on discharge rod should be available in the HT panel room. The purpose of discharge rod is to discharge the HT cable ends & HT cable terminals when cable is disconnected with HT panel due to any fault or maintenance purpose.

Don't touch uninsulated parts of HT panel after switching of HT supply of panel – uninsulated



parts of HT panel should not be touched before discharging them. Because HT busbars & cables may store charge during continuous operation. Stored energy may be harmful & give shock.

Hand Gloves – Suitable voltage rating (11Kv 33KV) of hand gloves should be available in HT panel.

Shock treatment chart– It should be displayed in the HT room which shows that how a person is given first aid treatment when he gets an electric shock.

Panel Keys – Panel keys should be available at suitable location in HT panel room (very close the HT panel).

Door Lock – Panel door should always be closed & locked condition. This helps to prevent foreign objects / insects inside HT panel. Entry of insects in HT panel may lead to short circuit in the panel.

Holes/openings – All holes/openings should be sealed properly to prevent foreign objects / insects inside HT panel. Entry of insects in HT panel may lead to short circuit in the panel.

Identification of feeders – all incoming & out going feeders of HT panel should be numbered from front & back side. Both sides (front & back) of one feeder should have same number. This numbering & leveling prevents accidents during maintenance.

Danger plate – Suitable rating of danger plate (11KV or 33KV) should be installed on HT panel.

Lock HT room – HT panel room should be locked in case no manpower is available in it & key should be kept at suitable location.

Entry of authorized person – A list of authorized person should be displayed at the entrance of HT room. Only authorized should be allowed in HT room.

Maintenance – A regular maintenance should be carried out of HT panel as per schedule by OEM or trained inhouse manpower.

Testing of relays – Relays installed in the HT panel should be checked on regular basis to ensure that breaker will trip in case of fault.



## Low tension panel [LT]



The term LT Switchgear includes low voltage Circuit Breakers, Switches, off load electrical isolators, HRC fuses, Earth Leakage Circuit Breaker, Miniature Circuit Breakers (MCB) and Molded Case Circuit Breakers (MCCB) etc i.e. all the accessories required to protect the LV system.

LT panels are responsible for distributing the power to various sub LT panels by receiving it from the transformer. These are rated for 430 V, 3-phase, 50Hz, three or four wire system.

It is a floor mounted free standing unit and it is totally closed and extensible type. Its design includes all provisions for safety of operation as well as for maintenance personnel.

S.S.C offer a wide range of LT switch boards that are available in both standard and customized sizes. These are applicable for automatic equipment, home appliances and communication products and come with the features like optimum power transmission and long service life.

In an industrial electric power system electric power is supplied from either private utilities or public utilities. The supplied voltage is in the range of 11KV, 33KV, 66KV or 132KV. These high voltages are stepped down to a low voltage using step-down



transformers.

The voltages in the range of 440 volts or below are called as low tension systems. This stepped voltage is further supplied to various panels and equipments through a switchgear arrangement that consisting of electrical switches, circuit breakers, fuses, protection equipment, metering boards, etc.

The figure shows a schematic diagram of the power distribution. This model scheme is mostly employed for large and medium scale industries. In some cases, sub-LT panels are not found; instead power is supplied directly from LT panels to SDBs depending upon the size of distribution area where the number of units to be supplied is the major consideration. The element in this power distribution model included LT panel, sub-LT panel, SDB (sub-distribution board), PDB (power distribution board) and LDB (lighting distribution board).

Various transformers supply is given to the LT panels, which acts as a main switching system for entire power distribution scheme and carries the total load demand. We will discuss the elements inside of the LT panels in brief later in this article. The output feeders of the LT panel are connected to sub-LT panels which are placed for a group of loads over a given section to supply the demand.

## Diesel generator

The use of diesel generators is absolutely integral to the mining industry. The mining industry is a large part of the United States' revenue, and the use of generators is a very important element within that industry. Whether it is coal, gas, iron ore, or precious metals, mining is a very important part of how the country functions. Diesel generators account for approximately 72% of the energy used to run various facets of the mining industry. The large drills and shovels, as well as excavating machinery, all run on diesel generators. Many of these generators are in the form of huge land roving trucks that help to extract the minerals and other items and then transport them. In most cases, these gigantic generators can haul over 300 tons of material at one time. Diesel has a lower volatility rate, making it a safer option for use in the mining industry.

Mining extracts the earth's natural materials to provide energy. It is a business that is



absolutely essential to the success of our economy. Without the help of diesel generators, the job could take much longer to accomplish and would require a lot more manpower and money to operate efficiently. These diesel powered generators provide a lot of muscle, capacity, and stability. From drilling trenches to busting up rock, carting out huge loads of materials and pulling up heavy amounts of coal, diesel generators provide the strength and capability needed to get the job done. As for the heavy and large equipment that is used, diesel generators are still the equipment of choice in the mining industry.

## **[PLC] PROGRAM LOGIC CONTROL**

### **• DEFINITION OF PLC**

PLC is a digitally operating electronic apparatus which memory uses a programmable for the internal storage of instructions for implementing the specific functions such as logic, sequencing, timing, counting and arithmetic to control through digital and analog input/output modules.

### **• ADVANTAGES OF PLC**

Delegation of human control functions to technical equipment aimed towards achieving.

- User friendliness
- ◆ Improved safety in working conditions
- ◆ Elimination of hard wired logic control / Simplification of electrical wirings
- Reduced space in electrical panel

### **• INPUT & OUTPUT INTERFACES**



The voltage or current signals generated by the sensors, transducers, limit switches, push buttons are applied to the terminals of the input module. Input interface accepts either Analog/Digital Inputs, which are connected to the respective Analog/Digital Input modules from the machine. It converts the field signal into a standard control signal for processing by CPU. Depending on the nature of input signal, the input module could be digital or analog.

The output module acts as a link between the CPU and the output devices located in the field. The field devices could be relays, contactors, solenoid valves, lamps etc. Output interface module converts the signals received from the processor of the CPU into external signals with respect to the Analog Output / Digital Output / Relay Outputs which controls the machine functions. (e.g.) To control the Inverter or servo drive Analog output modules are used. For switching function for lower power rated components Digital output modules are used and for higher power rated components Relay output modules are used. Depending on the nature of output signal, the output module could be digital or analog.

## ● POWER SUPPLY UNIT

The power supply unit provides required voltages for operation of CPU module and other modules. Input voltages to power supply unit can be selected. [220VAC or 24VDC] based on control voltage. The power supply unit is of SMPS type [switched mode power supply] and generates 5V DC or 3.3vdc for CPU module, digital input/output modules, +/-15V DC to Analog Input/output module and 24vdc for relay output module..

## ● CENTRAL PROCESING UNIT

The CPU is the heart of the PLC. The CPU consists of the following:

- ◆ Arithmetic and Logic unit (ALU)
- ◆ Program Memory
- ◆ Process Image Memory

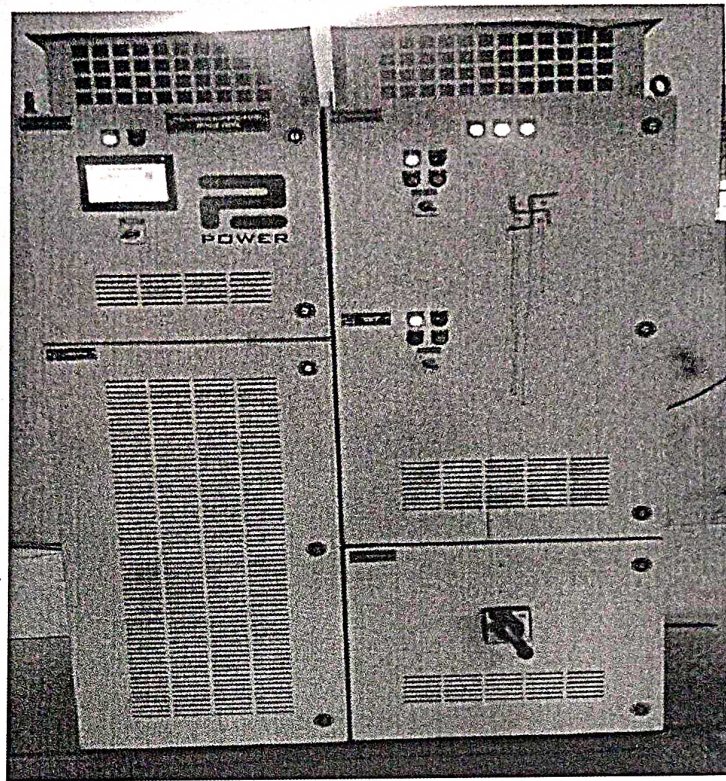
Internal timers and counters



- ◆ Flags Heart of CPU is its microprocessor/ micro controller

C

## APFC panel



APFC or Automatic Power Factor Control Panels are predominantly used for sustainment of Power Factor as per State Electricity Board. Power Factor is defined as ratio of active power to apparent power and it is mainly a key factor in measuring electrical consumption. Everyone knows that how costly electricity is computed now-a-days. Therefore it becomes very much important to reduce on electrical consumption for reducing expenditure and economizing the utility expenses by harnessing electrical utility by operation at desired power factor to curtail unwanted electricity penalty rising because of continuous power factor drop.

APFC Panel with stage based pre- programmable micro-controller of varied make which triggers the capacitor banks of suitable capacity automatically in multiple stages by directly sensing the reactive load which works in the principle of VAR(



Volt Ampere Reactive ) sensing tends to maintain the PF to 0.99 Lag. The capacitor banks are selected in number of stages as 4/6/8/12/16 according to the load pattern as per the customer requirement.

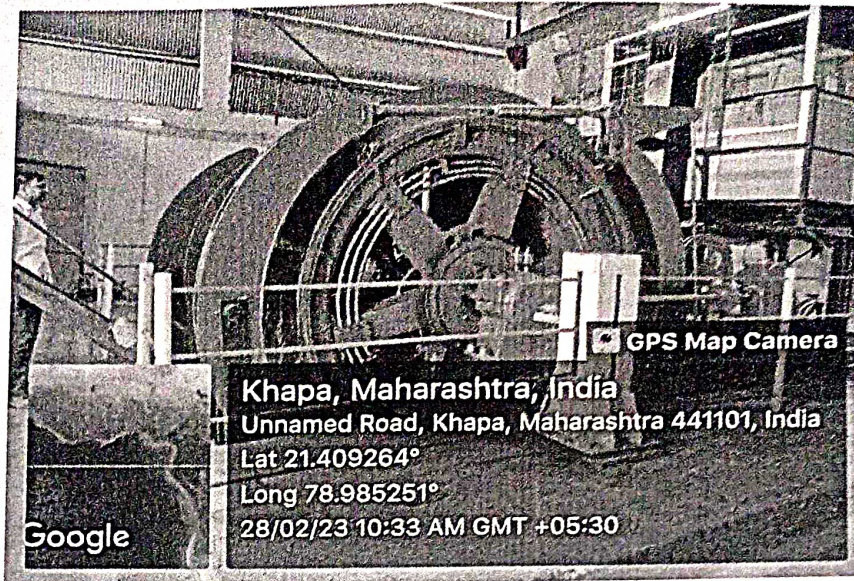
## Locomotive

A battery-electric locomotive (or battery locomotive) is an electric locomotive powered by on-board batteries; a kind of battery electric vehicle.

Such locomotives are used where a conventional diesel or electric locomotive would be unsuitable. An example is maintenance trains on electrified lines when the electricity supply is turned off. Another use is in industrial facilities where a combustion-powered locomotive (i.e., steam- or diesel-powered) could cause a safety issue due to the risks of fire, explosion or fumes in a confined space. Battery locomotives are preferred for mines where gas could be ignited by trolley-powered units arcing at the collection shoes, or where electrical resistance could develop in the supply or return circuits, especially at rail joints, and allow dangerous current leakage into the ground.[48]



## Winder

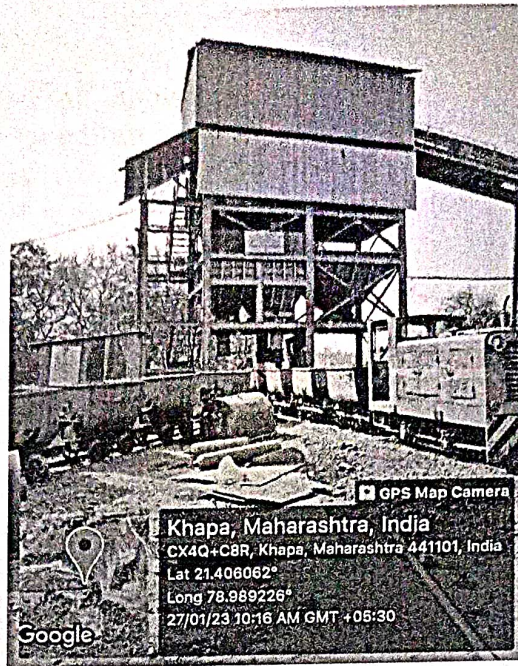


Mine winders with a pair of cylindrical drums are used for single- and double layer rope winding onto the double-skip and double-cage hoists as well as on counter-weight-fitted single vessel hoists. A distinctive feature of the machines is the brake housed inside the drum.

This enables the entire outside cylindrical drum surface to be utilized for rope winding (this increasing coiling length of the drum with its size specified and decreasing its overall dimensions with the drum coiling length being preset). These machines provide load hoisting from several levels with the distance there between being determined by the coiling length of one drum. intelligent capital equipment purchase Mine Winder Multirope winders may have several (2, 3, 4, 6, 8) hoist ropes and may be installed either on the tower head frame directly over the mine shaft or in the building of the ground-based equipment at a certain distance from the shaft. Multirope winders are mainly used for large-sized loads hoisting from the large depths levels



## Crushing and screening



Crushing involves breaking of hard materials into small pieces by pressing, pounding, or grinding. Crushing equipment are utilized to change the size of hard waste materials and to recycle them easily. They are also used to differentiate between pieces of different compositions. Screening is primarily used to give a final separation to coarse materials. It is used as a final process for the separation of the different-sized material. Crushers and screeners are categorized into three types—cone crushers, horizontal shaft impact crushers, and jaw crushers. Mineral processing equipment is segmented into four types—grinding machine, spiral classifiers, magnetic separation, and spiral dewaterers. Crushing, screening and mineral processing equipment mainly finds application in construction and plant modification, foundries & smelters, and mining



## CHAPTER 4: SWOC ANALYSIS

### Strengths :-

- Largest producer of manganese ore by volume in the country with largest reserve of high / medium grade of manganese ore.
- Strong financials with high net worth and zero debt.
- Availability of manpower with good work culture and industrial relations.
- Moil is environment friendly mining company.

### Weaknesses :-

- Moil's mines are very old and full mechanization is relatively difficult.
- All India manganese exploration is limited work.

### Opportunities :-

- Moil is a good market potential for low/ medium grade ores due to continued increases in use of silico manganese in steel production.
- Moil has strong financials, i.e., large cash reserves provides opportunity to Moil to go for major investment plants.

### Challenges

- Old infrastructure
- In underground mines, there are many challenges like moisture and gases.



## CHAPTER 5: LEARNING

- 1] study of 3 wire 11kv supply from MSEDCL.
- 2] 1500 KVA transformer.
- 3] study of HT panel
- 4]study of how to locomotive is work .
- 5] study of how to winder working and used.



# **FIELD PROJECT REPORT**

**on**

**“Technotium Tech Pvt.Ltd”**

Submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

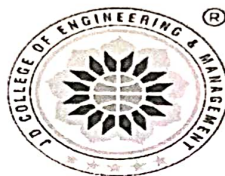
**Electrical Engineering**

**Submitted by:**

**Roll no. 01 to 20**

**Under the Guidance of**

**Prof. P.P.Panchbhai**



**Education to Eternity**

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**(An Autonomous Institute, with NAAC "A" Grade)**

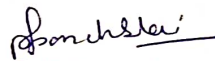
**Affiliated to DBATU ,Lonere**

**Year 2019-20**


## CERTIFICATE

This is to certify that the filed visit report on, "Technotium Tech Pvt.Ltd" in the subject **Electrical Engineering** in the faculty of Science and Technology submitted by following students to **DBATU ,Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision.

Roll No.	STUDENT NAME	Roll No.	STUDENT NAME
1	AADESH SHIVSHANKAR THOOL	17	HIMANI RADHESHYAM PATLE
2	ABHISHEK PRADIP SHENDE	18	ISRAR SALIM SHEIKH
3	AISHWARY KUMAR SANJAY BAGDE	19	KAPIL MORESHWARRAO GAIKWAD
4	ANIKET JAYPAL MESHAM	20	KARISHMA WASUDEO RAGIT
5	ANIL BRAHMANAND FUNDE		
6	ANJALEE BABLU WASNIK		
7	ANKITA PANCHUJI WARKHADE		
8	ANKUSH ASHOKRAO KOLHE		
9	APURVA SUDHIR DUDHE		
10	ARSHIYA SHABBIR SHEIKH		
11	ASHISH LAXMAN BRAMHANKAR		
12	ASHVINI KASHIRAO DUDHAKAWARE		
13	BAHULASHWA ANIL KAMBLE		
14	BHUWANESHWARI SHIVSHANKAR GABHANE		
15	DRAVID ANIL GEDAM		
16	HARISH ARJUN BEHANIYA		

  
**Prof. P.P.Panchbhai**  
Internship Coordinator, EE

Forwarded to:

  
**Dr. S.R.Vaishnav**  
Head of Department  
Electrical Engineering

**Date:21/01/2020**



## ACKNOWLEDGEMENT

I express our sincere gratitude, for giving us the opportunity to work in the industry. I owe our sincerest gratitude towards **Dr. S.R.Chaudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

The constant guidance and encouragement received from **Dr. S.R.Vaishnav**, Head, **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, has been of great help in carrying out during the internship and is acknowledged with reverential thanks.

I would like to thank **Prof.P.P.Panchbhai**, Departmental Internship Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of internship.

Without his wise counsel and able guidance, it would have been impossible to complete the internship in this manner.

I would like to thank **Mr. Snehal Jangale**, **Technotium Tech Pvt.Ltd** for giving me the opportunities to work in the industry/company.

I express gratitude to other faculty members of **Department of Electrical Engineering**, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

## CHAPTER 1: EXECUTIVE SUMMARY

A solar panel is actually a collection of solar (or photovoltaic) cells, which can be used to generate electricity through photovoltaic effect. These cells are arranged in a grid-like pattern on the surface of solar panels. Thus, it may also be described as a set of photovoltaic modules, mounted on a structure supporting it. A photovoltaic (PV) module is a packaged and connected assembly of  $6 \times 10$  solar cells.

When it comes to wear-and-tear, these panels are very hardy. Solar panels wear out extremely slow. In a year, their effectiveness decreases only about one to two per cent.

Most solar panels are made up using crystalline silicon solar cells.

Installation of solar panels in homes helps in combating the harmful emissions of greenhouse gases and thus helps reduce global warming. Solar panels do not lead to any form of pollution and are clean. They also decrease our reliance on fossil fuels (which are limited) and traditional power sources.

These days, solar panels are used in wide-ranging electronic equipments like calculators, which work as long as sunlight is available.

However, the only major drawback of solar panels is that they are quite costly. Also, solar panels are installed outdoors as they need sunlight to get charged.

The tracking solar panel project will proficiently absorb/ collect sunlight and produce a more efficient system of power generation in comparison to a fixed system.



## CHAPTER 2 :ABOUT THE FIRM

### 2.1 Brief history

Established in the year 2013 at Nagpur, Maharashtra, we "Technotium Tech" are a Partnership based firm, engaged as the Wholesale Supplier of Rooftop System, Panel System, Solar Power Plant etc. The products which are manufacture are widely appreciated by our clients for their astonishing finish, perfect quality and cost valuable nature.

Technotium Tech is located at 19F, Shatabdi square, Badil kheda, Nagpur, Maharashtra 440027

#### Products of companies

##### Panel

Trina Solar Limited, Canadian Solar Inc., Tata Power Solar Systems Ltd., Panasonic Corporation (Sanyo), Waaree Energies Ltd, Vikram Solar Limited, Goldi Solar Pvt Ltd, Navitas Green Solutions Pvt. Ltd., ICON Solar-en Power Technologies Pvt Ltd, Adani Solar

##### Inverter

SMA Solar Technology AG, Su-Vastika Solar (formerly Su-Kam Power Systems Ltd.), Delta Electronics, Inc., Shenzhen Growatt New Energy Technology Co., Ltd., FIMER S.p.A., GoodWe Technologies Co., Ltd., SolaX Power Network Technology (Zhejiang) Co., Ltd.

### 2.2 Introduction of the organization

**Technotium Tech** is the supplier of high-performance solar power products that convert sunlight into electricity, for residential, commercial and utility-scale power generation and is emerging as the best solar company in Nagpur Area. Establishing itself as a leading solar module supplier in central India and adjoining regions Technotium tech has ranked itself as a leading solar module supplier in the country Capitalizing on its strength in solar cell technology, it is committed to provide panels with unparalleled conversion efficiency, yield efficiency, and reliability to enable customers to maximize the returns of their projects. We strongly believe in teamwork and acknowledge the efforts of our team for maintaining the quality and integrity at every stage of the production cycle, from R & D to production, sales, and packaging. We strictly follow the industry standards which are reflected in all aspects of the organization.

#### Website

<http://www.technotium.in/>



## 2.3 Policy of the organization

### Collecting data

#### A. How we obtain information about you.

We collect information about you if you are a Site Visitor, or User, directly from you, from third parties, and automatically through your use of our Services. We may combine information collected from or about you from these various sources. You have choices about the data we collect. When you are asked to provide personal data, you may decline. But if you choose not to provide data that is necessary to provide a product or feature, you may not be able to use that product or feature. The data we collect depends on the context of your interactions with us and our Services, the choices you make, including your privacy choices, and the products and features of our Services that you use or otherwise access.

#### B. We collect data when you communicate with us

- If you contact us in any manner we will keep any information you provide to us including records of correspondence, and you should be aware that we monitor and may record telephone calls and written correspondence for training and security purposes.
- If you provide feedback or testimonials to us, or take part in any customer survey, or participate in events, promotions, product, feature or service launches, or competitions, we will collect any information you provide.

#### Information We Collect Automatically Through Our Services.

We automatically collect information about you through your use of our Services, including, without limitation:

- Log information which may include your Internet protocol (IP) address, the type of browser you are using, information about the device you are using, domain name, the website that led you to our Services, the website to which you go after leaving our Services, your location, and the dates and times you access our Services.
- Usage information, such as numbers of the scenes viewed by you, the combination of bands selected or used by user, and the types of analytics or algorithms a user applies, search histories or any communication logs if applicable.

Please see our Cookies and Other Tracking Mechanisms section below for more information. We may combine information we collect automatically with information we collect directly from you or from third parties.



## CHAPTER 3 : ABOUT THE WORK DONE/PROJECTS

### 3.1 INTRODUCTION

**Solar power** is the conversion of energy from sunlight into electricity, either directly using photovoltaics (PV), indirectly using concentrated solar power, or a combination. Concentrated solar power systems use lenses or mirrors and solar tracking systems to focus a large area of sunlight into a small beam. Photovoltaic cells convert light into an electric current using the photovoltaic effect. Solar power is a form of energy harnessed from the power and heat of the sun's rays. It is renewable, and therefore a "green" source of energy.

#### **How does it Work?**

The most common way of harnessing energy from the sun is through photovoltaic (PV) panels. Those large, mirror-like panels you've likely seen on rooftops, handheld solar devices, and even spacecraft.

These panels operate as conductors, taking in the sun's rays, heating up, and creating energy and electricity.

On a larger scale, solar thermal power plants also harness the power of the sun to create energy. These plants utilize the sun's heat to boil water and, in turn, power steam turbines. These plants can supply power to thousands of people.

### 3.2 OBJECTIVE

objectives of a solar power plant are as follows:-

1. **Energy Savings:** - Solar utilizes lower powered items such as LED / CFL lamps, lower powered electronics, etc. that do not use as much power as standard electric systems. Also, LEDs are powered from 12 V DC initially and require AC adapters to power with standard electric. By using DC power for LEDs, they are able to operate more efficiently by providing more light and less heat. In this way electricity can be saved.
2. **Eco-Friendly:** -To promote ecologically sustainable growth while addressing India's energy security challenges.
3. **Easy Installation:** - Solar panels are easy to install, typically only needing a few bolts to hold them secure and some basic wiring. Solar lighting systems provide the solar power system at the top of the pole for most installation configurations, leaving all important electrical material at the top of the pole. Solar power systems can require a bit more for a simple installation; however, the low voltage DC power is much safer to work with than standard electric.
4. **Battery Backup:** - Most solar systems today utilize a battery backup that allows for three plus days storage of the power needed to keep the system running. That way, if the sun goes out, you will still have power for a couple days.



5. Available Anywhere: - Solar can be installed anywhere, even when what it is powering is in the shade. No matter what the circumstance, if there is a sunny spot nearby the solar can be installed to power something remotely installed. There is even technology today turning roofing or windows into photovoltaic sources.

6. Green: - Green energy is totally the new rage, but it is also a way to look out for the future of our planet and reduce our impact.

### 3.3 TYPES CRYSTALLINE SILICON CELL

#### 1. Monocrystalline :

In this, silicon produced as a single crystal in continuous internal structure is used for making mono-crystalline cells. This type of silicon is made into a large cylindrical ingot. In mono-crystalline, thinly sliced are used to create water cells which are usually black or dark blue in colors. This manufacturing processes demanding greater resources than the poly-crystalline cells. Their cost is generally more but offering slightly higher efficiency.

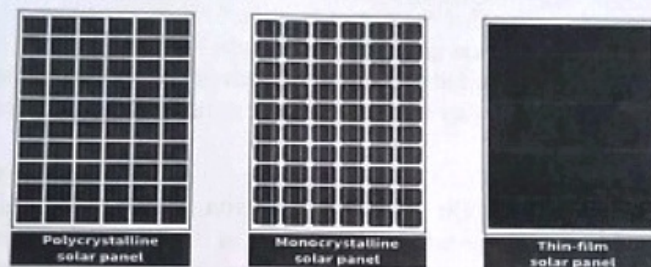


Fig 1 : Types Of Solar Panels

#### 2. Polycrystalline :

They are also known as multi-crystalline material in which silicon cell is generally made from multiple crystals. They can give a distinct flaky look and often blue in appearance. This type of silicon can be manufactured in square ingots and generally a less resource-intensive to produce. The process of manufacturing poly-crystalline wafers has improved in a stage where the performance and efficiency of a polycrystalline panel are much affordable to that of the monocrystalline panel and at less in price.

#### 3. Thin Film :

It is made by the deposition of exceptionally thin layers of the photovoltaic material substrate on thin-film technology. They employ a range of materials including copper, silicon, cadmium to create a solar cell. In this, both flexible and rigid modules can be created. We saw that solar generation to be better integrated into buildings and products compared to other crystalline silicon. In most countries, thin-film solar panels are no longer available due to the lower efficiency and higher cost as compared with modern polysilicon panels.



### 3.4 SOLAR PANEL ORIENTATION AND POSITIONING

Solar power offers many advantages in the generation of electricity. It has zero raw fuel costs, unlimited supply and no environmental issues such as transport, storage, or pollution. Solar power is available everywhere, even on the moon. But to get the most out of a solar panel or solar array, it has to be pointed or "orientated" directly at the sun's radiant energy because as we know, the more surface area that is exposed to direct sunlight, the more output the photovoltaic panel will produce, but here lies the problem.

While the photovoltaic solar panel may be perfectly aligned to receive the sun's energy, it is a stationary object being fixed to either a roof or mounted directly onto a frame. With regards to a solar panel, the sun however is not in a stationary position and is constantly changing its position in the sky relative to the earth from morning through to night making the correct solar panel orientation difficult.

So the challenge in getting the maximum benefit of free solar power is to ensure that a photovoltaic solar panel or a complete PV array, is correctly orientated and positioned with regards to the direct sunlight coming from the sun at all times of the day. As well as the "solar panel orientation", the number of hours of sunlight a day the solar panel receives as well as the intensity or brightness of the sunlight are also important.

### 3.5 SOLAR PANEL AZIMUTH AND ZENITH ORIENTATION

Solar PV modules and panels work best when their absorbing surface is perpendicular to the sun's incoming rays. The position of the sun in the sky can be plotted using two angles, azimuth and zenith and the angle of the solar panel orientation relies upon these two values.

#### Azimuth Orientation

This is the compass angle of the sun as it moves through the sky from East to West over the course of the day. Generally, azimuth is calculated as an angle from true south. At solar noon which is defined as an azimuth angle of zero degrees, therefore  $\text{Azimuth} = 0^\circ$ , the sun will be directly south in the northern hemisphere and directly north in the southern hemisphere.

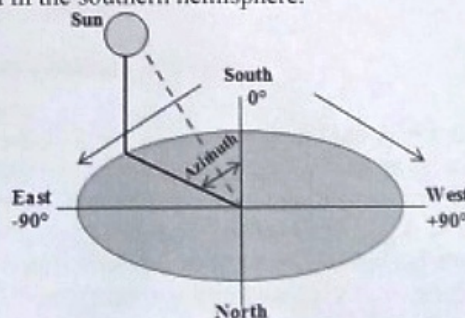


Fig 2 : Azimuth Orientation

Solar azimuth angles to the east of due south are negative in nature, with due east having an azimuth angle of  $-90^\circ$ . Solar azimuth angles to the west of due south are positive in nature, with due west



### 3.4 SOLAR PANEL ORIENTATION AND POSITIONING

Solar power offers many advantages in the generation of electricity. It has zero raw fuel costs, unlimited supply and no environmental issues such as transport, storage, or pollution. Solar power is available everywhere, even on the moon. But to get the most out of a solar panel or solar array, it has to be pointed or "orientated" directly at the sun's radiant energy because as we know, the more surface area that is exposed to direct sunlight, the more output the photovoltaic panel will produce, but here lies the problem.

While the photovoltaic solar panel may be perfectly aligned to receive the sun's energy, it is a stationary object being fixed to either a roof or mounted directly onto a frame. With regards to a solar panel, the sun however is not in a stationary position and is constantly changing its position in the sky relative to the earth from morning through to night making the correct solar panel orientation difficult.

So the challenge in getting the maximum benefit of free solar power is to ensure that a photovoltaic solar panel or a complete PV array, is correctly orientated and positioned with regards to the direct sunlight coming from the sun at all times of the day. As well as the "solar panel orientation", the number of hours of sunlight a day the solar panel receives as well as the intensity or brightness of the sunlight are also important.

### 3.5 SOLAR PANEL AZIMUTH AND ZENITH ORIENTATION

Solar PV modules and panels work best when their absorbing surface is perpendicular to the sun's incoming rays. The position of the sun in the sky can be plotted using two angles, azimuth and zenith and the angle of the solar panel orientation relies upon these two values.

#### Azimuth Orientation

This is the compass angle of the sun as it moves through the sky from East to West over the course of the day. Generally, azimuth is calculated as an angle from true south. At solar noon which is defined as an azimuth angle of zero degrees, therefore  $\text{Azimuth} = 0^\circ$ , the sun will be directly south in the northern hemisphere and directly north in the southern hemisphere.

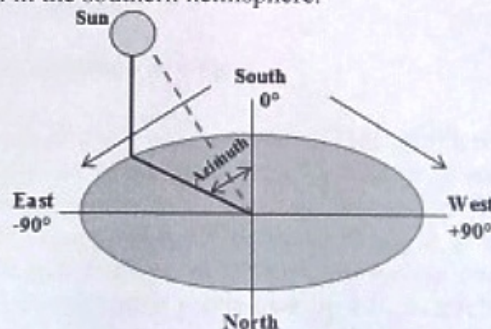


Fig 2 : Azimuth Orientation

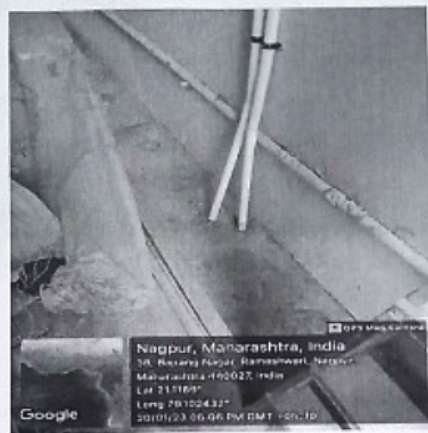
Solar azimuth angles to the east of due south are negative in nature, with due east having an azimuth angle of  $-90^\circ$ . Solar azimuth angles to the west of due south are positive in nature, with due west



**Average generation:** 16-20 unit per day  
**Space required:** 340 sq ft

**How solar panel work:** When the sun shines onto a solar panel, energy from the sunlight is absorbed by the PV cells in the panel. This energy creates electrical charges that move in response to an internal electrical field in the cell, causing electricity to flow.

## 2. Earthing Connection To Meter



**Fig 7: 4 KW Earthing**

### **Earthing connection:**

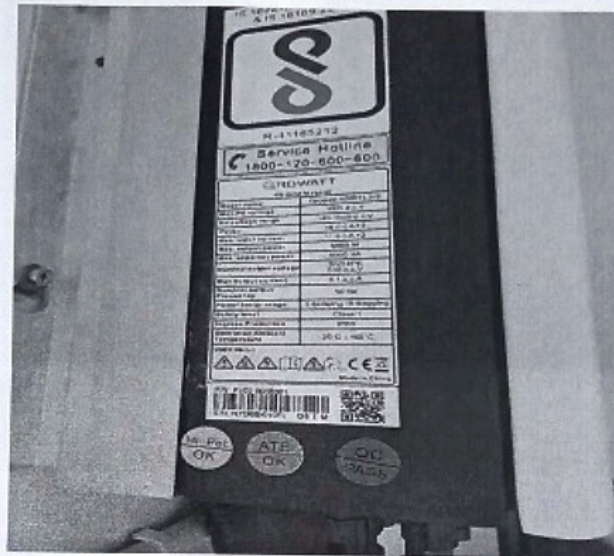
2. Structure Earthing
3. LA Earthing
4. Inverter Earthing

**Cable size :** 2mm



- IP65 environmental protection
- Easy to install

### 3. Specification of Inverter



**Fig 11 : 6 KW Specification of inverter**

The labels provide unique identification of the inverter

#### 4.Lightning Arrestor

- Lightning arrestors are designed to absorb voltage spikes caused by electrical storms and effectively allow the surge to bypass power wiring and your equipment.



## CHAPTER 4 : SWOC ANALYSIS

### Strengths

- Infinite source of energy
- Completely pollution free
- Domestic manufacturing base for PV modules
- The distinctive qualities that provide a company with an edge in acquiring greater market share, attracting a larger audience, and maximizing profitability.
- The business model in which Solar Industries deals is not easy to be copied by anyone.
- Solar Industries has been consistently awarded for the longest accident-free period .

### Weakness

- Storage is a constraint
- Shortage of technical and financial resources
- High initial replacement
- Lack of technical support for remote location

### Opportunities

- Awareness of green technologies among the public
- Overall cost of the energy technology decreases with large scale utilisation
- Opportunities refers to the chances of the progress of the company in future. Let's have a look at the opportunities for Solar Industries.
- Increasing allowing suppliers to provide a wider range of products.
- Solar Industries should try seeking more government contracts.

### Challenges

- Location can be an issue. The availability of solar radiation can vary depending on location.
- Solar PV has challenges regarding the uncertainty of how much of sun's rays it would receive, as weather can change from time to time. This would prove difficulty in determining how much energy to store for future use. Sunlight is clearly unavailable during night hours while there is still demand for electricity. In addition, peak radiation availability may not match with the demand for peak electricity. A mechanism for effective energy storage and efficient recovery is needed for this reason.



## CHAPTER 5 : LEARNING

### 5.1 Solar PV system

Solar photovoltaic system or Solar power system is one of renewable energy system which uses PV modules to convert sunlight into electricity. The electricity generated can be either stored or used directly, fed back into grid line or combined with one or more other electricity generators or more renewable energy source. Solar PV system is very reliable and clean source of electricity that can suit a wide range of applications such as residence, industry, agriculture, livestock, etc.

Solar cells produce direct current (DC), therefore they are only used for DC equipment. If alternating current (AC) is needed for AC equipment or backup energy is needed, solar photovoltaic systems require other components in addition to solar modules. These components are specially designed to integrate into solar PV system, that is to say they are renewable energy products or energy conservation products and one or more of components may be included depending on type of application.

**The components of solar photovoltaic system are:**

#### 1. Solar PV Module

Solar Module is the essential component of any solar PV system that converts sunlight directly into DC electricity.

#### 2. Solar Charge Controller

It regulates voltage and current from solar arrays, charges the battery, prevents battery from overcharging and also performs controlled over discharges.

#### 3. Battery

Battery stores current electricity that produces from solar arrays for using when sunlight is not visible, night time or other purposes.

#### 4. Inverter

Inverter is a critical component of any solar PV system that converts DC power output of solar arrays into AC for AC appliances.

#### 5. Lightning protection

It prevents electrical equipment from damages caused by lightning or induction of high voltage surge. It is required for the large size and critical solar PV systems, which include the efficient grounding



## **2. Size the PV modules**

Different size of PV modules will produce different amount of power. To find out the sizing of PV module, the total peak watt produced needs. The peak watt (Wp) produced depends on size of the PV module and climate of site location. We have to consider panel generation factor which is different in each site location. For Thailand, the panel generation factor is 3.43.

To determine the sizing of PV modules, calculate as follows:

### **2.1 Calculate the total Watt-peak rating needed for PV module**

### **2.2 Calculate the number of PV panels for the system**

Result of the calculation is the minimum number of PV panels. If more PV modules are installed, the system will perform better and battery life will be improved. If fewer PV modules are used, the system may not work at all during cloudy periods and battery life will be shortened.

## **3. Inverter sizing**

An inverter is used in the system where AC power output is needed. The input rating of the inverter should never be lower than the total watt of appliances. The inverter must have the same nominal voltage as your battery. For stand-alone systems, the inverter must be large enough to handle the total amount of Watts you will be using at one time. The inverter size should be 25-30% bigger than total Watts of appliances. In case of appliance type is motor or compressor then inverter size should be minimum 3 times the capacity of those appliances and must be added to the inverter capacity to handle surge current during starting. For grid tie systems or grid connected systems, the input rating of the inverter should be same as PV array rating to allow for safe and efficient operation.

## **4. Battery sizing**

The battery type recommended for using in solar PV system is deep cycle battery. Deep cycle battery is specifically designed for to be discharged to low energy level and rapid recharged or cycle charged and discharged day after day for years. The battery should be large enough to store sufficient energy to operate the appliances at night and cloudy days. To find out the size of battery, calculate as follows:

4.1 Calculate total Watt-hours per day used by appliances.

4.2 Divide the total Watt-hours per day used by 0.85 for battery loss.

4.3 Divide the answer obtained in item 4.2 by 0.6 for depth of discharge.

4.4 Divide the answer obtained in item 4.3 by the nominal battery voltage.

4.5 Multiply the answer obtained in item 4.4 with days of autonomy (the number of days that you need the system to operate when there is no power produced by PV panels) to get the required

Ampere-hour capacity of deep-cycle battery.



$$\begin{aligned} 2.2 \text{ Number of PV panels needed} &= 413.9 / 110 \\ &= 3.76 \text{ modules} \end{aligned}$$

Actual requirement = 4 modules

**So this system should be powered by at least 4 modules of 110 Wp PV module.**

### 3. Inverter sizing

Total Watt of all appliances =  $18 + 60 + 75 = 153 \text{ W}$

For safety, the inverter should be considered 25-30% bigger size.

**The inverter size should be about 190 W or greater.**

### 4. Battery sizing

Total appliances use =  $(18 \text{ W} \times 4 \text{ hours}) + (60 \text{ W} \times 2 \text{ hours}) + (75 \text{ W} \times 12 \text{ hours})$

Nominal battery voltage = 12 V

Days of autonomy = 3 days

$$\text{Battery capacity} = \frac{[(18 \text{ W} \times 4 \text{ hours}) + (60 \text{ W} \times 2 \text{ hours}) + (75 \text{ W} \times 12 \text{ hours})] \times 3}{(0.85 \times 0.6 \times 12)}$$

Total Ampere-hours required 535.29 Ah

**So the battery should be rated 12 V 600 Ah for 3 day autonomy.**

### 5. Solar charge controller sizing

PV module specification

$P_m = 110 \text{ Wp}$

$V_m = 16.7 \text{ Vdc}$

$I_m = 6.6 \text{ A}$

$V_{oc} = 20.7 \text{ A}$

$I_{sc} = 7.5 \text{ A}$

Solar charge controller rating =  $(4 \text{ strings} \times 7.5 \text{ A}) \times 1.3 = 39 \text{ A}$

**So the solar charge controller should be rated 40 A at 12 V or greater**



# **ELECTRICAL ENERGY AUDIT OF KINETIC GEARS INDUSTRY**

A Project Report submitted in partial fulfillment of the  
requirements for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Ankita Makade**

**Antush Nitnaware**

**Amar Chaware**

**Niraj Wankhede**

**Vaibhav Bansod**

**Vivek Jawale**

**Under the Guidance of**

**Dr. Vaishnavi Dhok**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management,  
Nagpur-441501**

# **ELECTRICAL ENERGY AUDIT OF KINETIC GEARS INDUSTRY**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Ankita Makade**

**Antush Nitnaware**

**Amar Chaware**

**Niraj Wankhede**

**Vaibhav Bansod**

**Vivek Jawale**

**Under the Guidance of**

**Dr. Vaishnavi Dhok**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "Electrical Energy Audit of Kinetic Gears Industry" in the subject Department of Electrical Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Dr. Vaishnavi Dhok Department of Electrical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 08/03/2021

Name of Students

Ankita Makade

Antush Nitnaware

Amar Chaware

Niraj Wankhede

Vaibhav Bansod

Vivek Jawale

## CERTIFICATE

This is to certify that the project report entitled, "Electrical Energy Audit of Kinetic Gears Industry" in the subject Department of Electrical Engineering in the faculty of Science and Technology submitted by Ms. Ankita Makade, Mr. Antush Nitnaware, Mr. Amar Chaware, Mr. Niraj Wankhede, Mr. Vaibhav Bansod, Mr. Vivek Jawale to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



(Dr. Vaishnavi Dhok)

Department of Electrical Engineering

Forwarded to:

(Prof. Akshay Kakde)  
Project Coordinator

(Dr. Satish Vaishnav)  
Head of the Department  
Electrical Engineering

(Dr. S. R. Choudhari)

Principle



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **ELECTRICAL ENERGY AUDIT OF KINETIC GEARS INDUSTRY** is approved work done by

**Ankita Makade**

**Antush Nitnaware**

**Amar Chaware**

**Niraj Wankhede**

**Vaibhav Bansod**

**Vikek Jawale**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering** in **Department of Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Dr. Vaishnavi Dhok**

Guide

**Dr. Satish Vaishnav**

Head of the Department

Project Examination held on 18/09/2020

**Internal Examiner**

**External Examiner**

# **“Energy Generation using Interconnected motors in a Closed-loop”**

**A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of**

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Name of the Students:**

<b>Mr. Dinesh Lagad</b>	<b>(20174091337252)</b>
<b>Mr. Raunak Mendhe</b>	<b>(20181091348044)</b>
<b>Mr. Rajat Kirnayke</b>	<b>(20181091348041)</b>
<b>Mr. Vishal Baghel</b>	<b>(20181091349723)</b>
<b>Mr. Vaibhav Gour</b>	<b>(20174091339922)</b>
<b>Mr. Ankush Bagade</b>	<b>(20174091337527)</b>

**Under the Guidance of:**

**Prof. S. T. Telrandhe**



**Education to Eternity**

**Department of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Energy Generation using Interconnected motors in a Closed-loop**" in the subject of ELECTRICAL ENGINEERING in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Mr. S. T. Telrandhe**, Electrical Engineering Department, J. D. College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place : Nagpur

Name of Student

Date: 30/12/2020

Mr. Dinesh Lagad

Mr. Raunak Mendhe

Mr. Rajat Kirnayke

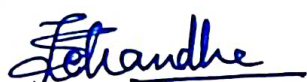
Mr. Vishal Baghel

Mr. Vaibhav Gour

Mr. Ankush Bagade

## CERTIFICATE

This is to certify that the project report entitled, "Energy Generation using Interconnected motors in a Closed-loop" in the subject Electrical Engineering in the faculty of Science and Technology submitted by Dinesh Lagad, Raunak Mendhe, Vishal Baghel, Vaibhav Gour, Rajat Kirnayke to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Mr. S. T. Telrandhe**

Project Guide



**Mr. Akshay Kakde**

Project Coordinator



**Dr. S. R. Vaishnav**

Head of the Department

Electrical Engineering

**Dr. S. R. Chaudhari**

Principal

JDCEM, Nagpur



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on "Energy Generation using Interconnected motors in a Closed-loop" is approved work done by Dinesh Lagad, Raunak Mendhe, Vishal Baghel, Vaibhav Gour, Rajat Kirnayke, Ankush Bagade in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Electrical Engineering at J D College of Engineering & Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during the academic year 2020-2021.



**Mr. S. T. Telrandhe**

Project Guide



**Dr. S. R. Vaishnav**

Head of the Department

---

Project Examination held on \_\_\_\_\_

**External Examiner**

# **SMART CLASSROOM AUTOMATION SYSTEM USING ARDUINO AND IOT**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Shubham V. Kulsange**

**Akshay S. Bhoyar**

**Stuti S. Patil**

**Shyamli U. Kamane**

**Swati M. Gajbe**

**Under the Guidance of**

**Prof. Pranay Ambade**



Education to Eternity

**Department of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



# **SMART CLASSROOM AUTOMATION SYSTEM USING ARDUINO AND IOT**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Shubham V. Kulsange**

**Akshay S. Bhoyar**

**Stuti S. Patil**

**Shyamli U. Kamane**

**Swati M. Gajbe**

**Under the Guidance of**

**Prof. Pranay Ambade**



Education to Eternity

**Department of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## **DECLARATION**

We hereby declare that the work presented in this project report entitled, “**Smart Classroom Automation System Using Arduino And Iot**” in the subject **Electrical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Pranay Ambade, Name of Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Date

Name of Students

Shubham V.Kulsange

Akshay S. Bhoyar

Stuti S. Patil

Shyamli U. Kamane

Swati M. Gajbe



## **CERTIFICATE**

This is to certify that the project report entitled, "**Smart Classroom Automation System Using Arduino And Iot**" in the subject Electrical in the faculty of Science and Technology submitted by **Shubham V. Kulsange, Akshay S. Bhoyar, Stuti S. Patil, Shyamli U. Kamane, Swati M. Gajbe** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Mr. Pranay Ambade**

Department of Electrical Engineering

Forwarded to:

**Mr. Akshay Kakde**

Project Coordinator

**Dr. S. R. Vaishnav**

Head of the Department

**Dr. S. R. Choudhari**

Principal

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report "Smart Classroom Automation System Using Arduino And Iot" is approved work done by

**Shubham V. Kulsange**

**Akshay S. Bhoyar**

**Stuti S. Patil**

**Shyamli U. Kamane**

**Swati M. Gajbe**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019 -2020.

**Mr. Pranay Ambade**

Guide

**Dr. S. R Vaishnav**

Head of the Department

Project Examination held on\_\_\_\_\_

**Internal Examiner/Guide**

**External Examiner**



# **MULTISOURCE POWER SUPPLY WITH NO BREAK TECHNIQUE USING ARDUINO UNO MICROCONTROLLER**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

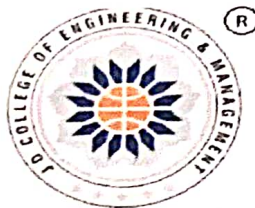
**Electrical Engineering  
Specialization**

**Submitted by**

**Kunal Wankhede  
Shatrughna Chamlate  
Monika Raut  
Nikhil Belone  
Rina Bhaladhare  
Abhinandan Dable**

**Under the Guidance of**

**Mr. Yogesh. P. Mundhada**



Education to Eternity

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

# **MULTISOURCE POWER SUPPLY WITH NO BREAK TECHNIQUE USING ARDUINO UNO MICROCONTROLLER**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering  
Specialization**

**Submitted by**

**Kunal Wankhede  
Shatrughna Chamlate  
Monika Raut  
Nikhil Belone  
Rina Bhaladhare  
Abhinandan Dable .**

**Under the Guidance of**

**Mr. Yogesh P. Mundhada**



Education to Eternity

**Department Of Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## **DECLARATION**

We hereby declare that the work presented in this project report entitled, **“MULTISOURCE POWER SUPPLY WITH NO BREAK TECHNIQUE USING ARDUINO UNO MICROCONTROLLER”** in the subject **Electrical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Mr. Yogesh P. Mundhada, Department of Electrical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

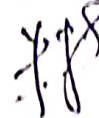
Place: Nagpur

Date :

Kunal Wankhede  
Shatrughna Chamlate  
Monika Raut  
Nikhil Belone  
Rina Bhaladhare  
Abhinandan Dable

## CERTIFICATE

This is to certify that the project report entitled, **"MULTISOURCE POWER SUPPLY WITH NO BREAK TECHNIQUE USING ARDUINO UNO MICROCONTROLLER"** in the subject Electrical Engineering in the faculty of Science and Technology submitted by **Kunal Wankhede, Shatrughna Chamlate, Monika Raut , Nikhil Belone, Rina Bhuladhare, Abhinandan Dable,** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**(Mr. Yogesh P. Mundhada)**

Department Of Electrical Engineering

Forwarded to:



**(Mr. Akshay A. Kakde)**  
Project Coordinator



**(Dr. S. R. Vaishnav)**  
Head of the Department  
Department Of Electrical Engineering



**(Dr. S. R. Choudhari)**  
Principal



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **MULTISOURCE POWER SUPPLY WITH NO BREAK TECHNIQUE USING ARDUINO UNO MICROCONTROLLER** is approved work done by

**Kunal Wankhede  
Shatrughna Chamlate  
Monika Raut  
Nikhil Belone  
Rina Bhaladhare  
Abhinandan Dable**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Mr. Yogrsh P. Mundhada**  
Guide



**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by**  
**Mr. Sushil Dilip Uikey**  
**Mr. Aniket Kishor Wasnik**  
**Mr. Shubham Nagoraoji Dhongade**  
**Ms. Priyanka Pandurang Gayakwad**

**Under the Guidance of**  
**Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**



# **PROJECT REPORT**

## **The arrangement of parts of B.E. Final Year Project Report**

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover page
2. Inside cover page
3. Declaration Page
4. Certificate
5. Certificate of Approval
6. Index
7. Acknowledgement
8. List of Figures
9. List of Tables
10. Abbreviations and Symbols
11. Abstract
12. All Chapters
13. References
14. Annexure
15. List of papers published based on project
16. NPTEL Elite certificate
17. Photo Gallery
18. Bibliography

# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Sushil Dilip Uikey**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**



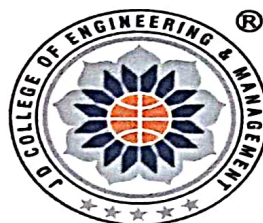
# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Aniket Kishor Wasnik**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**

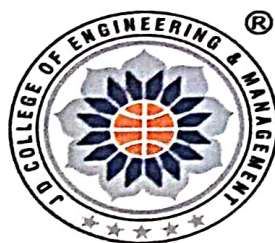
# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Shubham Nagoraoji Dhongade**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**



# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

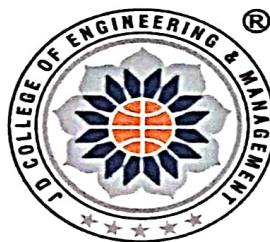
A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by**

**Ms. Priyanka Pandurang Gayakwad**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "SOLAR POWER BASED AUTO IRRIGATION SYSTEM" in the subject **Electrical Engineering Department** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof Ashutosh Joshi, Electrical Engineering Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Name of Student/Students


Date:

Mr. Sushil DilipUikey  
Mr. Aniket Kishor Wasnik  
Mr. Shubham Nagoraoji Dhongade  
Ms. Priyanka Pandurang Gayakwad



## CERTIFICATE

This is to certify that the project report entitled, , "Solar power based auto-irrigation system "in the subject Electrical Engineering Department in the faculty of Science and Technology submitted by by Sushil Uikey, Priyanka Gayakwad, AniketWasnik, ShubhamDhongade to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Ashutosh Joshi**  
Electrical Engineering Department

Forwarded to:



**Prof. Akshay Kakde**  
Project Coordinator



**Dr. S. R. Vaishnav**  
Head of the Department  
Electrical Engineering Department



**Dr. V. S. Sonekar**  
Principal  
**J.D. College of Engineering & Management**  
Khandala, Katol Road  
Nagpur-441501

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **TITLE OF THE PROJECT** is approved work done by


### Name of the Students

Mr. Sushil DilipUikey  
Mr. Aniket Kishor Wasnik  
Mr. Shubham Nagoraoji Dhongade  
Ms. Priyanka Pandurang Gayakwad

in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in Electrical Engineering at J D College of Engineering & Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. during the academic year 2017-2021.



Prof. Ashutosh Joshi  
Guide




Dr. S. R. Vaishnav  
Head of the Department

---

Project Examination held on \_\_\_\_\_



Internal Examiner/ Guide



External Examiner



# **DESIGN AND ANALYSIS OF BIDIRECTIONAL DC-DC CONVERTER FOR VEHICLE-TO-GRID APPLICATION IN ELECTRIC VEHICLES**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Aditya N. Gabhane**

**Gitesh R. Bhaisare**

**Krushna V. Tayde**

**Pranay S. Jagtap**

**Rupali D. Sonone**

**Under the Guidance of**

**Mr. Akshay Kakde**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "*Design and Analysis of DC-DC Bidirectional Converter for Vehicle-to-Grid Application in Electric Vehicles*" in the subject Electrical Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Mr. Akshay Kakde, Electrical, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Aditya N. Gabhane

Gitesh R. Bhaisare

Krushna V. Tayde

Pranay S. Jagtap

Rupali D. Sonone



## CERTIFICATE

This is to certify that the project report entitled, "*Design and Analysis of Bidirectional DC-DC Converter for Vehicle-to-Grid Application in Electric Vehicles*" in the subject Electrical Engineering in the faculty of Science and Technology submitted by Aditya N. Gabhane, Gitesh R. Bhaisare, Krushna V. Tayde, Pranay S. Jagtap, Rupali D. Sonone to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Mr. Akshay Kakde**  
Electrical Engineering

Forwarded to:



**Mr. Akshay Kakde**  
Project Coordinator



**Dr. S.R. Vaishnav**  
Head of the Department  
Electrical Engineering



**(Dr. S.R. Choudhari)**  
Principal

x

**Principal**

**J.D. College of Engineering & Management**  
Khandala, Katol Road  
Nagpur-441501

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on “Design and Analysis of DC-DC Bidirectional Converter for Vehicle-to-Grid Application in Electric Vehicles” is approved work done by

**Aditya N. Gabhane**

**Gitesh R. Bhaisare**

**Krushna V. Tayde**

**Pranay S. Jagtap**

**Rupali D. Sonone**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Mr. Akshay Kakde**  
Guide



**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Sushil Dilip Uikey  
Mr. Aniket Kishor Wasnik  
Mr. Shubham Nagoraoji Dhongade  
Ms. Priyanka Pandurang Gayakwad**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**

# **PROJECT REPORT**

## **The arrangement of parts of B.E. Final Year Project Report**

The sequence in which the project report material should be arranged and bound should be as follows:

1. Cover page
2. Inside cover page
3. Declaration Page
4. Certificate
5. Certificate of Approval
6. Index
7. Acknowledgement
8. List of Figures
9. List of Tables
10. Abbreviations and Symbols
11. Abstract
12. All Chapters
13. References
14. Annexure
15. List of papers published based on project
16. NPTEL Elite certificate
17. Photo Gallery
18. Bibliography



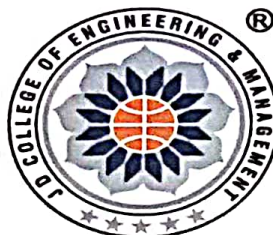
# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Sushil Dilip Uikey**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**

# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Aniket Kishor Wasnik**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**



# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by  
Mr. Shubham Nagoraoji Dhongade**

**Under the Guidance of  
Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**

# **SOLAR POWER BASED AUTO IRRIGATION SYSTEM**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by**

**Ms. Priyanka Pandurang Gayakwad**

**Under the Guidance of**

**Prof. Ashutosh Joshi**



**Education to Eternity**

**Electrical Engineering Department**

**J D College of Engineering and Management, Nagpur-441501**

**Year 2019-20**



## CERTIFICATE

This is to certify that the project report entitled, , "Solar power based auto-irrigation system "in the subject Electrical Engineering Department in the faculty of Science and Technology submitted by by Sushil Uikey, Priyanka Gayakwad, Aniket Wasnik, Shubham Dhongade to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur. for the award of the degree of Bachelor of Technology is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.




**Prof. Ashutosh Joshi**

Electrical Engineering Department


Forwarded to:



**Prof. Akshay Kakde**  
Project Coordinator



**Dr. S. R. Vaishnav**  
Head of the Department  
Electrical Engineering Department



**Dr. V. S. Sonekar**  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **TITLE OF THE PROJECT** is approved work done by

### Name of the Students

Mr. Sushil DilipUikey  
Mr. Aniket Kishor Wasnik  
Mr. Shubham Nagoraoji Dhongade  
Ms. Priyanka Pandurang Gayakwad

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Technology in Electrical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.** during the academic year 2017-2021.



**Prof. Ashutosh Joshi**  
Guide



**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_



**Internal Examiner/ Guide**



**External Examiner**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "SOLAR POWER BASED AUTO IRRIGATION SYSTEM" in the subject **Electrical Engineering Department** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof Ashutosh Joshi, Electrical Engineering Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:

Name of Student/Students

Date:

Mr. Sushil DilipUikey  
Mr. Aniket Kishor Wasnik  
Mr. Shubham Nagoraoji Dhongade  
Ms. Priyanka Pandurang Gayakwad

# **EXPERIMENTAL SETUP OF HYBRID POWER GENERATION WITH ASSOCIATED FLYWHEEL**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by**

**Bhagyashree L. Meshram  
Yoginee G. Dhawale  
Gopal V. Gayakwad  
Ankush D. Modle  
Krupalu S. Raut  
Prafulla S. Bawankar**

**Under the Guidance of**

**Ms. Harsha D. Jain**



**Education to Eternity**

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



# **Experimental Setup Of Hybrid Power Generation With Associated Flywheel**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

**Under the Guidance of**

**Ms. Harsha D. Jain**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "Experimental Setup Of Hybrid Power Generation With Associated Flywheel" in the subject Electrical Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Ms. Harsha Jain, Electrical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Bhagyashree L. Meshram

Yoginee G. Dhawale

Gopal G. Gayakwad

Ankush D. Modle

Krupalu S. Raut

Prafulla S. Bawankar



## CERTIFICATE

This is to certify that the project report entitled, "Experimental Setup Of Hybrid Power Generation With Associated Flywheel" in the subject Electrical Engineering in the faculty of Science and Technology submitted by Bhagyashree L. Meshram, Yoginee G. Dhawale, Gopal V. Gayakwad, Ankush D. Modle, Krupalu S. Raut, Prafulla S. Bawankar to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Ms. Harsha Jain**  
Electrical Engineering

Forwarded to:

**Mr. Akshay Kakde**  
Project Coordinator

**Dr. S.R. Vaishnav**  
Head of the Department  
Electrical Engineering

**Dr. S.R. Chaudhari**  
Principal

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on "Experimental Setup Of Hybrid Power Generation With Associated Flywheel" is approved work done by

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Ms. Harsha Jain**  
Guide

**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on “Experimental Setup Of Hybrid Power Generation With Associated Flywheel” is approved work done by

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Ms. Harsha Jain**  
Guide

**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on “Experimental Setup Of Hybrid Power Generation With Associated Flywheel” is approved work done by

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Ms. Harsha Jain**  
Guide

**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



# **SPEED CONTROL OF DC MOTOR BY USING IOT**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Chaitrali Dhenge**

**Lalit Khiradkar**

**Pratima Uparwat**

**Kunal Kamble**

**Arati Sindimeshram**

**Under the Guidance of**

**Prof. Pratiksha Panchbhai**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

## DECLARATION

We hereby declare that the work presented in this project report entitled, “Speed Control Of DC Motor by Using IOT” in the subject Electrical Engineering in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Miss. Pratiksha Panchbhai , Electrical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

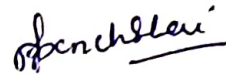
Date :

Chaitrali Dhenge  
Lalit Khiradkar  
Pratima Uparwat  
Kunal Kamble  
Arati shindimeshram



## **CERTIFICATE**

This is to certify that the project report entitled, “ Speed Control Of DC Motor By Using IOT” in the subject Electrical Engineering in the faculty of Science and Technology submitted by Chaitrali Dhenge, Lalit Khiradkar, Pratima Uparwat, Kunal Kamble, Arati Sindimeshram to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Pratiksha Panchbhair**  
Electrical Department

Forwarded to:



**Prof. Akshay Kakde**  
Project Coordinator

**Dr. Satish Vaishnav**  
Head of the Department  
Electrical Department

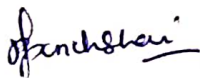
**Dr.S .R.Choudhari**  
Principal

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **TITLE OF THE PROJECT** is approved work done by

Chaitrali Dhenge  
Lalit Khiradkar  
Pratima Uparwat  
Kunal Kamble  
Arati Sindimeshram

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering** in **Electrical** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

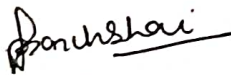


**Prof. Pratiksha Panchbhai**  
Guide

**Dr. Satish Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_



**Internal Examiner/ Guide**

**External Examiner**



# **EXPERIMENTAL SETUP OF HYBRID POWER GENERATION WITH ASSOCIATED FLYWHEEL**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Electrical Engineering**

**Submitted by**

**Bhagyashree L. Meshram  
Yoginee G. Dhawale  
Gopal V. Gayakwad  
Ankush D. Modle  
Krupalu S. Raut  
Prafulla S. Bawankar**

**Under the Guidance of**

**Ms. Harsha D. Jain**



**Education to Eternity**

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

# **Experimental Setup Of Hybrid Power Generation With Associated Flywheel**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Electrical Engineering**

**Submitted by**

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

**Under the Guidance of**

**Ms. Harsha D. Jain**



Education to Eternity

**Electrical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Experimental Setup Of Hybrid Power Generation With Associated Flywheel”** in the subject **Electrical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Ms. Harsha Jain, Electrical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Bhagyashree L. Meshram

Yoginee G. Dhawale

Gopal G. Gayakwad

Ankush D. Modle

Krupalu S. Raut

Prafulla S. Bawankar

## **CERTIFICATE**

This is to certify that the project report entitled, "Experimental Setup Of Hybrid Power Generation With Associated Flywheel" in the subject Electrical Engineering in the faculty of Science and Technology submitted by Bhagyashree L. Meshram, Yoginee G. Dhawale, Gopal V. Gayakwad, Ankush D. Modle, Krupalu S. Raut, Prafulla S. Bawankar to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Ms. Harsha Jain**  
Electrical Engineering

Forwarded to:

**Mr. Akshay Kakde**  
Project Coordinator

**Dr. S.R. Vaishnav**  
Head of the Department  
Electrical Engineering

**Dr. S.R. Chaudhari**  
Principal



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on “Experimental Setup Of Hybrid Power Generation With Associated Flywheel” is approved work done by

**Bhagyashree L. Meshram**

**Yoginee G. Dhawale**

**Gopal V. Gayakwad**

**Ankush D. Modle**

**Krupalu S. Raut**

**Prafulla S. Bawankar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electrical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Ms. Harsha Jain**  
Guide

**Dr. S. R. Vaishnav**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



A VENTURE OF  
**GOYAL**  
GROUP



JAIDEV EDUCATION SOCIETY'S

# J D College Of Engineering & Management

Ref. No.: JDCOEM/EE/2019-20/

Date: 30-09-2019

To,  
The Chief Engineer,  
CSTPS,  
Training Center,  
Chandrapur- 442404

**Subject: Request for Permission of Industrial Training and Internship**

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.

Following is our students of Electrical Engineering who are keen to do internship at your premises.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Mrunali D Bomanwar	V	7972168232	<a href="mailto:mrunalibomanwar@gmail.com">mrunalibomanwar@gmail.com</a>
2	Samiksha P Waghmare	V	9049984640	<a href="mailto:Samiksha.waghmare99@gmail.com">Samiksha.waghmare99@gmail.com</a>
3	Karishma V Ragit	V	7776070434	<a href="mailto:Ragitkarishma17@gmail.com">Ragitkarishma17@gmail.com</a>

We request you to please permit students for industrial internship.  
I will be grateful to your for this.

Thanking you,

Yours Sincerely,

*Ms. V. Malhotra*  
30/09/19  
Ms. V. Malhotra  
T&P Officer

JDCOEM, Nagpur

*Y.P. Mundhada*  
Y.P. Mundhada  
TPC, EE

JDCOEM, Nagpur

*Dr. S.R. Vaishnav*  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

*Dr. S. R. Chaudhari*  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

**Training and Placement Department**  
**J D College of Engineering & Management**  
Khandala, Katol Road,  
Nagpur-441501

**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

At : Khandala, Post : Valni, Near Hanuman Temple, Borgaon Fata, Kalmeshwar Road, Nagpur - 441501 (M.S.) Cell : 9657720273

City Office : Empress Mill Road No. 1, Marwa di Chawl, Santra Market, Nagpur- 440018. Telefax : (0712) 2725492, 2721227

Visit us at : [www.idcoem.ac.in](http://www.idcoem.ac.in) Email : [info@idcoem.ac.in](mailto:info@idcoem.ac.in)



Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 30-12-2019

To,

Ajni Railway Station

Nagpur

**Subject: Request for Permission of Industrial Training and Internship**

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.

Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Arshiya Sheikh	V	9096431945	Arshiyasheikh086@gmail.com
2	Rohini Pachare	V	9923891087	Rohinipachare1999@gmail.com
3	Snehal Tembhurne	V	8329531059	Snehaltembhurne46@gmail.com

We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

*For*  
*[Signature]*

Ms.V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

*[Signature]*  
30/12/19

Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

*[Signature]*

Dr.S.R.Vaishnav  
HoD, EE  
JDCOEM, Nagpur

Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

**Training and Placement Department**  
**J D College of Engineering & Management**  
Khandala, Karol Road,  
Nagpur-462 001

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 26-12-2019

To,  
Gautam Magaswargiya  
Kapus Utpadak  
Sahakari Sootgiri Ltd.  
Nimba

**Subject: Request for Permission of Industrial Training and Internship**

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Vishnu Mankar	V	9518723849	vishnumankarvm@gmail.com
2	Yashwant Borkar	V	8605353190	Yashborkar1999@gmail.com


We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

  
Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

**HOD**  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur





JAIDEV EDUCATION SOCIETY'S

## J D COLLEGE OF ENGINEERING & MANAGEMENT

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,  
Moil Ltd Gumgao khan  
Khapa  
Nagpur

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.

Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Krunal Charan Zodape	III	8530278729	<a href="mailto:ee18kczodapejd@gmail.com">ee18kczodapejd@gmail.com</a>
2	Rupali Gamgadharji wadkar	III	9607740285	<a href="mailto:ee18rgwadkarjd@gmail.com">ee18rgwadkarjd@gmail.com</a>

We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

*Ms. V. Malhotra*  
Ms. V. Malhotra  
T&P Officer

JDCOEM, Nagpur

*Y.P. Mundhada*  
Y.P. Mundhada  
TPC, EE

JDCOEM, Nagpur

*Dr. S. R. Vaishnav*  
Dr. S. R. Vaishnav  
HoD, EE

JDCOEM, Nagpur

*Dr. S. R. Chaudhari*  
Dr. S. R. Chaudhari  
Principal

JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



JAIDEV EDUCATION SOCIETY'S

## J D COLLEGE OF ENGINEERING & MANAGEMENT

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,

Future supply chain

Mide Mihan, Nagpur

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

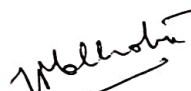
It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.

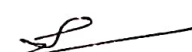
S No.	Name of the students	Semester	Mo. number	Email ID
1	Payal rewatkar	III	9834967834	rewatkarpayal1@gmail.com
2	Bhushan Giri	III	7775950756	bhushangiri1199@gmail.com
3	Akshay Zarodiya	III	7888161518	akshayzarodiya@gmail.com

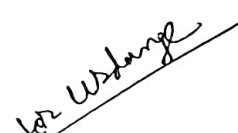
We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

  
Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501





JAIDEV EDUCATION SOCIETY'S

## J D COLLEGE OF ENGINEERING & MANAGEMENT

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,

Central Railway office of Divisional Railway manager,  
Electrical Branch

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

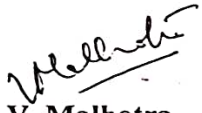
It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.

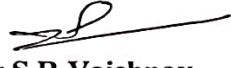
S No.	Name of the students	Semester	Mo. number	Email ID
1	Payal Rewatkar	III	9834967834	Rewatkrpayal1@gmail.com
2	Bhushan Giri	III	7775950756	Bhushangiri1199@gmail.com
3	Akshay Zarodiya	III	7888161518	akshayzarodiya@gmail.com


We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

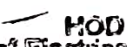
  
Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

  
HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



JAIDEV EDUCATION SOCIETY'S

## J D COLLEGE OF ENGINEERING & MANAGEMENT

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,

Sandip Metal Craft Pvt.Ltd,  
Wadi Nagpur

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

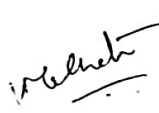
It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Ravina Nagdeve	III	7721079240	ee18rbnagdevjd@gmail.com
2	Prachi Jambhulkar	III	7796346270	Prachijambhulkar17@gmail.com
3	Kajal Meshram	III	9112615407	Kajalmeshram1442000@gmail.com

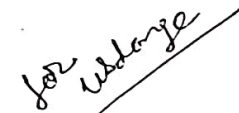
We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

  
Ms.V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P.Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr.S.R.Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501





JAIDEV EDUCATION SOCIETY'S  
**J D COLLEGE OF ENGINEERING & MANAGEMENT**

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,  
Sunflag Iron and Steel Warthi  
Bhandara

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,


It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Pawan Tangle	VI	9518950634	pawantangle29@gmail.com


We request you to kindly permit <sup>him</sup> ~~her~~ for industrial internship and enable <sup>him</sup> ~~her~~ to enrich the knowledge and skills.

Thanking you,

  
Ms.V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr.S.R.Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



JAIDEV EDUCATION SOCIETY'S

## J D COLLEGE OF ENGINEERING & MANAGEMENT

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,

Ashok Leyland Lakhani  
Bhandara

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

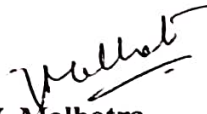
It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Pawan Tangle	VI	9518950634	pawantangle29@gmail.com


We request you to kindly permit <sup>him</sup> ~~her~~ for industrial internship and enable <sup>him</sup> ~~her~~ to enrich the knowledge and skills.

Thanking you,

  
Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501





JAIDEV EDUCATION SOCIETY'S  
**J D COLLEGE OF ENGINEERING & MANAGEMENT**

At : Khandala, Post : Valni, Near Hanuman Mandir, Borgaon Phata,

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 23-12-2019

To,  
Bus Depo  
Bhandara

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,


It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.


Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Pawan Tangle	VI	9518950634	pawantangle29@gmail.com

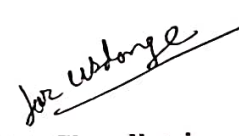
We request you to kindly permit <sup>him</sup> ~~her~~ for industrial internship and enable <sup>him</sup> ~~her~~ to enrich the knowledge and skills.

Thanking you,

  
Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

  
Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

  
Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Training and Placement Department  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



A VENTURE OF  
**GOYAL**  
GROUP



JAIDEV EDUCATION SOCIETY'S

## J D College Of Engineering & Management

Ref. No.: JDCOEM/EE/T&P/2019-20/

Date: 03-12-2019

To,  
The HR Manager,  
Sun Flag Steel and Iron Company Limited,  
Bhandara.

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur (An Autonomous Institute). Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works.

Following is our student of Electrical Engineering who is keen to do internship at your premises under yours guidance.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Bhuneshwari Gabhane	V	9511885467	<a href="mailto:gabhane1999@gmail.com">gabhane1999@gmail.com</a>

We request you to kindly permit her for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

*Ms. V. Mallotra*  
03/12/19

Ms. V. Mallotra  
T&P Officer  
JDCOEM, Nagpur

*Y.P. Mundhada*  
03/12/19

Y.P. Mundhada  
TPC, EE  
JDCOEM, Nagpur

*Dr. S.R. Vaishnav*  
03/12/19

Dr. S.R. Vaishnav  
HoD, EE  
JDCOEM, Nagpur

*Dr. S. R. Chaudhari*  
03/12/19

Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

**Training and Placement Department**  
JD College of Engineering & Management  
Khandala, Nagpur - 441501  
Office : Empress Mill Road No. 1, Marwadi Chawl, Santra Market, Nagpur - 440018. Cell : 9657720273  
Visit us at : [www.jdcoem.ac.in](http://www.jdcoem.ac.in); Email : [info@jdcoem.ac.in](mailto:info@jdcoem.ac.in)





A VENTURE OF  
**GOYAL** COEM/ET  
GROUP



JAIDEV EDUCATION SOCIETY'S

S-19/

Date: 14-06-2019

# JD College Of Engineering & Management

To,  
The Chief Engineer,  
Mahagenco,  
Deoli.  
Wardha

**Subject: Request for Permission of Industrial Training and Internship**

Respected Madam/Sir,  
It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur. Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works. Following is our students of Electrical Engineering who is keen to do internship at your premises under yours guidance.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Shubham Ashtankar	IV	9764662783	shubhambashtankar@gmail.com

We request you to kindly permit student for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

*Kakde*  
Prof. A.Kakde  
T&P Coordinator  
Dept. of EE

*Satish*  
Dr. Satish Vaishnav  
Head  
Dept. of EE  
HOD  
Dept. of Electrical Engineering  
JD College of Engineering  
& Management, Nagpur

*Malhotra*  
Ms.V. Malhotra  
T&P Officer  
JDCEM, Nagpur

*Chaudhari*  
Dr. S. R. Chaudhari  
Principal  
JDCEM, Nagpur  
Principal  
JD College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

Training and Placement Department  
JD College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501



A VENTURE OF  
**GOYAL** JDCOEM/EE  
GROUP



JAIDEV EDUCATION SOCIETY'S

8-19/

**J D College Of Engineering & Management**

Date: 14-06-2019

To,  
The Chief Executive Engineer,  
MSEDCL,  
Tiroda, Gondia

**Subject: Request for Permission of Industrial Training and Internship**

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur. Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to **kindly grant the permission for training and internship** to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works. Following is our students of Electrical Engineering who is keen to do internship at your premises under yours guidance.

S No.	Name of the students	Semester	Mo. number	Email ID
1	Vaibhav M. Suryawanshi	IV	7350835615	Vsuryawanshi342@gmail.com

We request you to kindly permit student for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

Prof. A. Kakde  
T&P Coordinator  
Dept. of EE

Dr. Satish Vaishnav  
Head  
Dept. of EE

Ms. V. Malhotra  
T&P Officer  
JDCOEM, Nagpur

Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

HOD  
Dept. of Electrical Engineering  
J.D. College of Engineering  
& Management, Nagpur

**Training and Placement Department**  
**J D College of Engineering & Management**  
**Khandala, Katol Road,**  
**Nagpur-441501**

Principal  
College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501





A VENTURE OF  
**GOYAL**  
GROUP

JD COEM/EE



JAIDEV EDUCATION SOCIETY'S

18-19/

**J D College Of Engineering & Management**

Date: 14-06-2019

To,  
The HR Manager,  
Adani Power Plant  
Tiroda.  
Gondia

**Subject: Request for Permission of Industrial Training and Internship**


Respected Madam/Sir,


It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur. Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works. Following is our students of Electrical Engineering who is keen to do internship at your premises under yours guidance.


S No.	Name of the students	Semester	Mo. number	Email ID
1	Vaibhav M. Suryawanshi	IV	7350835615	Vsuryawanshi342@gmail.com


We request you to kindly permit student for industrial internship and enable her to enrich the knowledge and skills.

Thanking you,

  
Prof. A. Kakde  
T&P Coordinator  
Dept. of EE

  
Dr. Satish Vaishnav  
Head  
Dept. of EE  
HOD  
Dept. of Electrical Engineering and Placement Department  
J.D. College of Engineering & Management  
& Management, Nagpur  
Khandala, Katol Road,  
Nagpur-441501

  
Ms. V. Malhotra  
T&P Officer  
JD COEM, Nagpur

  
Dr. S. R. Chaudhari  
Principal  
JD COEM, Nagpur  
Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



A VENTURE OF  
**GOYAL**  
GROUP



JAIDEV EDUCATION SOCIETY'S

# J D College Of Engineering & Management

Ref. No.: JDCOEM/EE/2019-20/  
To,

Date: 06-06-2019

The Manager,  
Raj Electrical,  
Amgaon, Gondia

Subject: Request for Permission of Industrial Training and Internship

Respected Madam/Sir,

It gives us a great pleasure to communicate you on behalf of "GOYAL GROUP'S", JD College of Engineering and Management, Nagpur. Yours being a premier engineering organization having state of the art technical facilities and using modern management techniques, we are requesting you to kindly grant the permission for training and internship to our engineering perusing student in your reputed organization. This really helps the students to understand the way industry works. Following is our student of Electrical Engineering who are keen to do internship at your premises.

S No.	Name of the students	Semester	Mo. number	Email ID
1	ASHISH L. BRAMHANKAR	IV	7798975150	<a href="mailto:swapnilbramhankar5@gmail.com">swapnilbramhankar5@gmail.com</a>

We request you to kindly permit students for industrial internship and enable them to enrich the knowledge and skills.

Thanking you,

Prof. A.Kakde  
T&P Coordinator  
Dept. of EE

Dr. Satish Vaishnav  
Head  
Dept. of EE

Ms.V. Malhotra  
T&P Officer  
JDCOEM, Nagpur  
Training and Placement Department  
JD College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501

Dr. S. R. Chaudhari  
Principal  
JDCOEM, Nagpur

Principal  
JD College of Engineering & Management  
Khandala, Katol Road,  
Nagpur-441501



# **A REPORT ON**

**“Personal Virtual Assistance, Nagpur”**

**By**

JBTECH19324	JBTECH19343	JBTECH18331
JBTECH19322	JBTECH19304	JBTECH18225
JBTECH19298	JBTECH19295	JBTECH18304
JBTECH19159	JBTECH19291	JBTECH18039
JBTECH19300	JBTECH19311	JBTECH18207
JBTECH19325	JBTECH19310	JBTECH18033
JBE13217	JBTECH19171	JBTECH18105
JBE16606	JBTECH19371	JBTECH18226
JBTECH19289	JBTECH19372	JBTECH18307
JBTECH19290	JBTECH19423	JBTECH18312
JBTECH19394	JBTECH19293	JBTECH18229
JBTECH19205	JBTECH19297	JBTECH18224
JBTECH19252	JBE17328	JBTECH18305
JBTECH19251	JBE17010	JBTECH18347
JBTECH19213	JBE17710	JBTECH18161
JBTECH19212	JBTECH18106	JBTECH18311
JBTECH19349	JBTECH18306	JBTECH18396
JBTECH19210	JBTECH18104	JBTECH18264
JBTECH19215	JBTECH18093	JBTECH18091
JBTECH19303	JBTECH18162	

**Under the Guidance of**

**Prof. M. HASSAN  
(Assistant Professor)**



**Education To Eternity**

**Department of Electronics and Telecommunication Engineering**

**J D College of Engineering & Management Nagpur**

**2019-2020**

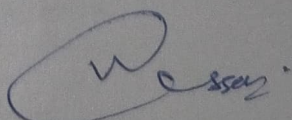


## CERTIFICATE

This is to certify that the registration

JBTECH19324	JBTECH19343	JBTECH18331
JBTECH19322	JBTECH19304	JBTECH18225
JBTECH19298	JBTECH19295	JBTECH18304
JBTECH19159	JBTECH19291	JBTECH18039
JBTECH19300	JBTECH19311	JBTECH18207
JBTECH19325	JBTECH19310	JBTECH18033
JBE13217	JBTECH19171	JBTECH18105
JBE16606	JBTECH19371	JBTECH18226
JBTECH19289	JBTECH19372	JBTECH18307
JBTECH19290	JBTECH19423	JBTECH18312
JBTECH19394	JBTECH19293	JBTECH18229
JBTECH19205	JBTECH19297	JBTECH18224
JBTECH19252	JBE17328	JBTECH18305
JBTECH19251	JBE17010	JBTECH18347
JBTECH19213	JBE17710	JBTECH18161
JBTECH19212	JBTECH18106	JBTECH18311
JBTECH19349	JBTECH18306	JBTECH18396
JBTECH19210	JBTECH18104	JBTECH18264
JBTECH19215	JBTECH18093	JBTECH18091
JBTECH19303	JBTECH18162	

have completed the project on "Personal Virtual Assistance, Nagpur" during year 2019-2020.

  
Faculty In -Charge

Prof . M. HASSAN

Date: 15/02/2020





JAIDEV EDUCATION SOCIETY'S  
**J D COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR**  
Department of Electronics Engineering \ Electronics & Telecommunication Engineering  
(An Autonomous Institute, with NAAC "A" Grade)  
**"Rectifying Ideas, Amplifying Knowledge"**  
Session 2019 – 20

**FIELD PROJECT REPORT**

Attendance for "Personal Virtual Assistance, Nagpur" 2<sup>ND</sup> YEAR

Sr. No.	Name of the Student	Signature
1	MEGHA RUPCHAND MESHAM	M. M.
2	HARSHAL KIRAN SONEKAR	Sonekar
3	SHAHBAZ SHAFIQUE AHMED	AHMED
4	PRATEEKSHA RAMESH KAWALE	PK
5	HARSHAD KRUSHNARAO PAPADKAR	PK
6	VAISHNAVI SHANKAR LINGAYAT	Vaishnavi
7	ANKITA A. KAPSE	Ankita Kapse
8	PRANAY GANESHRAO MODI	PM
9	MANISH MAHESH KHARAGBAN	Manish Kharagban
10	SHEERIN PARVEEN MOHD. HAMEED	Sheerina
11	SHUBHANGI DAMODHAR DHOKE	Shubhangi
12	NAMIRA IKRAM KHAN	Namira Khan
13	NIKHIL MADHUKAR RAMTEKE	N. Ramteke
14	SHASHANK PURUSHOTTAM DONGARE	S. Dongare
15	POOJA SUDHAKAR ZADE	Pooja Z.
16	DIKSHITA PRAKASHRAO BADWAIK	Dikshita
17	EKTA SURESH GAME	E. Game
18	PRANALI RAJKUMAR KATHOUTE	P. R. Kathoute
19	PRIYA CHANDRABHAN DHOTE	P. Dhote
20	SUVARNA SHYAMSUNDAR MOHILE	S. Mohile
21	SAYALI MANGAL KAMBLE	Sayali Kamble
22	ANAND RAJENDRA GAJBHIYE	A. Rajbhiye
23	RIYA ROSHAN MAKORE	Riya Makore
24	SHARMIN FATEMA SHAHID ANJUM SIDDIQUI	S. Fatema
25	VRUSHABH BHOJRAJ KUMBHARE	V. Kumbhare
26	SHRAWAN RAMESH DHURVE	S. Dhurve
27	SAKET PRABHAKAR JUNGHARE	S. Jungare
28	SANJANA LALAJI NARDELWAR	S. N. Nardekar
29	MADHURI RAMESH NATKAR	M. Natkar
30	MAHESH RUNNAWARE	M. Runware
31	SWATI DEVIDAS BHAIKARE	S. Bhaisare
32	MANSI KEDAR TEMBHURNE	M. Tembhurne
33	DAMINI BALKRUSHANA CHAUDHARI	D. Chaudhari
34	MOHIT MANOJ MADAVI	M. Madavi
35	NIKHIL RAJU MAHURE	N. Mahure
36	HARISH OMPRAKASH GOUPALE	H. Goupale
37	BHAGYASHRI SHAMPRASAD PATLE	B. Patle
38	DEVANSHISH VASANT SHRIPAD	D. Shripad
39	ADITYA VILASRAO DHAWALE	A. Dhawale
40	TWINKAL BABA BHAIKARE	T. Bhaisare
41	AISHWARYA MANIK SHENDE	A. Shende



42	LOKESH SEESHARAO YELANE	<i>lyelane</i>
43	SNEHA CHUDAMAN KUMBHARE	<i>SK</i>
44	PRANAY ANIL CHAWHAN	<i>Pran</i>
45	ROSHAN BAIDNATH VARMA	<i>Roshan</i>
46	DIKSHA ANAND INDURKAR	<i>Indurkar</i>
47	KUNAL DAYADHAN MUDDAMWAR	<i>Kunal</i>
48	AVANI ANUKUL MESHRAM	<i>Avani</i>
49	HEMANT GANESH SHENDE	<i>Hemant</i>
50	HANUMAN BABARAO JAMBHULKAR	<i>H. B. Hanuman</i>
51	RITESH RAVINDRA KHANGAR	<i>R. R. Khangar</i>
52	RUTUJA NANDLAL MESHRAM	<i>R. Meshram</i>
53	NAYAN SURESH GOKHALE	<i>Nayan</i>
54	MAYUR TULSIRAM HATTIMARE	<i>M. T. H</i>
55	SHEFALI NANDKISHOR MESHRAM	<i>Shefali</i>
56	DNYANDEEP MAHADEV KURZEKAR	<i>Dnyandeep K.</i>
57	SOMESHWAR CHHAGAN MUDDAMWAR	<i>S. Chhagan</i>
58	CHAITANYA MAHESH THISKE	<i>Chaitanya</i>
59	NILESH RAMBHAU PATHRABE	<i>N. Ram</i>

*S. Sharma*  
Class Incharge

*Am*  
Academic Incharge

*Sharma*  
HOD  
(EN/ETC)



**A  
REPORT ON**

**“ROBOTIC ARM VEHICLE WITH OBJECT AND FACE  
RECOGNITION”**

**By**

JBE17461	JBE17393	JBE17536	JBE17321	JBE16331	JBE17142	JBE17351
JBE17230	JBE17560	JBE17695	JBE17138	JBE16581	JBE17567	JBE17709
JBE17079	JBE17550	JBE17549	JBE17034	JBE17203	JBE17562	JBE17144
JBE17538	JBE17263	JBE17563	JBE17211	JBE13216	JBE17541	JBE17558
JBE17327	JBE17398	JBE17394	JBE17331	JBE16248	JBE17418	JBE17545
JBE17231	JBE17167	JBE17320	JBE17271	JBE17285	JBE17422	JBE17015
JBE17674	JBE17548	JBE17565	JBE17554	JBE17395	JBE17069	JBE17708
JBE17160	JBE17543	JBE17250	JBE17430	JBE17098	JBE17275	JBE17067
JBE17017	JBE17696	JBE17341	JBE17539	JBE17072	JBE17689	JBE17555
JBE17342	JBE17534	JBE17213	JBE17323	JBE17297	JBE17552	JBE17544
JBE17162	JBTECH18129		JBTECH18371			
JBE17535	JBTECH18139		JBTECH18410		JBE17685	
JBE17045	JBTECH18152		JBTECH18358		JBE17215	
JBE17397	JBTECH18151		JBTECH18364		JBE17413	
JBE17440	JBTECH18137		JBTECH17595		JBE17116	
JBE17551	JBTECH16501		JBTECH17272		JBE17025	
JBE17311	JBTECH18138		JBTECH17594		JBE17143	
JBTECH18143	JBTECH18136		JBTECH17356		JBE17273	
JBTECH18148	JBTECH18376		JBTECH17596		JBE17427	
JBTECH18140	JBTECH18250		JBTECH17588			

**Under the Guidance of**

**Prof Avinash Ikhar  
(Assistant Professor)**



Education To Eternity  
**Department of Electronics and Telecommunication Engineering**

**J D College of Engineering & Management Nagpur**

**2019-2020**

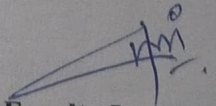


# CERTIFICATE

**This is to certify that the registration**

JBE17461	JBE17393	JBE17536	JBE17321	JBE16331	JBE17142	JBE17351
JBE17230	JBE17560	JBE17695	JBE17138	JBE16581	JBE17567	JBE17709
JBE17079	JBE17550	JBE17549	JBE17034	JBE17203	JBE17562	JBE17144
JBE17538	JBE17263	JBE17563	JBE17211	JBE13216	JBE17541	JBE17558
JBE17327	JBE17398	JBE17394	JBE17331	JBE16248	JBE17418	JBE17545
JBE17231	JBE17167	JBE17320	JBE17271	JBE17285	JBE17422	JBE17015
JBE17674	JBE17548	JBE17565	JBE17554	JBE17395	JBE17069	JBE17708
JBE17160	JBE17543	JBE17250	JBE17430	JBE17098	JBE17275	JBE17067
JBE17017	JBE17696	JBE17341	JBE17539	JBE17072	JBE17689	JBE17555
JBE17342	JBE17534	JBE17213	JBE17323	JBE17297	JBE17552	JBE17544
JBE17162	JBTECH18129	JBTECH18371				
JBE17535	JBTECH18139	JBTECH18410			JBE17685	
JBE17045	JBTECH18152	JBTECH18358			JBE17215	
JBE17397	JBTECH18151	JBTECH18364			JBE17413	
JBE17440	JBTECH18137	JBE17595			JBE17116	
JBE17551	JBE16501	JBE17272			JBE17025	
JBE17311	JBTECH18138	JBE17594			JBE17143	
JBTECH18143	JBTECH18136	JBE17356			JBE17273	
JBTECH18148	JBTECH18376	JBE17596			JBE17427	
JBTECH18140	JBTECH18250	JBE17588				

have completed the project on "ROBOTIC ARM VEHICLE WITH OBJECT AND FACE RECOGNITION" during year 2019-2020.

  
Faculty In -Charge

Prof. Avinash Ikhar

Date: 14/02/2020





JAIDEV EDUCATION SOCIETY'S  
**J D COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR**  
Department of Electronics Engineering \ Electronics & Telecommunication Engineering  
(An Autonomous Institute, with NAAC "A" Grade)  
**"Rectifying Ideas, Amplifying Knowledge"**  
Session 2019 - 20

**FIELD PROJECT REPORT**

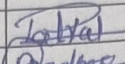
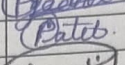
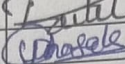
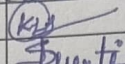
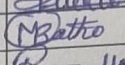
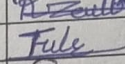
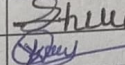
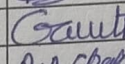
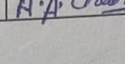
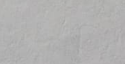
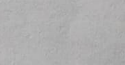
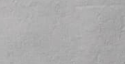
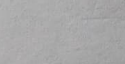
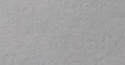
Attendance for "ROBOTIC ARM VEHICLE WITH OBJECT AND FACE RECOGNITION" 3<sup>rd</sup> year.

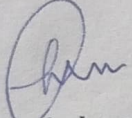
Sr. No.	Name of the Student	Signature
1	RAKESH SURESH GUDAFWAR	Rakesh
2	BHAVESH SUKHDEO SHAHARE	Bhavesh
3	GAUTAMI ASHOK SHAHARE	Gautami
4	TUSHAR UMRAO MASKE	Tushar
5	SEJAL JAYANT BAGDE	Sejal
6	POONAM BHOJRAJ GAJBHIYE	P. B. Gajbhaye
7	SAMIKSHA AJAY PAIDLEWAR	Samiksha
8	RUPALI KRUSHNA GAJAPURE	Rupali
9	ANJALI RAJU DEHARIYA	Anjali
10	NIKITA VILAS CHICHGHARE	Nikita
11	SHUBHAM SHIVDAS SHAHARE	Shubham
12	DIKSHA RAJHANS MANGATE	Diksha
13	SHIVANI VASANTA CHAWDE	S. V. Chawde
14	SWINAL UPENDRA BODELE	Swinal
15	SHITAL PRAVIN THAWKAR	Shital
16	HARSHADA VISHNUJI PAL	Harshada
17	KALYANI VILASRAO KOLHE	K. Kolhe
18	NIKHIL VISHWANATH DHARPURE	N. Dharpure
19	PAYAL NANDKISHOR NANNEWAR	Payal
20	PUJA MADHORA DONGRE	Puja
21	NISHANT VIJAY GADHAWA	Nishant
22	NILESH DILIP HAJARE	Nilesh
23	PRIYA SHALIKRAM MOTGHARE	Priya
24	SHARVARI RAM KALE	Sharvari
25	PRIYA DEVIDAS KANEKAR	Priya
26	ANAND OMPRAKASH BAWANE	Anand
27	NIKITA DIPAK SONI	Nikita
28	SWINAL RAMU TIRPUDE	Swinal
29	SAMEER RAJESH DONGRE	S. R. Dongre
30	KANCHAN CHHAGAN BASHINE	Kanchan
31	KARISHMA PANCHAM RANGARI	Karishma
32	RAHUL NARHARI URKUDE	Rahul
33	PRATIKSHA SANJAY AMBADE	Pratiksha
34	GYANESHWARI JEEVAN DESHMUKH	Gyaneshwari
35	VEDANT NARENDRA BORATKAR	Vedant
36	YOGITA PANDURANG NIMJE	Yogita
37	SAHIL DIPAK CHIWANE	Sahil
38	CHANDRASHEKHAR DHYANESHWAR ZADE	C. D. Zade
39	BHUSHAN KRISHNA KOHADE	Bhushan
40	SNEHAL MILIND BHOWATE	Snehal
41	HITESH NANESHWAR KAIKADE	Hitesh

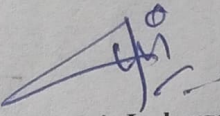


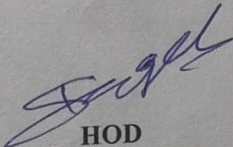
42	NITESH ARUN NAGDEOTE	<u>Nagdeote.</u>
43	VRUSHALI DHANVIJAY JAYWAR	<u>N. Jaywar</u>
44	ASHWINI PRBHAKAR KUMBRE	<u>Kumbre</u>
45	VIKRAM VIJAY AMBATKAR	<u>V. Ambatkar</u>
46	MONIKA JIVAN RAUT	<u>M. J. Raut.</u>
47	RAJANI SURYAKANT KOLHE	<u>Rajnikolhe</u>
48	PRATIKSHA BHANUDAS MORE	<u>P. More</u>
49	APARNA BHAGVANT BHALAVI	<u>A. Bhalavi</u>
50	PRATHMESH KRISHNARAO DAHIKAR	<u>P. Dahirkar</u>
51	GAURAV VASUDEO BARMASE	<u>G. Barmase</u>
52	PUJA ANKUSH KIRPAN	<u>P. Kirpan</u>
53	MEGHA GAJANANRAO DEOTALE	<u>M. Deotale</u>
54	KAJAL GAJANAN DHOLE	<u>K. Dhole</u>
55	NIKHITA VILAS BHOWATE	<u>N. Bhowate</u>
56	RAHUL SHANKAR TAYADE	<u>R. Tayade</u>
57	PRANJALI RUPESH BHALERAO	<u>P. Bhalerao</u>
58	PRATIBHA SAMPAT THAKRE	<u>P. Thakre</u>
59	DHANASHRI MANOJ GAJBHIYE	<u>D. Gajbhiye</u>
60	NIKHIL DHARMARAKSHIT GAJBHIYE	<u>N. Gajbhiye</u>
61	SRUSHTI BHOJRAM TAGADE	<u>S. Tagade</u>
62	TEJASVINI NEKRAM VAIDYA	<u>T. Vaidya</u>
63	PARISH VIJAY SWAMI	<u>P. Swami</u>
64	PRIYANKA SOHAN PRASAD	<u>P. Prasad</u>
65	GAURAV VITTHAL KHOPADE	<u>G. Khopade</u>
66	SONALI RAJHANS BHOYAR	<u>S. Bhoys</u>
67	SHWETA ISHWAR BHARTI	<u>S. Bharti</u>
68	SHIVANI RAJKISHOR SINGH	<u>S. Singh</u>
69	APEKSHA VIKAS RODGE	<u>A. Rodge</u>
70	DHANASHREE MANISH GAURE	<u>D. Gaure</u>
71	PURVI BHAGWAN BOBADE	<u>P. Bobade</u>
72	PUNAM SAMANLAL PATEL	<u>P. Patel</u>
73	UJVALA VIJAY KALE	<u>U. Kale</u>
74	PRACHI CHUNNILAL KOCHER	<u>P. Kocher</u>
75	ANJALI UDHHAO GOVARDHAN	<u>A. Govardhan</u>
76	SAHIL PRAVIN BAWANKULE	<u>S. Bawankule</u>
77	PIYUSH SHRINIVAS DURAGKAR	<u>P. Duragkar</u>
78	AMAR SUDHIR BAWANE	<u>A. Bawane</u>
79	SURBHI SURESH KHAMBALKAR	<u>S. Khambalkar</u>
80	TEJAS SURESH MISAL	<u>T. Misal.</u>
81	SHARAD KHUSHAL DEWANGAN	<u>S. Dewangan</u>
82	PRAFUL SUDHAKAR SOMKUWAR	<u>P. Somkuwar</u>
83	PAYAL SUDAM ZADE	<u>P. Zade</u>
84	AKSHAY JITENDRA KAMBLE	<u>A. Kamble</u>
85	DILESH MAHENDRA SHAHARE	<u>D. Shahare</u>
86	PREKSHITA SHANKARRAO BHANADARKAR	<u>P. Bhanadarkar</u>
87	NIKHITA BHAAURAO RAMTEKE	<u>N. Ramteke</u>
88	KHUSHABOO SHARAD CHAURASIA	<u>K. Chaurasia</u>
89	SHAIKH ABRAR ABDUL NAIEM	<u>S. Naim</u>
90	SAURABH PRAMOD RAO NETKE	<u>S. Netke</u>
91	VIKKY RAJU KOHAD	<u>V. Kohad</u>
92	JAGJIWAN ARUN BILONE	<u>J. Bilone</u>
93	RAVI VASUDEORAO RAUT	<u>R. Raut</u>
94	ROHITKUMAR INOHARJI MESHARAM	<u>R. Mesharam</u>



Sr. No.	Name of the Student	Signature
101	PAYAL SANTOSH MENDHE	
102	PAVAN VISHNU JADHAO	
103	KOMAL GANGADHAR GULGHANE	
104	PRACHU JITENDRA PATIL	
105	UJWALA LILADHAR DHOBLE	
106	KALYANI RAMESH TUMSARE	
107	SWATI PRAKASH KHAWASHE	
108	MANASVI SANJAY BATHO	
109	RITIKA VINOD ZALKE	
110	TUSHAR VIKAS FULE	
111	BHAVANA ANIL SHIWANKAR	
112	YOGESH UMRAO KAPGATE	
113	HEMALI MALIKRAM GAUTAM	
114	ANKIT ASHOK CHANDEWAR	

  
Class Incharge

  
Academic Incharge

  
HOD  
(EN/ETC)

# **AN EFFICIENT AND SECURE STUDENTS ONLINE VOTING APPLICATION**

A Project Report submitted in partial fulfillment of the requirements for the award  
of the degree of

**Bachelor of Engineering  
In  
Electronics and Telecommunication Engineering**

**Submitted by  
Mr. Bhushan Pawar                      Mr. Sachin Patode**

**Ms. Yamini Potbhare**

**Under the Guidance of**

**Prof. Nilesh A. Mohota**



**Education to Eternity**

**Electronics and Telecommunication Engineering  
J D College of Engineering and Management, Nagpur-441501  
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.  
Year 2019 -2020**



# **AN EFFICIENT AND SECURE STUDENTS ONLINE VOTING APPLICATION**

A Project Report submitted in partial fulfillment of the requirements for the  
award of the degree of

**Bachelor of Engineering  
In  
Electronics and Telecommunication Engineering  
Submitted by**

**Mr. Bhushan Pawar      Mr. Sachin Patode  
Ms. Yamini Potbhare**

**Under the guidance of  
Prof. Nilesh A .Mohota**



**Education to Eternity**

**Electronics and Telecommunication Engineering**

**JD College of Engineering and Management, Nagpur 441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**

**Year 2019 -2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled,

**“AN EFFICIENT AND SECURE STUDENTS ONLINE VOTING**

**APPLICATION”** in the **Electronics and Telecommunication** subject in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Nilesh A.Mohota, Electronics / Electronics and Telecommunication, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Mr. Bhushan Pawar



Mr. Sachin Patode




Ms. Yamini Potbhare






## CERTIFICATE


This is to certify that the project report entitled, "AN EFFICIENT AND SECURE STUDENTS ONLINE VOTING APPLICATION" in the subject **Electronics and Telecommunication** in the faculty of Science and Technology submitted by **Mr. Bhushan Pawar, Mr. Sachin Patode, Ms. Yamini Potbhare** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

  
**Prof. Nilesh A. Mohota**  
Department of EN/ETC  
Engineering

Forwarded to:

  
**Prof. S. Sakhare**  
Project Coordinator  
Department of EN/ETC Engineering

  
**N N. Gyanchandani**  
Head of The Department  
Department of EN/ETC Engineering  
HOD, Dept. of EN/ETC  
JD College of Engineering  
& Management, Nagpur


  
**Dr. S R. Chaudhari**  
Principal  
Principal  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501


## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **AN EFFICIENT AND SECURE STUDENTS ONLINE VOTING APPLICATION** is approved work done by

- 1) Mr. Bhushan Pawar
- 2) Mr. Sachin Patode
- 3) Ms. Yamini Potbhare

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Electronics and Telecommunication** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020

  
**Prof. Nilesh A. Mohota**  
Guide

  
**Prof. N N. Gyanchandani**  
Head of the Department  
HOD, Dept. of EN/ETC  
JD College of Engineering  
& Management, Nagpur

Project Examination held on

**Internal Examiner/Guide**

**External Examiner**



## ACKNOWLEDGEMENT

We express our sincere gratitude, for giving us the opportunity to work on the Project during our final year of BE.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal of JD College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from Prof. N.N. Gyanchandani, Head, Department of EN/ETC J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank Prof. S. Sakhare, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide Prof. Nilesh A. Mohota, Department of EN/ETC, J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of EN/ETC Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Mr. Bhushan Pawar

Mr. Sachin Patode

Ms. Yamini Potbhare

## ABSTRACT

The aim of this proposed project is to make the democratic process simple for the students at college level. Presently in our college, vote casting is performed by utilizing paper and counting is done manually so it expends students as well as educators valuable time, also there can be possibility of error while tallying the cast votes. All this make vote casting process very dreary so in our project the vote capturing and tallying is done on the web. It saves processing time, avoids human errors and there won't be any invalid votes It has basic user interface of application which attract users. As this application is planned for students so verification happen on the basis of unique ID code which is the students registered ID, with this goal the students can cast their votes remotely from anyplace. This is combo box application so it additionally comprises of university question papers, syllabus and college fundamental data or different activities of college.



# **DESIGN AND IMPLEMENTATION OF INTEGRATED APPROACH FOR SMART RURAL DEVELOPMENT**

A Project Report submitted in partial fulfillment of the  
requirements for the award of the degree of

**Bachelor of Engineering  
in  
Computer Science & Engineering**

**Submitted by  
Anusuma Choudhary**

**Under the Guidance of  
Prof. Supriya Sawwashere**



**Education to Eternity**

**Computer Science & Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University,  
Nagpur.**

**Year 2019-2020**


## CERTIFICATE

This is to certify that the project report entitled, "Design and Implementation of Integrated Approach for Smart Rural Development" in the subject Computer Science & Engineering in the faculty of Science and Technology submitted by Anusuma Choudhary to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

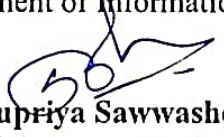


**Prof. Supriya Sawwashere**  
Project Guide  
Department of Computer Science  
& Engineering

Forwarded to:



**Prof. Rohan Kokate**  
B.E. Project In-Charge  
Department of Information Technology



**Prof. Supriya Sawwashere**  
Head of the Department  
Computer Science & Engineering  
JDCEM, Nagpur



**Dr. S. V. Sonkar**  
Principal

**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **DESIGN AND IMPLEMENTATION OF INTEGRATED APPROACH FOR SMART RURAL DEVELOPMENT** is approved work done by

**Anusuma Choudhary**

in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Computer Science & Engineering at J D College of Engineering & Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during the academic year 2019-2020.



Prof. Supriya Sawwashere  
Guide



Prof. Supriya Sawwashere  
Head of the Department

---

Project Examination held on \_\_\_\_\_

Internal Examiner/Guide  
Examiner

External

## ABSTRACT

Human culture is creating with fast energy and accomplished different triumphs for improving its occupation. Human progress is an observer for different changes identified with its development through various impetuses like mechanical development, green revaluation, science and technology, and so forth. The current period is increased in Information and Communication Technology. This technology has demonstrated its potential in different divisions of development in urban and rural landscapes. Urban territories appear to increasingly slanted to acknowledge and embrace Information and Communication Technology because of points of interest of proficiency and better framework when contrasted with rural regions. Because of such appropriate circumstances of urban landscapes great measure of accomplishment of this technology is noticeable as shrewd urban areas and better vocations of living people. Be that as it may, the issues, outcomes, and openings in urban zones are diverse for powerful usage of Information and Communication Technology for practical development of rural masses. The current research article talks about rural development in the creating scene for the Upliftment of work of the rural masses and to take a 'look-ahead' at logical developments and advances that may be powerful throughout the following 10 - 20 years. The driving inspiration driving the idea on "Brilliant Village" is that the technology should go about as an impetus for development, empowering instruction and neighborhood business openings, improving wellbeing and government assistance, upgrading law-based commitment and by and large improvement of rural town occupants. The "Savvy Village" idea intends to understand its objective through giving policymakers shrewd, base up examinations of the difficulties of town development.

**Keywords—** Information Technology, Rural, Smart Village, Sustainable Development



## ACKNOWLEDGEMENT

I express my sincere gratitude, for giving me the opportunity to work on the project during our final year of B.E. I owe my sincerest gratitude towards **Dr. S. R. Choudhari**, Principal of J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities. I also express my sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from our project guide, **Prof. Supriya Sawwashere**, Head, CSE-I.T Department, J D College of Engineering & Management, and Nagpur, has been of great help in carry in gout the project work and is acknowledged with reverential thanks. I would like to thank **Prof. Supriya Sawwashere**, Project Coordinator, and J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

I would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. I express gratitude to other faculty members of Computer Science & Engineering Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Anusuma Choudhary

## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Design and Implementation of Integrated Approach for Smart Rural Development”** in the subject of **Computer Science & Engineering** in the faculty of **Science and Technology** is the original contribution carried out by us under the guidance of **Prof. Supriya Sawwashere, Computer Science & Engineering J D College of Engineering and Management, Nagpur**. This work has not been submitted to any other University or Institution for the award of any degree or diploma certificate course.

Place: Nagpur

Date:

Name of Students:

**Anusuma Choudhary**



# INDEX

Title.	Page No
ABSTRACT.....	i
ACKNOWLEDGEMENTS.....	ii
TABLE OF CONTENTS.....	iii
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi

## CHAPTER 1. INTRODUCTION

1.1 General.....	1
1.2 Government's participation in development.....	2
1.3 Complains Faced by Person.....	4

## CHAPTER 2. LITERATURE REVIEW

2.1 Strategies for rural development.....	3
2.2 Objective.....	8
2.3 Problem Statement.....	8
2.4 Existing Systems.....	8

## CHAPTER 3. METHODOLOGY

3.1 Overview of Development.....	20
3.2 Objective of Rural Sanitations.....	20
3.3 Approach and Strategy.....	21
3.4 Technical Components.....	22
3.5 Design and Flow of System.....	24
3.6 Complain Registration.....	27

## CHAPTER 4. TOOLS AND PLATFORM

4.1 Hardware Requirements.....	29
5.2 Software Requirements.....	29

## **CHAPTER 5 DESIGN AND IMPLEMENTATION**

5.1 Homepage.....	30
5.2 About us Page.....	31
5.3 Contact Us Page.....	31
5.4 Event page.....	32
5.5 User Profile Management.....	33

## **CHAPTER 6 RESULTS AND ANALYSIS**

6.1 Results.....	35
6.2 Solution.....	35
6.3 Analysis and Comparisons .....	36

## **CHAPTER 7 CONCLUSION AND FUTURE SCOPE**

7.1 Summery .....	40
7.2 Conclusion .....	40
7.3 Future scope .....	41

<b>REFERENCES.....</b>	<b>42</b>
------------------------	-----------



**LIST OF FIGURES**

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
3.1	Core Smart Village .....	20
3.2	Component of Smart Village.....	22
3.3	Flowchart of the System .....	25
3.4	Block Diagram .....	27
5.1	User Home Page (1) .....	30
5.2	User Home Page (2) .....	30
5.3	User Home Page (3) .....	31
5.4	Website Footer.....	32
5.5	Our Team.....	32
5.6	User Registration Section.....	33
5.7	Login Section.....	33
5.7	Complain Section.....	34
6.1	Website of The NIRD & PR.....	36
6.2	Website of Ministry of Rural Development.....	37
6.3	Website of Center for Rural Development.....	38
6.4	Website of Haryali Centre for Rural Development.....	39

# **DIGITAL TICKET BOOKING SYSTEM USING AADHAR CARD OR BIOMETRIC**

A Project Report submitted in partial fulfillment of  
requirements  
for the award of degree of

**Bachelor of Engineering  
In  
Information Technology**

Submitted by

**ADESH S. JAMNIK  
SANJANA D. KAMBLE  
MUNNA M. SHAHARE  
MAYUR S. BHADADE  
NIKESH S. KALE**

Under the Guidance of  
**Dr. S. V. Sonekar**



Education to Eternity

**Department of Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, "**DIGITAL TICKET BOOKING SYSTEM USING AADHAAR CARD AND BIOMETRIC**" in the subject Information Technology in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Dr. S. V. Sonekar**, Department of CSE-IT, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree course.

Place: Nagpur  
Date:

Adesh S. Jamnik  
Sanjana D. Kamble  
Munna M. Shahare  
Mayur S. Bhadade  
Nikesh S. Kale

## CERTIFICATE

This is to certify that the project report entitled, "**Digital Ticket Booking and Checking Using Aadhaar Card or Fingerprint and Android Application**" in the subject **Information Technology** in the faculty of Science and Technology submitted by **Adesh S. Jamnik, Sanjana D. Kamble, Munna M. Shahare, Nikesh S. Kale, Mayur S. Bhadade** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Dr. S. V. Sonekar**  
Department of Information Technology  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

Forwarded to:

**Prof. Supriya Sawwashere**  
Project Coordinator

**Prof. Madhuri Pal**  
Head of the Department  
Department of Information Technology

**Dr. S. R. Choudhari**  
Principal



## CERTIFICATE OF APPROVAL

This is certify that the Project Report on “DIGITAL TICKET BOOKING SYSTEM USING AADHAR CARD AND BIOMETRIC” is approved work done by Adesh S. Jamnik, Sanjana D. Kamble, Munna M. Shahare, Mayur S. Bhadade, Nikesh S. Kale in partial fulfillment of the requirement for the award of the degree of bachelor of engineering in Information Technology at J D College of Engineering and Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during the academic year 2019-2020.



**Prof. S. V. Sonekar**

Project Guide

Dept. of Information and Technology

**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

**Prof. Madhuri Pal**

Head Of The Department

Dept. of Information and Technology

---

Project Examination held on

**Internal Examiner/Guide**

**External Examiner**

## INDEX

	Page No.
Acknowledgement	i
List of Figures	ii
List of Tables	iii
Abbreviations and Symbols	iv
Abstract	v

## CONTENTS AT GLANCE

Title	Page No.
<b>CHAPTER 1 – INTRODUCTION</b>	
1.1 Aadhaar Card	I-3
1.2 Fingerprint matching	I-3
<b>CHAPTER 2 - LITERATURE REVIEW</b>	
2.1 Literature Review	II-1
2.2 Research Gap	II-
2.3 Objective	
<b>CHAPTER 3 – METHODOLOGY</b>	
3.1 Flow Diagram	III-1
3.2 Use Case Diagram	III-2
3.3 Flow Chart	III-3
3.4 Algorithms	III-5
3.4.1 Minutiae Based Algorithm	III-5
3.4.2 Spaced Frequency Transformation Algorithm	III-5
3.4.3 Line Scan Algorithm	III-5



## **CHAPTER 4 - DESIGN AND IMPLEMENTATION**

4.1 Registration Process	IV-1
4.2 Login Process	IV-1
4.3 Booking Process	IV-2

## **CHAPTER 5 - RESULTS AND ANALYSIS**

5.1 Result	V-1
------------	-----

## **CHAPTER 6 - CONCLUSION AND FUTURE SCOPE**

6.1 Conclusion and Future Scope	VI-1
---------------------------------	------

## **REFERENCES**

## **ANNEXURES**

- Paper Published
- Copy Right Certificate
- NPTEL Elite Certificate
- Plagiarism Report
- Grammar Report
- Photo Gallery
- Bibliography

## ACKNOWLEDGEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project report during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities. We also express my sincere gratitude towards **Dr. S. V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering & Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from Prof. Madhuri Pal, Head of Department of CSE-IT, J D College of Engineering & Management Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks. We would like to thank Prof. Supriya Sawwashere , Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide **Dr. S. V. Sonekar**, Department of CSE-IT, J D College of Engineering and Management Nagpur. Without his wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of CSE-IT Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Adesh S. Jamnik  
Sanjana D. Kamble  
Munna M. Shahare  
Mayur S. Bhadade  
Nikesh S. Kale



## LIST OF FIGURES

Figure. No	Name of Figure	Page no.
Figure 1.1	Queue at Railway ticket counter	1
Figure 1.2	Current Ticket Checking Process	2
Figure 1.3	Aadhaar Card	3
Figure 1.4	Fingerprint scanning using scanner	4
Figure 3.1	Symmetric Encryption	7
Figure 4.1	Flow Diagram	16
Figure 4.2	Use Case Diagram for Interaction between User and System	17
Figure 4.3	Use Case Diagram for Interaction between User and Ticket Checker	18
Figure 4.4	Flowchart of BTBS	19
Figure 5.1	Registration Form	21
Figure 5.2	Login Page	22
Figure 5.3	Booking page	23
Figure 5.4	SMS Format	23
Figure 5.5	Payment Using Instamojo Gateway	24
Figure 5.6	Payment Failed	25

## **ABBREVIATIONS**

**BTBS**            **Biometric Based Ticket Booking System**



## ABSTRACT

The interest of vehicle framework has built step by step with the expansion in India's population. Rail transport is the most significant vehicles of voyaging and transport. In the current system, we can get ticket both over the counter and online, but often we do not get ticket due to black-marketing and also it generates the paper ticket with the carbon printing. And in ticket checking process, there is lots of manual work to take place for maintaining passenger's records which is tedious to manage. To deal with these problems, this paper gives the solution by regulating ticket booking process using Aadhaar card no. or fingerprint which will reduce the use of carbon printed paper tickets and paper waste. We are developing an android application that will help the ticket checker to check the ticket and keep records effectively.

# **Modulation of security and speed of data for VPN network**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Specialization**

**Submitted by**

**BY**

**1.Akshay Chandekar**

**2.Kamanshu Patil**

**3. Prashant Umredkar**

**4.Sumeet Gupta**

**5.Saurabh Kothale**

**6. Namit Khobragade**

**Under the Guidance of**

**Prof. Pranjali Ulhe**



Education to Eternity

**Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Modulation of security and speed of data for VPN network”** in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Pranjali Ulhe , Name of Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Name of Student

Akshay Chandekar

Kamanshu Patil

Sumeet Gupta

Saurabh Kothale

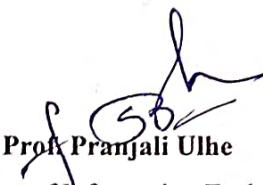
Namit Khobragade

Prashant Umredkar

Education to Eternity

## CERTIFICATE

This is to certify that the thesis entitled **Modulation of security and speed of data for VPN network** submitted by **Akshay Chandekar, Kamanshu Patil, Prashant Umredkar, Sumeet Gupta, Saurabh Kothale, Namit Khobragade** to the **RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my / our supervision. The contents of this thesis, in full or in parts, have not been submitted to any other Institute or University for the award of any degree or diploma.



**Prof. Pranjali Ulhe**

Department of Information Technology

Forwarded to:

Prof. Madhuri Pal

Head of the Department

Department of Information and Technology

JDCEM, Nagpur



Prof. Supriya Sawwashire

B.E. Project In-Charge

Department of Information and Technology

**Dr. Subhash R. Choudhari**

Principal



## **CERTIFICATE OF APPROVAL**

This is to certify that the project titled **Modulation of security and speed of data for VPN network** has been approved work done by

**Akshay Chandekar**

**Kamanshu Patil**

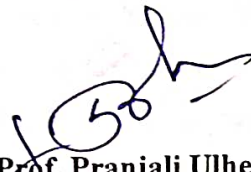
**Sumeet Gupta**

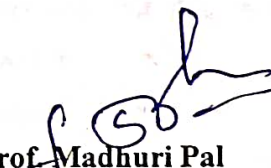
**Saurabh Kothale**

**Namit Khobragade**

**Prashant Umredkar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Information Technology** at **J D College of Engineering & Management, Nagpur** affiliated to **RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR**, during the academic year 2019-2020.

  
**Prof. Pranjali Ulhe**  
Project Guide

  
**Prof. Madhuri Pal**  
Head of the Department

Project Viva-voce held on \_\_\_\_\_

**Internal Examiner/Guide**

**External Examiner**

## ACKNOWLEDGEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from Prof. Madhuri Pal, Head, Department of IT-CSE J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank Prof. Pranjali Deshmukh, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide Prof. Pranjali Deshmukh, Department of IT-CSE, J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work.

We express gratitude to other faculty members of IT-CSE Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Name of the students

Akshay Chnadekar

Kamanshu Patil

Sumeet Gupta

Saurabh Kothale

Namit Khobragade

Prashant Umredkar



## LIST OF FIGURES

Figure No.	Title	Page No.
4.1	MySQL	19
4.2	PHP	20
4.3	HTML	21
4.4	Python	21
5.1	Data Flow Diagram	23
5.2	Flow Chart Diagram	24
5.3	An VPN for both key generation methods	25
5.4	Sign Up	26
5.5	Login Page	27
7.1	Before Use VPN	34
7.2	After Use VPN	34
8.1	IP address changed to an IP address belonging to USA	37

## LIST OF TABLES

Table No.	Title	Page No.
2.1	Literature Survey	11

Education to Eternity



## ABBREVIATIONS

AI	Artificial Intelligence
AR	Autoregressive Model
ARMA	Autoregressive Moving Average Model
ARMAX	ARMA with external input
ASM1	Activated Sludge Model 1
ASM2	Activated Sludge Model 2
BOD	Biochemical Oxygen Demand
GA	Genetic Algorithm

Education to Eternity

## ABSTRACT

In this paper a pipelined architecture of the highest speed of security of data transfer and security with the latest form of encryption and decryption is used. In day-to-day life people are facing many difficulties such as identity theft, data theft, cybercrime to prevent this we are suggesting a solution through our paper which is based on latest technologies that are currently in used and nominated as secure and while maintaining a safe environment we will also be providing a better or faster data transmission technique. Our project will work on the prioritization of data while blocking all attempts of stealing data from our user by giving our user a safe environment to work on and we will give them a sense of freedom that they can whatever they want without worrying about that their data or their work data is being watched by other personals.

**Keywords-** VPN(Virtual Private Network), SHA-256, L2TP

Education to Eternity



## INDEX

Title	Page No
Acknowledgement	I
List of Figures	II
List of Tables	III
Abbreviations and Symbols	IV
Abstract	V

## CONTENTS AT GLANCE

CHAPTER	Title	Page no
1	<b>INTRODUCTION</b>	1-4
	1.1 The scope of the thesis' research	3
2	<b>LITERATURE SURVEY</b>	5-10
	2.1 Multipurpose Virtual Private Networks system technology	6
	2.2 Multipurpose VPN system	6
	2.3 The types of vulnerabilities	7
3	<b>METHODOLOGY</b>	11-16
	3.1 Features	12
	3.2 Server	12
	3.2.1 Amaosn EC 242 Server	12
	3.3 Algorithm	13
	3.4 Encrypt	14
	3.4.1 SHA-256	14
	3.4.2 L2TP	15
4	<b>TOOLS AND PLATFORM</b>	17-21
	4.1 Componenet Used	18
	4.1.1 Software	18
	A. MySQL	18
	B. PHP	19
	C. HTML	20
	D. Python	21

<b>5</b>	<b>DESIGN AND IMPLEMENTATION</b>	<b>22-29</b>
	5.1 DESIGN	23
	5.1.1 DATA FLOW DIAGRAM	23
	5.1.2 FLOW CHART DIAGRAM	23
	5.1.3 Protocol	24
	5.2 MODULES AND DESCRIPTION	25
	5.3 APPLICATION	26
	1. Sign Up	26
	2. LOGIN	26
	5.4 Implementation	27
	5.4.1 Login Coding	27
	5.5 ADVANTAGES	29
<b>6</b>	<b>TESTING</b>	<b>30-32</b>
	6.1 Software used for simulation Fuzzing	31
	6.1.1 Debugging tools	31
<b>7</b>	<b>RESULTS DISCUSSION</b>	<b>33-34</b>
<b>8</b>	<b>SUMMARY AND CONCLUSION</b>	<b>35-37</b>
	8.1 Summary	36
	8.2 Conclusion	36
	8.3 Future Scope	37
	<b>REFERENCES</b>	<b>38-40</b>
	<b>ANNECURES</b>	
	<b>APPENDICES</b>	



# **MKJS Library : A javascript library For making custom components**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Information Technology**

**Submitted by**

**Mahesh Kariya**

**Ayashlu Meshram**

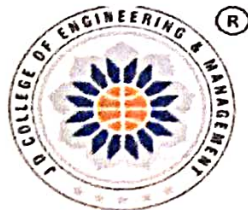
**Nikita Ramteke**

**Vanshika Peshane**

**Rashmi Pandey**

**Under the Guidance of**

**Prof. Mirza Moiz Baig**



Education to Eternity

**Department of Information Technology**

**J D College of Engineering and Management,  
Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur**

**University, Nagpur**

## DECLARATION

We hereby declare that the work presented in this project report entitled, **"MKJS Library : A javascript library For making custom components"** in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Mirza Moiz Baig**. Department of Information Technology, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Name of Students

Mahesh Kariya

Ayashlu Meshram

Rashmi Pandey

Nikita Ramteke

Vanshika Peshane



## CERTIFICATE

This is to certify that the project report entitled, "MKJS Library :A javascript library For making custom components" in the subject Information Technology in the faculty of Science and Technology submitted by Mahesh Kariya, Ayashlu Meshram, Nikita Ramteke, Vanshika Peshane, Rashmi Pandey to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Mirza Moiz Baig**  
Department of Information Technology

Forwarded to:



**Prof. Supriya Sawwashere**  
Project Coordinator



**Prof. Madhuri Pal**  
Head of the Department  
Department of Information Technology



**Dr. S.R. Choudhari**  
Principal

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **MKJS Library : A Javascript library For making custom components** is approved work done by

**Mahesh Kariya**

**Ayashlu Meshram**

**Nikita Ramteke**

**Rashmi Pandey**

**Vanshika Peshane**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Information Technology** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Mirza Moiz Baig**  
Guide

**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



# **STUDENT SMART APPLICATION**

A Project Report submitted in partial fulfillment of the requirements for the  
award of the degree of

**Bachelor of Engineering  
in  
Information Technology**

**Submitted by**

**Ruchita R. Bankar**

**Pashiya C. Gajbhiye**

**Priti B. Selkari**

**Shivani S. Nilewar**

**Minal S. Chandekar**

**Under the guidance of**

**Prof. Manoj S. Titre**



**Education to Eternity**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

**J D COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR-441501**

**Affiliated to Rashtrasant Tukdoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, “**Student Smart Application**” in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Manoj S. Titre**, Department of Information Technology, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date:

Name of Students

Ruchita R. Bankar

Pashiya C. Gajbhiye

Priti B. Selkari P. Selkari

Shivani S. Nilewar S. Nilewar

Minal S. Chandekar M. Chandekar



## CERTIFICATE

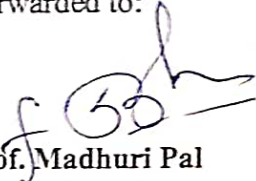
This is to certify that the project report entitled, "Student Smart Application" in the subject Information Technology in the faculty of Science and Technology submitted by Ruchita R. Bankar, Pashiya C. Gajbhiye, Priti B. Selkari, Shivani S. Nilewar, Minal S. Chandekar to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



Prof. Manoj S. Titre  
Project Guide

Department of Information and Technology

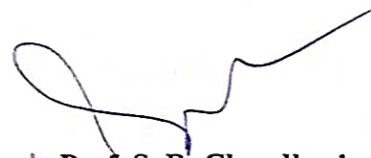
Forwarded to:



Prof. Madhuri Pal  
Head of the Department  
Department of Information and Technology  
JDCOEM, Nagpur



Prof. Supriya Sawwashere  
B.E. Project In-Charge  
Department of Information and Technology



✓ Prof. S. R. Choudhari  
Principal  
Principal

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501




## CERTIFICATE OF APPROVAL

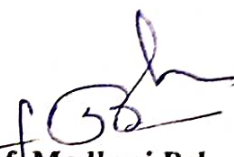
This is to certify that the Project Report on **STUDENT SMART APPLICATION** is approved work done by

**Name of the Students**

Ruchita R. Bankar,  
Pashiya C. Gajbhiye,  
Priti B. Selkari,  
Shivani S. Nilewar,  
Minal S. Chandekar

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Information Technology** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

  
**Prof. Manoj S. Titre**  
Guide

  
**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



## INDEX

Title	Page No.
Acknowledgement	i
List of Figures	ii
Abbreviation	iii
Abstract	iv

## CONTENTS AT GLANCE

Title	Page No.
Chapter 1 INTRODUCTION	
1.1 Aim Of Project	1
1.2 An Overview Of Smart Application Technology	1
Chapter 2 LITERATURE SURVEY	
2.1 Literature Review	3
2.2 Research Gap	5
2.3 Problem Statement	5
2.4 Objectives	5
Chapter 3 RESEARCH METHODOLOGY	
3.1 Android	7
3.1.1 Android Editors and IDEs	8
3.1.2 Android Language Resources	9
3.1.3 Android Libraries	9
3.1.4 Android Plug-ins	10
3.1.5 Android Studio	12
3.1.6 Project Structure	13
3.2 JAVA	15
3.3 PHP	17
3.4 MySQL	18
3.5 Modules and Description	20
3.6 Application	21

<b>3.7 Algorithm for Student</b>	<b>23</b>
<b>Chapter 4 IMPLEMENTATION</b>	
<b>4.1 Work Flow Diagram</b>	<b>25</b>
<b>4.2 Use Case Diagram for Student</b>	<b>26</b>
<b>4.3 Use Case Diagram for Admin</b>	<b>26</b>
<b>4.4 System Architecture</b>	<b>27</b>
<b>4.5 Advantages</b>	<b>28</b>
<b>Chapter 5 RESULT AND DISCUSSION</b>	
<b>5.1 Student Login</b>	<b>29</b>
<b>5.1.1 Upload and Download Document</b>	<b>30</b>
<b>5.1.2 Payment for the Library, Stationary and Canteen Foods</b>	<b>31</b>
<b>5.2 Admin Login</b>	<b>31</b>
<b>5.2.1 Refill Account</b>	<b>32</b>
<b>5.2.2 Update Item</b>	<b>33</b>
<b>5.2.3 Grating the User</b>	<b>34</b>
<b>5.3 Database</b>	<b>35</b>
<b>Chapter 6 SUMMARY AND CONCLUSION</b>	
<b>6.1 Summary</b>	<b>36</b>
<b>6.2 Conclusion</b>	<b>36</b>
<b>6.3 Future Scope</b>	<b>37</b>
<b>REFERENCES</b>	<b>38</b>
<b>ANNEXURES</b>	
<b>Paper Published</b>	<b>40</b>
<b>Copy right Certificate</b>	<b>53</b>
<b>NPTEL Elite Certificate</b>	<b>54</b>
<b>Plagiarism Report</b>	<b>59</b>
<b>Grammarly Report</b>	<b>60</b>
<b>Photo Gallery</b>	
<b>Bibliography</b>	<b>62</b>



## ACKNOWLEDEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from Prof. Madhuri Pal, Head, Department of IT-CSE J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank Prof. Supriya Sawwashere, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide Prof. Manoj S. Titre, Department of IT-CSE , J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of IT-CSE Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

### *Name of the students*

*Ruchita R. Bankar*

*Pashiya C. Gajbhiye*

*Priti B. Selkari*

*Shivani S. Nilewar*

*Minal S. Chandekar*

## LIST OF FIGURES

Figure No.	Title	Page No.
3.1.1	Android Editors and IDEs	8
3.1.3	Android Libraries	9
3.1.4	Android Plug-ins	10
3.1.5	Android Studio	12
3.1.6	(a) Android Project View	13
3.1.6	(b) Android Studio Main Window	14
3.2.1	Java Uses	16
3.2.2	Java Features	17
3.3	PHP Features	19
3.4.1	SQLite	19
3.4.2	RDBMS Client/Server Architecture	20
3.4.3	SQLite Serverless Architecture	20
3.6	Overview Diagram of Student Application Card System	23
4.1	Work Flow Diagram	25
4.2	Use Case Diagram for Student	26
4.3	Use Case Diagram for Admin	26
4.4	System Architecture	27
5.1	Student Registration Page	29
5.1.1	Upload and Download Document	30
5.2	Admin Login	31
5.2.1	Refill Account	32
5.2.2	Update Item	33
5.2.3	Grating the User	34
5.3	Database	35



## ABBREVIATIONS

Abbreviations	Full Form
IDE	Integrated Development Environment
SDK	Software Development Kit
ADI	Android Development kit
JSON	JavaScript Object Notation
API	Application Program Interface
APK	Android Application Package
NDK	Native Development Kit
JRE	Java Runtime Environment
JVM	Java Virtual Memory
SQL	Structured Query Language

## ABSTRACT

Information technology plays a vital role for the development of smart application. An innovative way to handle funds at college. Having a multifunction smart application offering cashless catering, stationary and other services looks great to students. The main objective of this system is to make all the transaction in a campus without liquid cash and it also containing a document which is required to the student for college purpose. Here we are trying to implement a cashless campus and safety for document by using the IMEI number of the device. That means students do not need to keep cash to purchase anything inside the campus and also do not need to carry the document every time in campus, they just need to use this app which is installed in mobile. The transactions made by the users are updated in the databases and statements about the transactions is provided. The Amount (balance) in the smart app can always be refilled with the help of admin. This app is also help student and staff to manage the official document of student.



# **Cloud Computing Security using RSA & AES**

*Thesis submitted to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur  
In partial fulfillment of requirement for the award of degree of*

## **Bachelor of Engineering in Information Technology**

*Submitted by*

**Saurabh Darunde**

**Sumit Badge**

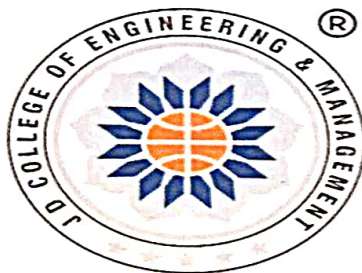
**Ganesh Rathod**

**Gopal Rathod**

**Vaibhav Batulwar**

*Under the guidance of*

**Prof. U.S. Samarth**



**Education to Eternity**

**Department of Computer Science and Engineering**

**J D College of Engineering and Management,  
Nagpur**

**2019-2020**

## Declaration

We, hereby declare that the dissertation titled "Cloud Computing Security using RSA & AES" submitted herein has been carried out by us in the Department of Information Technology of J D College of Engineering and Management, Nagpur. The work is original and has not been submitted earlier as a whole or in part for the award of any degree / diploma at this or any other Institution / University.

We also hereby assign to J D College of Engineering and Management, Nagpur all rights under copyright that may exist in and to the above work and any revised or expanded derivatives works based on the work as mentioned. Other work copied from references, manuals etc. are disclaimed.

Group Members Name

Saurabh Darunde

Sumit Badge

Vaibhav Batulwar

Ganesh Rathod

Gopal Rathod

Date:

Education to Eternity



## Declaration

I, hereby declare that the dissertation titled “**Cloud Computing Security using RSA & AES**” submitted herein has been carried out by us in the Department of Information Technology of J D College of Engineering and Management, Nagpur. The work is original and has not been submitted earlier as a whole or in part for the award of any degree / diploma at this or any other Institution / University.

I also hereby assign to J D College of Engineering and Management, Nagpur all rights under copyright that may exist in and to the above work and any revised or expanded derivatives works based on the work as mentioned. Other work copied from references, manuals etc. are disclaimed.



*Saurabh Darunde*

### Group Members Name

**Saurabh Darunde**

**Sumit Badge**

**Vaibhav Batulwar**

**Ganesh Rathod**

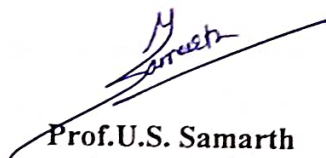
**Gopal Rathod**

Date:

Education to Eternity

## CERTIFICATE

This is to certify that the project report entitled, "Cloud computing Security using RSA & AES" in the subject IT in the faculty of Science and Technology submitted by Saurabh Darunde, Vaibhav Batulwar, Ganesh Rathod, Sumit Badge, Gopal Rathod to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

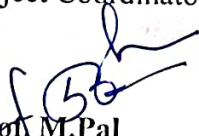


**Prof. U.S. Samarth**  
Project Guide

Dept. Of Information and Technology  
JDCEM, Nagpur



**Prof. Supriya Sawwashere**  
Project Coordinator



**Prof. M. Pal**  
Head of the Department  
Information and Technology  
JDCEM, Nagpur

**Dr. S.R. Choudhari**  
Principal  
JDCEM, Nagpur



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **Cloud computing Security using RSA & AES** is approved work done by

Saurabh Darunde,  
Vaibhav Batulwar,  
Ganesh Rathod,  
Sumit Badge,  
Gopal Rathod

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Information Technology** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019\_\_-2020\_\_.



Prof. U.S. Samarth

Project Guide



Prof. M. Pal

Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

## **Acknowledgement**

First, and foremost I would like to thank God for the wonderful opportunities and challenges he has given to us. I express my sincere gratitude to our guide Prof. U.S. Samarth for providing his valuable guidance, patience and for encouraging us to do our best. I wish to thank Prof. M. Pal, head Department of Information and Technology for his valuable contribution in fulfilling the requirement related to the project. I would like to extend our gratitude to honorable Dr. S. R. Chaudhary, Principal for being a constant source of inspiration. And last but not the least; I want to thank our parents and all those who have contributed, directly and to make this project successful.

**Group Members Name**  
**Saurabh Darunde**  
**Sumit Badge**  
**Vaibhav Batulwar**  
**Ganesh Rathod**  
**Gopal Rathod**

B.E. 8<sup>th</sup> Sem,  
Department of IT/CSE  
JDCEM, Nagpur.



## ABSTRACT

Now days cloud computing is the result of the evolution and adoption of existing technologies and paradigms. The goal of cloud computing is to allow users to take benefit from all of these technologies, without the need for deep knowledge about or expertise with each one of them. The cloud aims to cut costs, and helps the users focus on their core business instead of being impeded by IT obstacles.

The main enabling technology for cloud computing is virtualization. Virtualization software separates a physical computing device into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. With operating system-level virtualization essentially creating a scalable system of multiple independent computing devices, idle computing resources can be allocated and used more efficiently..

Cloud Security is an evolving sub-domain of computer security, network security, and, more broadly, information security. It refers to a broad set of policies, technologies, and controls deployed to protect data, applications, and the associated infrastructure of cloud computing.

## LIST OF FIGURES

Figure. No	Name of Figure	Page no.
Figure 5.1.1	Modules	22
Figure 5.1.2	Data Flow Diagram	23
Figure 6.1	Login Portal	26
Figure 6.2	Admin Login	26
Figure 6.3	Admin Dashboard	27
Figure 6.4	User Dashboard	27
Figure 6.9	File Encryption Data	28

## LIST OF TABLES

Table no.	Name of table	Page no.
Table 2.1,	Survey	7



# INDEX

## CHAPTER 1 - INTRODUCTION

1.1 Evolution of Cloud Services	I-1
1.1.1 Infrastructure as a Service (IaaS)	I-1
1.1.2 Platform as a Service (PaaS)	I-2
1.1.3 Software as a Service (SaaS)	I-2
1.2 Security Sub-System	I-3
1.3 Technologies which are using	I-4

## CHAPTER 2 - LITERATURE REVIEW

2.1 Overview of Literature Review	II-1
2.2 Literature Survey	II-7

## CHAPTER 3 - METHODOLOGY

3.1 AES Algorithm	III-1
3.1.1 Description of the cipher	III-2
3.2 Security	III-6
3.3 System Design	III-8

## CHAPTER 4 - TOOLS AND PLATFORM

4.1 Requirements Analysis	IV-1
4.2 Software Environment	IV-2

## CHAPTER 5 - DESIGN AND IMPLEMENTATION

5.1 Data Flow Diagrams	V-1
5.1.1 Main-Module DFD	V-1
5.2 Advantages of Proposed System	V-3

## CHAPTER 6 - RESULTS AND ANALYSIS

6.1 Login Portal	VI-1
------------------	------

## CHAPTER 7 - CONCLUSION AND FUTURE SCOPE

7.1 Conclusion	VII-1
7.2 Future Scope	VII-2

## CHAPTER 8 - REFERENCE

8.1 IEEE Reference Paper	
--------------------------	--

# **Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Information Technology**

**Submitted by**

**Sushil Kumar S. Kolhatkar**

**Under the Guidance of**

**Prof. Rohan B. Kokate**



Education to Eternity

**Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler”** in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Rohan B. Kokate, Information Technology, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date

Sushil Kumar S. Kolhatkar

## **CERTIFICATE**

This is to certify that the project report entitled, “**Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler**” in the subject **Information Technology** in the faculty of Science and Technology submitted by **Sushil Kumar S. Kolhatkar** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Prof. Rohan B. Kokate**  
Information Technology

Forwarded to:

**Prof. Supriya Sawwashere**  
Project Coordinator

**Prof. Madhuri Pal**  
Head of the Department  
Name of Department

**Dr. Subhash R. Chaudhari**  
Principal



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler** is approved work done by **Sushil Kumar S. Kolhatkar**.

In partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Name of Branch** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Prof. Rohan B Kokate**  
Guide

**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

## INDEX

Title	Page No.
Acknowledgement	i
List of Figures	ii
Abbreviations and Symbols	iii
Abstract	iv

## CONTENTS AT GLANCE

TITLE	Page No.
<b>Chapter 1 INTRODUCTION</b>	
1.1 Brief Outline of the Project	1
<b>Chapter 2 LITERATURE SURVEY</b>	
2.1 Literature Review	4
2.2 Research Gap	8
2.3 Problem Statement	8
2.4 Objectives	8
<b>CHAPTER 3 RESEARCH METHODOLOGY</b>	
3.1 Web-based Examination System Phases	9
3.2 Natural Language Processing and its Applications	14
3.3 DEVELOPMENT LANGUAGES	15
3.3.1 Cascading Style Sheet (CSS)	14
3.3.2 Hyper Text Mark-up Language (HTML)	15
3.3.3 Structured Query Language (SQL)	15
3.3.4 Dreamweaver CS5	16
3.3.5 System Design	17
3.3.6 Bootstrap	17



3.4	Machine Learning	17
3.5	Genetic Algorithm	17
<b>CHAPTER 4 IMPLEMENTATION</b>		
4.1	The Focused Crawler's Task	20
4.2	Main Components Of Crawler	21
4.3	Computer Based Examination	23
4.3.1	Admin Module	24
4.3.2	Staff Module	24
4.3.3	Student Module	24
4.4	Data flow diagram (DFD) of CES	25
4.5	Question bank	25
4.6	Test page	26
4.7	Experimental Results	26
4.8	PHP Hypertext Preprocessor	28
4.9	Testing	29
4.9.1	White-box	29
4.9.2	Black-box testing	29
4.9.3	Unit testing	29
4.9.4	Integration testing	30
4.10	The Resultant Decision tree	30
4.11	Implementation Interface	34
4.11	Examination Creation Page	36
4.13	Question, examination and result pages	36
4.14	Data Base Implementation	45

## **Chapter 5 RESULTS AND DISCUSSIONS**

5.1	EXPERIMENTAL RESULTS	47
-----	----------------------	----

## **Chapter 6 Summary and Conclusion**

6.1	Summary	48
-----	---------	----

6.2	Conclusion	48
-----	------------	----

6.3	Scope for Future Work	49
-----	-----------------------	----

	REFERENCES	50
--	------------	----

	Details of Paper's Published	53
--	------------------------------	----

	Copyright	62
--	-----------	----

	Plagiarism Report	64
--	-------------------	----

	Grammarly Report	65
--	------------------	----



## ACKNOWLEDEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from **Prof. Madhuri Pal** Head, Department of Information Technology J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank **Prof. Supriya Sawwashere**, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide **Prof. Rohan B kokate**, Department of Information Technology , J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of Information Technology Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

*Sushil Kumar S. Kolhatkar*

## LIST OF FIGURES

<b>Figure. No</b>	<b>Name of Figure</b>	<b>Page no.</b>
Figure 3.1	A simplified crawling architecture based on "Mining the Web"	10
Figure 3.2	illustrates the results of an optimal focused crawler	13
Figure 3.3	System overview	16
Figure 4.1	An abstract view on the system's architecture: We have a small set of input documents and after the focused crawl a large collection of documents in the output	20
Figure 4.2	A component diagram of the focused crawler	22
Figure 4.3	Data flow diagram	25
Figure 4.4	The resultant Decision tree	30
Figure 4.5	The change detection process	33
Figure 4.6	Register page	33
Figure 4.7	Log-in Page	35
Figure 4.8	Question Creation	37
Figure 4.9	Examination Completion Page	38
Figure 4.10	Performance Tracking system	49
Figure 4.11	Web crawler	40
Figure 4.12	Backend/Database Design I	41
Figure 4.13	Backend/Database Design II	42
Figure 4.14	Backend/Database Design III	43
Figure 4.15	Backend/Database Design IV	44



## **ABBREVIATIONS**

<b>AI</b>	<b>Artificial Intelligence</b>
<b>AR</b>	<b>Autoregressive Model</b>
<b>ARMA</b>	<b>Autoregressive Moving Average Model</b>
<b>ARMAX</b>	<b>ARMA with external input</b>
<b>ASM1</b>	<b>Activated Sludge Model 1</b>
<b>ASM2</b>	<b>Activated Sludge Model 2</b>
<b>BOD</b>	<b>Biochemical Oxygen Demand</b>
<b>AODV</b>	<b>Ad hoc on Distance Vector</b>
<b>W3C</b>	<b>World Wide Web Consortium</b>
<b>CGI</b>	<b>Common Gateway Interface</b>
<b>CTSS</b>	<b>Compatible Time-Sharing System</b>
<b>CLI</b>	<b>Command Line Interface</b>
<b>GA</b>	<b>Genetic Algorithm</b>

## **SYMBOLS**

<b>K</b>	<b>Specific substrate utilization rate constant</b>
<b>k<sub>d</sub></b>	<b>Microbial decay coefficient</b>
<b>K<sub>s</sub></b>	<b>Substrate concentration when growth rate is half of maximum</b>
<b>Q</b>	<b>Rate of wastewater flow to the aeration tank</b>
<b>q</b>	<b>Specific substrate utilization rate</b>
<b>Q<sub>e</sub></b>	<b>Effluent flow rate</b>
<b>q<sub>m</sub></b>	<b>Maximum specific substrate utilization rate</b>

## ABSTRACT

Computer Based Examination System (CES) is an efficient and time saving mode of conducting examinations to a larger number of students at the same time. It is an effective solution to evaluate huge number of students. In recent times many computer based examination systems have been developed in which lack of flexibility remains a major drawback. Timing functionalities like automatically logging-off candidates upon expiration of allotted time, random generation of questions and accommodation of large number of students at the same time are the advantages of our proposed system. In this, a computer based examination system is developed which combines many of the advantages as one. The Data Flow Diagram (DFD) of the system is presented .

The continuation education is very important for people who have left school to work to increase their competence and skills. To avoid the disadvantages of the common test paper generating methods, genetic algorithm is used to generate the test paper automatically. The concrete design process of test paper generating based on genetic algorithm is discussed in this paper, and some corresponding parameters setting have been compared and defined. The application results demonstrated that the genetic algorithm was an effective tool in the exam generating.

E-assessment is a key element in any e-learning system, needed to evaluate the learning process. It can be successfully and easily carried out on Multiple Choice Questions. However essay questions is much harder than that of MCQs. Consequently, This is an approach to assess short answer questions automatically through Artificial intelligence

Big data is growing in importance in everyday life, yet traditional models of University education do not make good use of it. This thesis proposes a system that allows students to find courses based on similarity measures and take these courses in an exam-based environment. We describe a new mining method that can efficiently search, cluster and perform related functions in the system. The basic idea of this mining is to map courses in a university to buildings in a city. This means that finishing a degree or getting a skill is analogous to finding a path in the city. A number of approaches to build the city are presented. In the process of developing an algorithm, we use machine learning, artificial intelligence, and classic mining methods as core ideas.



# **Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Information Technology**

**Submitted by**

**Prajwal G. Chanore**

**Under the Guidance of**

**Prof. Rohan B. Kokate**



Education to Eternity

**Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## **DECLARATION**

We hereby declare that the work presented in this project report entitled, **“Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler”** in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Rohan B. Kokate, Information Technology, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date

Prajwal G. Chanore



## **CERTIFICATE**

This is to certify that the project report entitled, **“Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler”** in the subject **Information Technology** in the faculty of Science and Technology submitted by **Prajwal G. Chanore** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Prof. Rohan B. Kokate**  
Information Technology

Forwarded to:

**Prof. Supriya Sawwashere**  
Project Coordinator

**Prof. Madhuri Pal**  
Head of the Department  
Name of Department

**Dr. Subhash R. Chaudhari**  
Principal

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **Randomized Automated Question Paper Maker & AI Based Answer Evaluator With Performance Grading System & Crawler** is approved work done by **Prajwal G. Chanore**.

In partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Name of Branch** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Prof. Rohan B Kokate**  
Guide

**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**



## INDEX

Title	Page No.
Acknowledgement	i
List of Figures	ii
Abbreviations and Symbols	iii
Abstract	iv

## CONTENTS AT GLANCE

TITLE	Page No.
<b>Chapter 1 INTRODUCTION</b>	
1.1 Brief Outline of the Project	1
<b>Chapter 2 LITERATURE SURVEY</b>	
2.1 Literature Review	4
2.2 Research Gap	8
2.3 Problem Statement	8
2.4 Objectives	8
<b>CHAPTER 3 RESEARCH METHODOLOGY</b>	
3.1 Web-based Examination System Phases	9
3.2 Natural Language Processing and its Applications	14
3.3 DEVELOPMENT LANGUAGES	15
3.3.1 Cascading Style Sheet (CSS)	14
3.3.2 Hyper Text Mark-up Language (HTML)	15
3.3.3 Structured Query Language (SQL)	15
3.3.4 Dreamweaver CS5	16
3.3.5 System Design	17

3.3.6	Bootstrap	17
3.4	Machine Learning	17
3.5	Genetic Algorithm	17

## CHAPTER 4 IMPLEMENTATION

4.1	The Focused Crawler's Task	20
4.2	Main Components Of Crawler	21
4.3	Computer Based Examination	23
4.3.1	Admin Module	24
4.3.2	Staff Module	24
4.3.3	Student Module	24
4.4	Data flow diagram (DFD) of CES	25
4.5	Question bank	25
4.6	Test page	26
4.7	Experimental Results	26
4.8	PHP Hypertext Preprocessor	28
4.9	Testing	29
4.9.1	White-box	29
4.9.2	Black-box testing	29
4.9.3	Unit testing	29
4.9.4	Integration testing	30
4.10	The Resultant Decision tree	30
4.11	Implementation Interface	34
4.11	Examination Creation Page	36
4.13	Question, examination and result pages	36
4.14	Data Base Implementation	45



## **Chapter 5 RESULTS AND DISCUSSIONS**

<b>5.1</b>	<b>EXPERIMENTAL RESULTS</b>	<b>47</b>
------------	-----------------------------	-----------

## **Chapter 6 Summary and Conclusion**

<b>6.1</b>	<b>Summary</b>	<b>48</b>
------------	----------------	-----------

<b>6.2</b>	<b>Conclusion</b>	<b>48</b>
------------	-------------------	-----------

<b>6.3</b>	<b>Scope for Future Work</b>	<b>49</b>
------------	------------------------------	-----------

<b>REFERENCES</b>	<b>50</b>
-------------------	-----------

<b>Details of Paper's Published</b>	<b>53</b>
-------------------------------------	-----------

<b>Copyright</b>	<b>62</b>
------------------	-----------

<b>Plagiarism Report</b>	<b>64</b>
--------------------------	-----------

<b>Grammarly Report</b>	<b>65</b>
-------------------------	-----------

## ACKNOWLEDEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from **Prof. Madhuri Pal** Head, Department of Information Technology J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank **Prof. Supriya Sawwashere**, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide **Prof. Rohan B kokate**, Department of Information Technology , J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of Information Technology Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

*Prajwal G. Chanore*



## LIST OF FIGURES

<b>Figure. No</b>	<b>Name of Figure</b>	<b>Page no.</b>
Figure 3.1	A simplified crawling architecture based on "Mining the Web"	10
Figure 3.2	illustrates the results of an optimal focused crawler	13
Figure 3.3	System overview	16
Figure 4.1	An abstract view on the system's architecture: We have a small set of input documents and after the focused crawl a large collection of documents in the output	20
Figure 4.2	A component diagram of the focused crawler	22
Figure 4.3	Data flow diagram	25
Figure 4.4	The resultant Decision tree	30
Figure 4.5	The change detection process	33
Figure 4.6	Register page	33
Figure 4.7	Log-in Page	35
Figure 4.8	Question Creation	37
Figure 4.9	Examination Completion Page	38
Figure 4.10	Performance Tracking system	49
Figure 4.11	Web crawler	40
Figure 4.12	Backend/Database Design I	41
Figure 4.13	Backend/Database Design II	42
Figure 4.14	Backend/Database Design III	43
Figure 4.15	Backend/Database Design IV	44

## ABBREVIATIONS

AI	Artificial Intelligence
AR	Autoregressive Model
ARMA	Autoregressive Moving Average Model
ARMAX	ARMA with external input
ASM1	Activated Sludge Model 1
ASM2	Activated Sludge Model 2
BOD	Biochemical Oxygen Demand
AODV	Ad hoc on Distance Vector
W3C	World Wide Web Consortium
CGI	Common Gateway Interface
CTSS	Compatible Time-Sharing System
CLI	Command Line Interface
GA	Genetic Algorithm

## SYMBOLS

$K$	Specific substrate utilization rate constant
$k_d$	Microbial decay coefficient
$K_s$	Substrate concentration when growth rate is half of maximum
$Q$	Rate of wastewater flow to the aeration tank
$q$	Specific substrate utilization rate
$Q_e$	Effluent flow rate
$q_m$	Maximum specific substrate utilization rate



## ABSTRACT

Computer Based Examination System (CES) is an efficient and time saving mode of conducting examinations to a larger number of students at the same time. It is an effective solution to evaluate huge number of students. In recent times many computer based examination systems have been developed in which lack of flexibility remains a major drawback. Timing functionalities like automatically logging-off candidates upon expiration of allotted time, random generation of questions and accommodation of large number of students at the same time are the advantages of our proposed system. In this, a computer based examination system is developed which combines many of the advantages as one. The Data Flow Diagram (DFD) of the system is presented .

The continuation education is very important for people who have left school to work to increase their competence and skills. To avoid the disadvantages of the common test paper generating methods, genetic algorithm is used to generate the test paper automatically. The concrete design process of test paper generating based on genetic algorithm is discussed in this paper, and some corresponding parameters setting have been compared and defined. The application results demonstrated that the genetic algorithm was an effective tool in the exam generating.

E-assessment is a key element in any e-learning system, needed to evaluate the learning process. It can be successfully and easily carried out on Multiple Choice Questions. However essay questions is much harder than that of MCQs. Consequently, This is an approach to assess short answer questions automatically through Artificial intelligence

Big data is growing in importance in everyday life, yet traditional models of University education do not make good use of it. This thesis proposes a system that allows students to find courses based on similarity measures and take these courses in an exam-based environment. We describe a new mining method that can efficiently search, cluster and perform related functions in the system. The basic idea of this mining is to map courses in a university to buildings in a city. This means that finishing a degree or getting a skill is analogous to finding a path in the city. A number of approaches to build the city are presented. In the process of developing an algorithm, we use machine learning, artificial intelligence, and classic mining methods as core ideas.

# **VOICE BASED EMAIL SYSTEM FOR BLIND**

**A Project Report submitted in partial fulfillment of the requirements**

**for the award of the degree of**

**Bachelor of Engineering**

**In**

**Information Technology**

**Submitted by**

**Trishna Rotke**

**Under the Guidance of**

**Prof. Umesh Samarth**



**Education to Eternity**

**Department of Information Technology**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**



## CERTIFICATE

This is to certify that the project report entitled, "**Voice Based Email System For Blind**" in the subject **Information Technology** in the faculty of Science and Technology submitted by **Priya Wanjari, Paulus Tiwari, Harsha Nimkar, Pratiksha Zodawane, Trishna Rotke** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a Bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

**Prof. Umesh Samarth**  
Project Guide  
Department of Information and Technology

Forwarded to:



**Prof. Supriya Sawwashere**  
B.E. Project In-Charge  
Department of Information Technology



**Prof. Madhuri Pal**  
Head of the Department  
Department of Information and Technology  
JDCOEM, Nagpur

Principal

## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Voice Based Email System For Blind”** in the subject **Information Technology** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Umesh Samarth**, Department of Information Technology, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place:Nagpur

Date



Name of Students


Trishna Rotke



## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **VOICE BASED EMAIL SYSTEM FOR BLIND** is approved work done by **Trishna Rotke** in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Information Technology** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

**Prof. Umesh Samarth**  
Guide



**Prof. Madhuri Pal**  
Head of the Department

---

Project Examination held on \_\_\_\_\_

**Internal Examiner/ Guide**

**External Examiner**

## INDEX

TITLE	PAGE NO.
Acknowledgement	i
List of Figures	ii
Abstract	iii

## CONTENTS AT GLANCE

TITLE	PAGE NO.
<b>Chapter 1 INTRODUCTION</b>	
1.1 Brief Outline of the Project	1
1.2 An Overview of Project Report	2
<b>Chapter 2 LITERATURE SURVEY</b>	
2.1 Literature Review	3
2.2 Research Gap	7
2.3 Problem Statement	8
2.4 Objectives	8
<b>CHAPTER 3 RESEARCH METHODOLOGY</b>	
3.1 Proposed System	9
3.2 Design	10
3.2.1 Login to G-mail account	11
3.2.2 Send E-mail through G-mail	11
3.2.3 Read E-mail through G-mail	11
3.2.4 SMTP (Simple Mail Transfer protocol)	12
3.3 The SMTP model	13
3.3.1 End-To-End	14
3.3.2 Store-and-Forward	14
3.4 SENDING EMAIL IN PYTHON USING SMTPLIB	14
3.4.1 Host	15
3.4.2 Port	15
3.4.3 Local Hostname	15



<b>3.5</b>	<b>READING EMAIL FROM GMAIL USING PYTHON</b>	<b>16</b>
<b>3.6</b>	<b>User Interface Design</b>	<b>17</b>
<b>3.6.1</b>	<b>Database Design</b>	<b>17</b>
<b>3.6.2</b>	<b>System Design</b>	<b>17</b>
<b>3.7</b>	<b>System Requirements</b>	<b>19</b>
<b>3.7.1</b>	<b>Hardware Requirement</b>	<b>19</b>
<b>3.7.2</b>	<b>Software Requirements</b>	<b>19</b>
<b>3.7.3</b>	<b>List of Modules</b>	<b>20</b>
<b>3.8</b>	<b>MODULE DESCRIPTION</b>	<b>20</b>
<b>3.8.1</b>	<b>SPEECH_TO_TEXT Converter</b>	<b>20</b>
<b>3.8.2</b>	<b>TEXT_TO_SPEECH Converter</b>	<b>20</b>
<b>3.8.3</b>	<b>WORD RECOGNITION</b>	<b>21</b>
<b>3.9</b>	<b>Common Rule</b>	<b>21</b>
<b>3.9.1</b>	<b>Compose a Mail</b>	<b>22</b>
<b>3.9.2</b>	<b>Inbox</b>	<b>22</b>
<b>3.9.3</b>	<b>Trash</b>	<b>22</b>
<b>3.9.4</b>	<b>Sent Mail</b>	<b>23</b>
<b>3.9.5</b>	<b>Tools Used</b>	<b>23</b>
<b>3.9.6</b>	<b>Login</b>	<b>23</b>
<b>3.9.7</b>	<b>Dashboard</b>	<b>23</b>
<b>CHAPTER 4 IMPLEMENTATION</b>		
<b>4.1</b>	<b>Voice Based Email</b>	<b>25</b>
<b>4.1.1</b>	<b>Registration</b>	<b>25</b>
<b>4.1.2</b>	<b>Login</b>	<b>25</b>
<b>4.1.3</b>	<b>Forgot Password</b>	<b>25</b>
<b>4.1.4</b>	<b>Home Page</b>	<b>26</b>
<b>4.1.5</b>	<b>Compose mail</b>	<b>26</b>
<b>4.1.6</b>	<b>Inbox</b>	<b>28</b>
<b>4.1.7</b>	<b>Sent mail</b>	<b>29</b>
<b>4.1.8</b>	<b>Trash</b>	<b>29</b>
<b>4.1.9</b>	<b>Data Flow Diagram</b>	<b>29</b>
<b>4.2</b>	<b>Case View</b>	<b>29</b>

4.2.1	Use Case View	30
4.2.2	Class Diagram	30
4.2.3	Sequence Diagram	31
4.2.4	ER Diagram	33
4.3	Speech Recognition In Python	33
4.3.1	Required Installations	34
4.3.2	listen() :	36
4.3.3	Speech to text Converter	37
4.3.4	Speech Synthesis(TTS)	38
4.3.5	TEXT TO SPEECH IN PYTHON	39
4.3.6	IPytsx	40
4.4	SYSTEM DEVELOPMENT	41
4.4.1	Welcome Page	41
4.4.2	Compose Page	42
4.4.3.	Inbox Page	43
4.4.4.	Sent Mail	44
4.4.5	Contact us	44
Chapter 5 RESULTS AND DISCUSSIONS		
5.1	EXPERIMENTAL RESULTS	45
5.1.1	Cyclomatic Complexity	45
5.1.2	REGISTER PAGE	46
5.1.3	USER SCREEN	47
5.1.4	USER SCREEN AFTER ENTERING DETAILS USING VOICE	48
5.1.5	MESSAGE SENT CONFIRMATION	49
5.1.6	Application	49
5.2	Advantage	50
Chapter 6 Summary and Conclusion		
6.1	Summary	51
6.2	Conclusion	51
6.3	Scope for Future Work	52
REFERENCES		53



<b>ANNEXURES</b>	
<b>Paper Published</b>	<b>55</b>
<b>NPTEL Elite Certificate</b>	<b>63</b>
<b>Copy right Certificate</b>	<b>69</b>
<b>Plagiarism Report</b>	
<b>Grammarly Report</b>	
<b>Photo Gallery</b>	
<b>Bibliography</b>	

## ACKNOWLEDEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonkar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from Prof. Madhuri Pal, Head, Department of I.T-CSE J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank Prof. Supriya Sawwas here, Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide Prof. Umesh Samarth, Department of I.T-CSE, J D College of Engineering & Management, Nagpur. Without his/her wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work.

We express gratitude to other faculty members of I.T-CSE Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

*Name of the students*

*Trishna Rotke*



## LIST OF FIGURES

Figure No.	Title	Page No.
3.1	System Architecture	9
3.2.3	Flow Chart Proposed Model	12
3.6.1	Level-1 Data Flow Diagram of our system	18
3.6.2	Level-2 Data Flow Diagram of our system	19
3.9.7	Login and Dashboard	24
4.1.5	Flow Chart of Compose-Mail	27
4.1.6	Flow Chart OF Index	28
4.1.9	Data Flow Diagram	29
4.2.1	Use Case Diagram	30
4.2.2	Class Diagram	31
4.2.3	Sequence Diagram for User	32
4.2.4	Flow Chart of Compose-Mail	33
4.4.1	Welcome To The Voice Based Email System For Blind	41
4.4.2	Compose Page Of Voice Based Email System For Blind	42
4.4.3	Inbox Page Of Voice Based Email System For Blind	43
5.1	Flow chart for cyclomatic complexity	46
5.1.2	Screenshot for register page	46
5.1.3	Screenshot for Userscreen	47
5.1.4	Screenshot after entering user detai	48
5.1.5	Screenshot after sending user	49

## ABSTRACT

Human life is relay on communication. As the easy availability of computer system with the Internet. Most of the communication is carried out with the use of these technologies worldwide. For carrying out the communication with the use of Internet there are many social networks and other technologies present, but among those technologies present, but among those technologies email is globally considered as the standard for communication mostly for business communication, over the traditional letters. These email systems are easy to use for normal people, but the visually impaired people can't use these systems because they are depend on the visual perception. Although there are advancements provided to computer system to help visually impaired people while using these system, they still face difficulty while using them. As about 285 million peoples are visually impaired around the globe [6]. It is necessary to make these systems available to them. In order to help visually impaired people who want access to email system in easy way, this paper aims to develop the voice based system. Along with providing the mailing facility easily and efficiently this system will also reduce the considerable load of remembering keyboard shortcuts and typing the characters using braille keyboards available to them. Along with the visually impaired people. This system will also helpful for the people with other impairments.



# **FINAL PROJECT REPORT**

**On**

## **“An assessment of relationship between Service Quality and Customer Satisfaction with respect to SBI Bank in Nagpur city”**

Submitted by

**JYOTI SHENDE**

Under the Guidance of

**DR. SWARNALATA PHILIP**

1212C/714 Dated-16.3.2013

*Submitted in partial fulfillment for the award of the degree*

*of*

**MASTER OF BUSINESS ADMINISTRATION**

**DEPARTMENT OF MANAGEMENT STUDIES**



**Education to Eternity**

**J D COLLEGE OF ENGINEERING AND MANAGEMENT  
RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY  
NAGPUR**

**SESSION: 2019 - 2020**

## BONAFIDE CERTIFICATE

This is to certify that the project work, entitled "An assessment of Relationship between Service Quality and Customer Satisfaction with respect to SBI Bank in Nagpur city" is the bonafide work of **Jyoti Shende** who carried out the same under my supervision. This project work is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University** as partial fulfillment of requirement for the award of degree of Master of Business Administration.

*gave*  
**DR. SWARNALATA PHILIP**  
**PROJECT GUIDE**

*for usage*  
**DR. SWARNALATA PHILIP**  
**HOD – DEPARTMENT OF**  
**MANAGEMENT STUDIES**



*S. V. Sonekar*  
**DR. S. V. Sonekar**  
**OFFTG. PRINCIPAL,**  
**J D COLLEGE OF ENGINEERING**  
**AND MANAGEMENT, NAGPUR.**

**Principal**  
**J D College of Engineering & Management**  
**Khandala, Katol Road**  
**Nagpur-441501**

PLACE: *Nagpur*  
DATE:



## **DECLARATION**

I, the undersigned, hereby declare that the Project Report entitled “**An assessment of Relationship between Service Quality and Customer Satisfaction with respect to SBI Bank in Nagpur city**” is a bonafide and authentic work written and submitted by me to the **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in partial fulfillment of the requirements for the award of degree of Master of Business Administration under supervision of Dr. Swarnalata Philip , the project is entirely original and not been submitted earlier to any university for the reward of any diploma or degree, nor the data have been derived for any project or University.

Place: NAGPUR

Date:



JYOTI SHENDE

Signature

## **ACKNOWLEDGEMENT**

I express my deep sense of gratitude to my Institution, **J D College of Engineering and Management, NAGPUR** for providing an opportunity in fulfilling the most cherished desire for reaching my goal.

I express my immense gratitude to our Principal **Dr. S. V. Sonekar** for his support and encouragement for the completion of my project.

I extend the immense gratitude to the Head of the Department **Dr. Swarnalata Philip** for her motivation, inspiration, and encouragement for the completion for my project.

The valuable and unflinching requital support in this Endeavor of **Dr. Swarnalata Philip**, my guide, whose support & guidance was immeasurable to the completion of this project.

Last, but not the least, my heartfelt gratitude to my parents, relatives, my friends and all those luminaries and unseen hands without whose support the completion of this dissertation would not have been materialized.



**FINAL PROJECT REPORT**

**On**

**“The study of the consumer buying behaviour of D- Mart  
reference Nagpur D-mart store.”**

**Submitted by  
Gopal Hari Rathod**

**Under the Guidance of  
Dr. Anjali Chandak  
(1545/C/1008 Dated-20/04/2013)**

*Submitted in partial fulfillment for the award of the degree  
of*

**MASTER OF BUSINESS ADMINISTRATION**

**DEPARTMENT OF MANAGEMENT STUDIES**



**Education to Eternity**

**J D COLLEGE OF ENGINEERING AND MANAGEMENT  
RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY  
NAGPUR**

**SESSION: 2019 – 2020**

## BONAFIDE CERTIFICATE

This is to certify that the project work, entitled "The study of the consumer buying behaviour of D- Mart reference Nagpur D-mart store" is the bonafide work of **Gopal Hari Rathod** who carried out the same under my supervision. This project work is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University** as partial fulfillment of requirement for the award of degree of Master of Business Administration.

*Rathod*

NAME OF THE FACULTY

PROJECT GUIDE

*for udharge*

DR. SWARNALATA PHILIP

HOD – DEPARTMENT OF  
MANAGEMENT STUDIES

*Sonekar*

DR.S. V. Sonekar

OFFTG. PRINCIPAL,

J D COLLEGE OF ENGINEERING  
AND MANAGEMENT, NAGPUR.

**Principal**

J D College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



PLACE:

DATE:

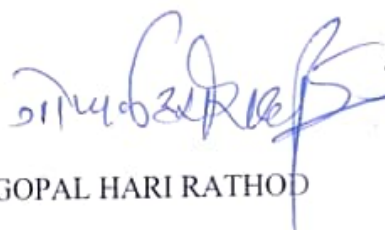


## DECLARATION

I, the undersigned, hereby declare that the Project Report entitled "The study of the consumer buying behaviour of D- Mart reference Nagpur D-mart store" is a bonafide and authentic work written and submitted by me to the **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in partial fulfillment of the requirements for the award of degree of Master of Business Administration under supervision of **Dr. Anjali Chandak**, the project is entirely original and not been submitted earlier to any university for the reward of any diploma or degree, nor the data have been derived for any project or University.

Place: NAGPUR

Date:



GOPAL HARI RATHOD

Signature

## **ACKNOWLEDGEMENT**

I express my deep sense of gratitude to my Institution, **J D College of Engineering and Management, NAGPUR** for providing an opportunity in fulfilling the most cherished desire for reaching my goal. I express my immense gratitude to our Principal **Dr. S. V. Sonekar** for his support and encouragement for the completion of my project. I extend the immense gratitude to the Head of the Department **Dr. Swarnalata Philip** for her motivation, inspiration, and encouragement for the completion for my project. The valuable and unflinching requital support in this Endeavor of **Dr. Anjali Chandak** my guide, whose support & guidance was immeasurable to the completion of this project. Last, but not the least, my heartfelt gratitude to my parents, relatives, my friends and all those luminaries and unseen hands without whose support the completion of this dissertation would not have been materialized.



**FINAL PROJECT REPORT**  
**ON**  
**“A COMPARATIVE STUDY OF TOP 5 PRIVATE SECTOR BANK**  
**IN INDIA ON THE BASIS OF CAMEL PARAMETERS”**

Submitted by

**Neha Rajendra Thakre**

Under the Guidance

**Dr. Swarnalata Philip**

( 1212/C/714 Dated-16.3.2013.)

*Submitted in partial fulfillment for the award of the degree*

*of*

MASTER OF BUSINESS ADMINISTRATION  
DEPARTMENT OF MANAGEMENT STUDIES



Education to Eternity

**J D COLLEGE OF ENGINEERING AND**  
**MANAGEMENT TRASHTRASANT TUKADOJI MAHARAJ NAGPUR**  
**UNIVERSITY**  
**NAGPUR**

**SESSION: 2019 – 20**

**JD COLLEGE OF ENGINEERING AND MANAGEMENT**

## BONAFIDE CERTIFICATE

This is to certify that the project work, entitled “A Comparative Study Of Top 5 Private Sector Banks In India On The Basis Of Camel Analysis” is the bonafide work of **Neha Rajendra Thakre** who carried out the same under my supervision. This project work is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University** as partial fulfillment of requirement for the award of degree of Master of Business Administration.

*Swarnalata*

**DR. SWARNALATA PHILIP**

**PROJECT GUIDE**

*for Uddhar*

**DR. SWARNALATA PHILIP**

**HOD – DEPARTMENT OF  
MANAGEMENT STUDIES**

*S. V. Sonekar*

**DR. S. V. SONEKAR**

**OFFTG. PRINCIPAL,**

**J D COLLEGE OF ENGINEERING**

**AND MANAGEMENT, NAGPUR.**

**Principal**

**J D College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501**




**PLACE: NAGPUR**

**DATE: 10-09-2020**



## **DECLARATION**

I, the undersigned, hereby declare that the Project Report entitled “**A Comparative Study Of Top 5 Private Sector Banks In India On The Basis Of Camel Analysis**” is a bonafide and authentic work written and submitted by me to the **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in partial fulfillment of the requirements for the award of degree of Master of Business Administration under supervision of **DR. SWARNALATA PHILIP**, the project is entirely original and not been submitted earlier to any university for the reward of any diploma or degree, nor the data have been derived for any project or University.



Place: NAGPUR

(NEHA RAJENDRA THAKRE)

Date: 10-09-2020

Signature

## **ACKNOWLEDGEMENT**

I express my deep sense of gratitude to my Institution, **J D College of Engineering and Management, NAGPUR** for providing an opportunity in fulfilling the most cherished desire for reaching my goal.

I express my immense gratitude to our Principal **Dr. S. V. Sonekar** for his support and encouragement for the completion of my project.

I extend the immense gratitude to the Head of the Department **Dr. Swarnalata Philip** for her motivation, inspiration, and encouragement for the completion for my project.

The valuable and unflinching requital support in this Endeavor of **DR. SWARNALATA PHILIP** my guide, whose support & guidance was immeasurable to the completion of this project.

Last, but not the least, my heartfelt gratitude to my parents, relatives, my friends and all those luminaries and unseen hands without whose support the completion of this dissertation would not have been materialized.



**FINAL PROJECT REPORT**

**On**

**“A STUDY ON CONSUMER BEHAVIOUR TOWARDS  
DIGITAL TRANSACTIONS IN RURAL AREA”**

**Submitted by**

**LINESH M. THAKRE**

**Under the Guidance of**

**DR. ANJALI CHANDAK**

**(1545/C/1008 Dated-20/04/2013)**

***Submitted in partial fulfillment for the award of the degree***

***of***

**MASTER OF BUSINESS ADMINISTRATION**

**DEPARTMENT OF MANAGEMENT STUDIES**



**Education to Eternity**

**J D COLLEGE OF ENGINEERING AND MANAGEMENT**

**RASHTRASANT TUKADOJI MAHARAJ NAGPUR**

**UNIVERSITY**

**NAGPUR**

**SESSION: 2019 - 2020**

## **BONAFIDE CERTIFICATE**

This is to certify that the project work, entitled "A study on consumer behaviour towards digital transactions in rural area" is the bonafide work of **Linesh m. Thakre** who carried out the same under my supervision. This project work is submitted to **Rashtrasant Tukadoji Maharaj Nagpur University** as partial fulfillment of requirement for the award of degree of Master of Business Administration.



**DR. ANJALI CHANDAK**

**PROJECT GUIDE**



**DR. SWARNALATA PHILIP**

**HOD – DEPARTMENT OF  
MANAGEMENT STUDIES**



**DR. S. V. Sonekar**

OFFTG. PRINCIPAL,

J D COLLEGE OF ENGINEERING  
AND MANAGEMENT, NAGPUR.

**Principal**

J D College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

PLACE: NAGPUR

DATE: 10-03-2020



## DECLARATION

I, the undersigned, hereby declare that the Project Report entitled "**A study on consumer behaviour towards digital transactions in rural area**" is a bonafide and authentic work written and submitted by me to the **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in partial fulfillment of the requirements for the award of degree of Master of Business Administration under supervision of **Dr. Anjali Chandak**, the project is entirely original and not been submitted earlier to any university for the reward of any diploma or degree, nor the data have been derived for any project or University.

Place: NAGPUR

Date: 10-03-2020



(LINESH M. THAKRE)

Signature

## ACKNOWLEDGEMENT

I express my deep sense of gratitude to my Institution, **J D College of Engineering and Management, NAGPUR** for providing an opportunity in fulfilling the most cherished desire for reaching my goal.

I express my immense gratitude to our Principal **Dr. S. V. Sonekar** for his support and encouragement for the completion of my project.

I extend the immense gratitude to the Head of the Department **Dr. Swarnalata Philip** for her motivation, inspiration, and encouragement for the completion for my project.

The valuable and unflinching requital support in this Endeavor of **DR. ANJALI CHANDAK** my guide, whose support & guidance was immeasurable to the completion of this project.

Last, but not the least, my heartfelt gratitude to my parents, relatives, my friends and all those luminaries and unseen hands without whose support the completion of this dissertation would not have been materialized.



**FINAL PROJECT REPORT**

**On**

**“A Study of Relationship between Emotional Intelligence &  
Entrepreneurial Self-Efficacy among Management Students in  
Nagpur City.”**

Submitted by

**SHUMAYLA TABASSUM SHAUKAT ALI SAYYED**

Under the Guidance of

**DR. UJWALA DANGE**

(2559/C/817-Dated-21/06/2016)

*Submitted in partial fulfillment for the award of the degree  
of*

**MASTER OF BUSINESS ADMINISTRATION**

**DEPARTMENT OF MANAGEMENT STUDIES**



**Education to Eternity**

**J D COLLEGE OF ENGINEERING AND  
MANAGEMENT**

**RASHTRASANT TUKADOJI MAHARAJ NAGPUR  
UNIVERSITY**

**NAGPUR**

**SESSION: 2019 – 2020**

## BONAFIDE CERTIFICATE

This is to certify that the project work, entitled "A Study of Relationship between Emotional Intelligence & Entrepreneurial Self-Efficacy among Management Students in Nagpur City" is the bonafide work of Shumayla Sayyed who carried out the same under my supervision. This project work is submitted to Rashtrasant Tukadoji Maharaj Nagpur University as partial fulfillment of requirement for the award of degree of Master of Business Administration.

*Ujwala Dange*

**DR. UJWALA DANGE**  
PROJECT GUIDE

*for usage*

**DR. SWARNALATA PHILIP**  
HOD – DEPARTMENT OF  
MANAGEMENT STUDIES

*S. V. Sonekar*



**DR.S. V. Sonekar**  
OFFTG.PRINCIPAL,  
J D COLLEGE OF ENGINEERING  
AND MANAGEMENT, NAGPUR.

**Principal**

J D College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

PLACE: NAGPUR

DATE: 29/01/22

## DECLARATION

I, the undersigned, hereby declare that the Project Report entitled "**A Study of Relationship between Emotional Intelligence & Entrepreneurial Self-Efficacy among Management Students in Nagpur City.**" is a bonafide and authentic work written and submitted by me to the **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** in partial fulfillment of the requirements for the award of degree of Master of Business Administration under supervision of **Dr. Ujwala Dange**, the project is entirely original and not been submitted earlier to any university for the reward of any diploma or degree, nor the data have been derived for any project or University.



Place: NAGPUR

(SHUMAYLA TABASSUM S. A. SAYYED)

Date: 29/01/22

Signature:



## **ACKNOWLEDGEMENT**

I express my deep sense of gratitude to my Institution, **J D College of Engineering and Management, NAGPUR** for providing an opportunity in fulfilling the most cherished desire for reaching my goal.

I express my immense gratitude to our Principal **Dr. S. V. Sonekar** for his support and encouragement for the completion of my project.

I extend the immense gratitude to the Head of the Department **Dr. Swarnalata Philip** for her motivation, inspiration, and encouragement for the completion for my project.

The valuable and unflinching requital support in this Endeavor of Dr. Ujwala Dange, my guide, whose support & guidance was immeasurable to the completion of this project.

Last, but not the least, my heartfelt gratitude to my parents, relatives, my friends and all those luminaries and unseen hands without whose support the completion of this dissertation would not have been materialized.

# **Field Project Report on Swaraj Motors**

Report submitted in partial fulfillment of the requirements  
for the award of the degree of  
**Bachelor of Technology**  
**In**  
**Mechanical Engineering**

Submitted by

Second Year Students

Roll No-

1,2,3,4,5,6,7,8,9,10,11,12,13,14,  
15,16,17,18,19,20,21,22,23,24,2  
5,26,27,28,29,30,31,32,33,34,35,  
36,37,38,39,40,41,42,43,44,45,



Education to Eternity

**Mechanical Department**

**J D College of Engineering and Management, Nagpur-441501**  
**Dr. Babasaheb Ambedkar Technological University, Lonere**

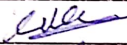
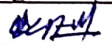
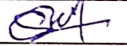
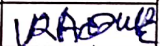

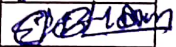
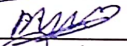
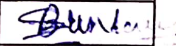
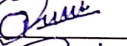

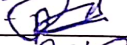
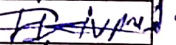
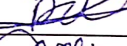
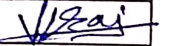

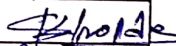

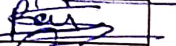
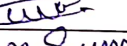

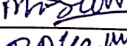
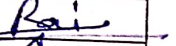
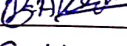
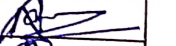

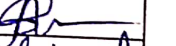
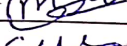
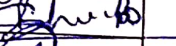

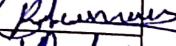

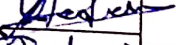

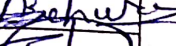
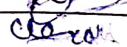

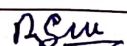
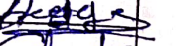
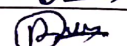
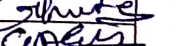
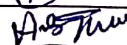


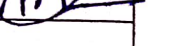
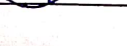
**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this field project report entitled, "Swaraj Motors" in the subject Mechanical in the faculty of Science and Technology is the original contribution carried out by us. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 03/01/2020

R. N.	Name of student	Signature	R. N.	Name of student	Signature
01	KUMBHARE MAYUR		24	KACHHOTIA NEHAL	
02	SINGH PRINCE RAMESHWAR		25	VAIBHAV RAMESH ADWE	
03	DAHERIYA RAMAPRASAD		26	CHAWHAN SHUBHAM	
04	MESHRAM LOKESH PRAKASH		27	BANDAWAR SANKET	
05	GODBOLE PANKAJ VILAS		28	PADHEN JATIN NAONATH	
06	PATHRABE NAYAN SUNIL		29	SHIVPUJE HIMANSHU	
07	SHENDE ASHISH SUDHAKAR		30	SURYAWANSHI VIRAJ	
08	VYAWAHARE OMKAR AJAY		31	KHOPDE SAURABH	
09	BARODKAR ANKIT GURUDEO		32	SONKUSARE RAJ UMAJI	
10	WASNIK SHRADDHA KISHOR		33	INGLE PRAMOD	
11	MESHRAM HARSH SULAS		34	RAI RAJESH KISANRAO	
12	BACHALE AKANKSHA KESHAV		35	NILLAWAR PRASAD RAJESH	
13	GAJBHIYE JAY CHANDRABHAN		36	ABHISHEK MESHRAM	
14	MANDAPE SONUKUMAR		37	SHEIKH SHOEB	
15	SAHU AMAN SAHU		38	RASHTRAPAL C. HUMANE	
16	MAHAJAN NIKITA SANJAY		39	ASHISH YADAV CHAVHAN	
17	DEEPANSHU GOTIYA		40	ANSHUL SAHARE	
18	RAHUL DAYARAM DIGHORE		41	MAYUR VIJAY TALE	
19	SHELKE MAYUR BANDU		42	GAURAO DALIT BADGE	
20	RAMTEKE SHUBHAM		43	GHATE DINESH SURESH	
21	RAYEWAR SHUBHAM SATISH		44	GAYDHANE GRISHAL	
22	AMEYA SANJAY THAKRE		45	MESHRAM SURAJ	
23	KALBANDE VYANKTESH				



## CERTIFICATE

This is to certify that the Filed Project report entitled, “Swaraj Motors” in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by following students to **Dr. Babasaheb Ambedkar Technological University, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision. The contents of this Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Field Project Co-ordinator**

Forwarded to:



**Head of the Mechanical Department**

Head of Department  
**Mechanical Engineering**  
J.D. College of Engineering & Management  
Nagpur



# **Field Project Report on Purti Power Plant**

Report submitted in partial fulfillment of the requirements  
for the award of the degree of  
**Bachelor of Technology**  
**In**  
**Mechanical Engineering**

**Submitted by**

**Second Year Students**

**Roll No-**

**46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91**



Education to Eternity

**Mechanical Department**

**J D College of Engineering and Management, Nagpur-441501**  
**Dr. Babasaheb Ambedkar Technological University, Lonere**

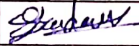

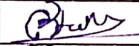
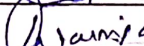

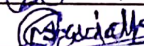
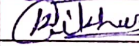
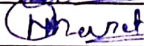
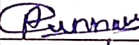
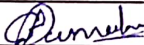
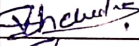
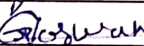
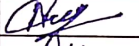
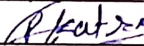
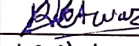
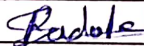
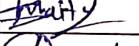
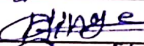
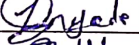

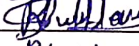
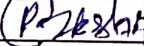
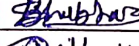
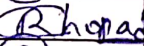
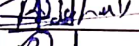
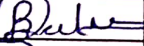
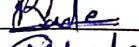
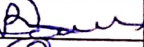
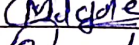
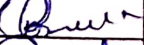
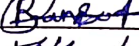
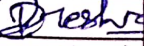
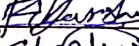
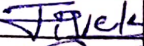


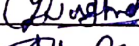
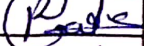
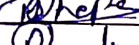

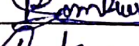
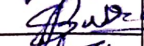
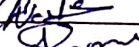

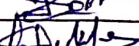
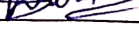
**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this field project report entitled, **“Purti Power Plant”** in the subject **Mechanical** in the faculty of Science and Technology is the original contribution carried out by us. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 27/12/2019

R. N.	Name of student	Signature	R. N.	Name of student	Signature
46	SURYADEV KAMALA YADAV		70	LENDE RITIK OMKAR	
47	MAHORE ROHIT RATNAKAR		71	WANJARI LOKESH	
48	GEDAM RITIK VIJAY		72	GAIDHANE ROHIT ZIBAL	
49	KSHITIJ DHANRAJ NIKHARE		73	PARATE MONIKA BHUJANG	
50	MUNNARWAR AKSHAY		74	DAMAHE GAUTAM	
51	SHEVALE VAIBHAV DEVIDAS		75	GOSWAMI VISHAL	
52	NAG NAMAN SURESH		76	KATRE PRAVIN CHAITRAM	
53	HATWAR ROSHAN MAHAGAN		77	PADOLE SAMIR RAJU	
54	SUSOBHAN MAITY		78	HINGE CHANDRASHEKHAR	
55	SAKSHI BALKRUSHNA INGOLE		79	KHANDEKAR KAPIL	
56	SUKHDEVE AMAN PYARELAL		80	MESHRAM PRADIP ISHWAR	
57	SUCCESS BABHARE		81	CHOPADE RAHUL	
58	JADHAV PRAYAG SATISH		82	DHOLE BHAVESH	
59	LADE ROHIT DEORAM		83	BAWANE ROSHAN	
60	BAGDE MANISH PREMLAL		84	BORKAR PRAVIN DEVIDAS	
61	BANSOD RUSHABH		85	MESHRAM DURGESH	
62	FIYANSHU NAGRARE		86	THAKUR VIVEK VIRENDRA	
63	CHOPKAR RAVIKANT		87	CHANDIWALE DIVYA	
64	WARGHANE YASH SUNIL		88	LADE PRACHI EKNATH	
65	DHEPE ADITYA DILIP		89	LADE SANIYA RAMESH	
66	SOMKUWAR PRACHI SURESH		90	PARATE SAURABH	
67	NALE LAKHAN ISHWAR		91	SY TAUHIR SY NAUSHAD	
68	SOMWANSHI JAGDISHSINH S.				
69	WAKALE SHAILESH				



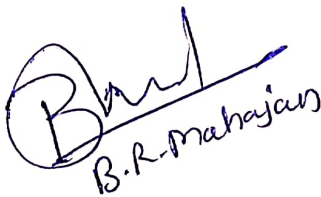
## CERTIFICATE

This is to certify that the Filed Project report entitled, "**Purti Power Plant**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by following students to **Dr. Babasaheb Ambedkar Technological University, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision. The contents of this Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



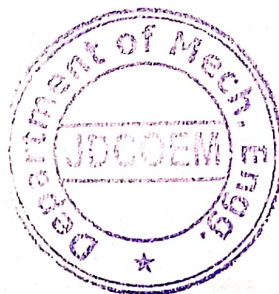
**Field Project Co-ordinator**

Forwarded to:



**Head of the Mechanical Department**

Head of Department  
Mechanical Engineering  
J.D. College of Engineering & Management  
Nagpur



# **Field Project Report on MINTECH ROBOTICS**

Report submitted in partial fulfillment of the requirements  
for the award of the degree of  
**Bachelor of Technology**  
**In**  
**Mechanical Engineering**

Submitted by  
Third Year Students  
Roll No-  
1,2,3,4,5,6,7,8,9,10,11,12,13,14,  
15,16,17,18,19,20,21,22,23,24,2  
5,26,27,28,29,30,31,32,33,34,35,  
36,37,38,39,40



Education to Eternity

**Mechanical Department**  
**J D College of Engineering and Management, Nagpur-441501**  
**Dr. Babasaheb Ambedkar Technological University, Lonere**  
**Year 2019-20**

# DECLARATION

We hereby declare that the work presented in this field project report entitled, **"MINTECH ROBOTICS"** in the subject **Mechanical** in the faculty of Science and Technology is the original contribution carried out by us. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

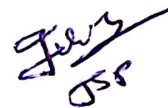
Date: 07/01/2020

R. N.	Name of student	Signature	R. N.	Name of student	Signature
01	VASTAV PRADEEP BHAGAT		24	MOHAMMAD ISHAQUE	
02	YASH UMAKANT DHAKATE		25	RAHUL DILIPRAO RAUT	
03	RUSHIKESH BHANARKAR		26	TEJASH GAJANAN BHARNE	
04	CHANDRAKANT KISAN WANVE		27	ASHWIN DHIRAJ MESHAM	
05	ASHIRWAD GOUTAM		28	HARBAL URAKUDE	
06	SURAJ ANIL GHOTKAR		29	SAKET GITESH SUKHADEVE	
07	NIKHIL RAMAJI DHOTE		30	NIKESH MUNGMODE	
08	PRATIK KAILAS DETHE		31	SHIVAM BEPIN PANDEY	
09	PRITAM DIGAMBAR KALE		32	PRABHAT NAGDEVE	
10	SUSHANT NANDESHWAR		33	MANTHAN HADKE	
11	MANISH ARVIND JICHKAR		34	CHAITANYA ARUN GHUSE	
12	DARSHAN GOVINDA DHORE		35	ADITYA MOTGHARE	
13	NAYAN WANJARI		36	SAHIL ROKHPAL SULAKHE	
14	AMIT GHODESHWAR		37	TANMAYEE MUDPALLIWAR	
15	PRADIP SAMIR MANDAL		38	ATUL NARESH BULKUNDE	
16	AKASH HEMRAJ KOKANE		39	SARWESH THAWARE	
17	CHETAN GANESH MEHAR		40	HRITHIK ASHOK YADAV	
18	ANISH RAJA PARATE				
19	RAVI SANJAY PIDHEKAR				
20	RITIKA PRAFULL SANGODE				
21	SHENDRE MAYUR DEORAO				
22	RAHUL BABLU BISEN				
23	NAZIM SHEIKH REHMAN				



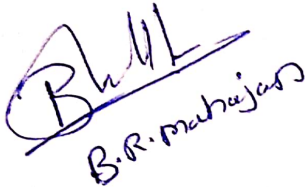
## CERTIFICATE

This is to certify that the Filed Project report entitled, "MINTECH ROBOTICS" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by following students to **Dr. Babasaheb Ambedkar Technological University, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision. The contents of this Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Field Project Co-ordinator**

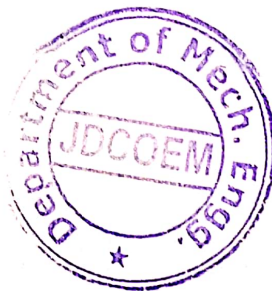
Forwarded to:



B.R. Mahajan

**Head of the Mechanical Department**

Head of Department  
**Mechanical Engineering**  
College of Engineering & Management  
Nagpur



# **Field Project Report on Vishvakarma Fabrication Works, Nagpur**

Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

**Mechanical Engineering**

**Submitted by**

**Third Year Students**

**Roll No-**

**41,42,43,44,45,46,47,48,49,50,  
51,52,53,54,55,56,57,58,59,60,  
61,62,63,64,65,66,67,68,69,70,  
71,72,73,74,75,76,77,78,79,80**



Education to Eternity

**Mechanical Department**

**J D College of Engineering and Management, Nagpur-441501**

**Dr. Babasaheb Ambedkar Technological University, Lonere**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this field project report entitled, **“Vishvakarma Fabrication Works, Nagpur”** in the subject **Mechanical** in the faculty of Science and Technology is the original contribution carried out by us. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

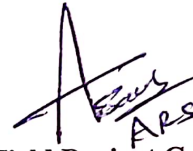
Date: 03/01/2020

R. N.	Name of student	Signature	R. N.	Name of student	Signature
41	APEKSHA VITTHALRAO UTANE		64	SHUBHAM SAWALAKHE	
42	NINAD RAJ NANDGAVE		65	PALASH CHIMURKAR	
43	GULSHAN MUKESH SHAHARE		66	PRANJAL ARUN RAUT	
44	PRANAY MORESHWAR GURVE		67	YASH ANIL PAUNIKAR	
45	SAURABH JAYKISHAN HARDE		68	LIKHAR MANISH DILIP	
46	USHATAI BHARADKAR		69	BAWANE UJWAL MAHESH	
47	PRACHI ARUN BUCHUNDE		70	ROSHAN NARENDRA SABLE	
48	JAYESH KHOBRADE		71	SAMYAK ANAND GAJBHIYE	
49	VIKAS KESHAVRAO MENDHE		72	PIYUSH KULMETHE	
50	KAMLESH DASARAM SINGADE		73	DURGESH DHANDE	
51	NITIN NARESH NAWKHARE		74	ATUL RAJKUMAR RAMTEKE	
52	SAGAR BHIMRAJ HEDAU		75	SHRIKANT MESHARAM	
53	SACHIN RAMESH PARATE		76	DINESH GADAKAR	
54	SONUTTAR RAMTEKE		77	CHANDRIKAPURE SUDHANSHU	
55	ABHISHEK KAGDELWAR		78	NAIKWADE VIVEK VIJAY	
56	SHUBHAM PRAKASH SHELARE		79	SONULE DHIRAJ	
57	NITIN KESHAO BHURE		80	PATLE SANDEEP BHOJRAJ	
58	AAYUSHI MUKESH VYAS				
59	DEVANAND GADKAR				
60	DILESHKUMAR THAKRE				
61	SAMIR PATIRAM MENDHE				
62	PANKAJ GAJANAN INGLE				
63	PIYUSH RAJU MILMILE				




## CERTIFICATE

This is to certify that the Filed Project report entitled, “Vishvakarma Fabrication Works, Nagpur” in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by following students to **Dr. Babasaheb Ambedkar Technological University, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision. The contents of this Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



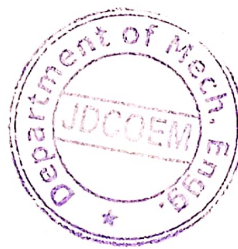
Field Project Co-ordinator

Forwarded to:



Head of the Mechanical Department

Head of Department  
Mechanical Engineering  
J.D. College of Engineering & Management  
Nagpur



# **Field Project Report on DAGOBA ENGINEERING WORKS**

Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Technology**

**In**

**Mechanical Engineering**

Submitted by

**Third Year Students**

**Roll No-**

**81,82,83,84,85,86,87,88,89,90,  
91,92,93,94,95,96,97,98,99,100,  
101,102,103,104,105,106,107,  
108,109**



Education to Eternity

**Mechanical Department**

**J D College of Engineering and Management, Nagpur-441501**

**Dr. Babasaheb Ambedkar Technological University, Lonere**

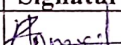
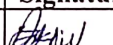
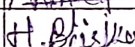
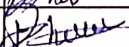
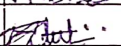
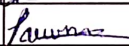
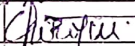
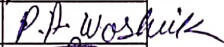
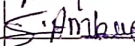
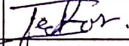
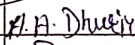
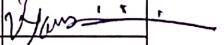
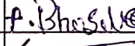
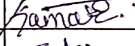
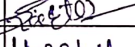
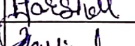
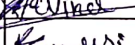
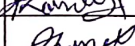
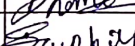
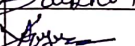
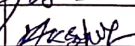
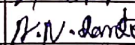
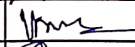
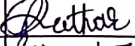
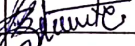
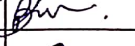
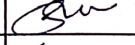
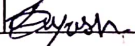
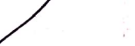
**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this field project report entitled, **“DAGOBA ENGINEERING WORKS”** in the subject **Mechanical** in the faculty of Science and Technology is the original contribution carried out by us. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 15/01/2020

R. N.	Name of student	Signature	R. N.	Name of student	Signature
81	ISHRAR AHMED SHEIKH		104	BAGADE NIKHIL	
82	BHISIKAR HIMANSHU		105	BHOWATE RANJAN	
83	HIREKHAN ATUL RAJENDRA		106	CHAWRE PAWAN DILIP	
84	MISAL CHIRAYU BALDEV		107	WASNIK PRAVIN ASHOK	
85	DIGRASE SHUBHAM AMBADAS		108	IRFAN ANSARI	
86	DHURIYA ANSHITA ASHOK		109	VYANKATESH BILGAIYYA	
87	BHOSALE PRANAY VIJAYRAO				
88	SURAJ KUMAR NAGINA				
89	SORTE PAVAN GULABRAO				
90	MASTE HARSHAL MAHESH				
91	PARDHI ARVIND SANTOSH				
92	MOHADIKAR KHANDUJI				
93	INDURKAR ANMOL RAJESH				
94	TIRPUDE SWAPNIL SHAMRAO				
95	GORE YOGESH YUVARAJJI				
96	AKSHAY TILAK PURI				
97	RAMTEKE NIKITA NARENDRA				
98	MESHAM VIPUL ASHOK				
99	RATHOR RAJKUMAR JAISINGH				
100	ASHWIN SAILESH BHOWATE				
101	GAJBHIYE PRATIK HEMRAJ				
102	KHETRE SHUBHAM				
103	MEHAR PIYUSH RAJESH				



## CERTIFICATE

This is to certify that the Filed Project report entitled, **"DAGOBA ENGINEERING WORKS"** in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by following students to **Dr. Babasaheb Ambedkar Technological University, Lonere** for the award of the degree of **Bachelor of Technology** is a bonafide record of work carried out by them under my supervision. The contents of this Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Field Project Co-ordinator**

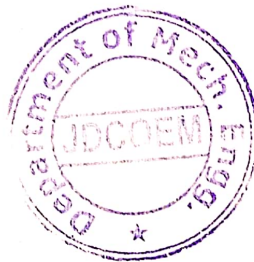
Forwarded to:



B.R. Mahajan

**Head of the Mechanical Department**

Head of Department  
Mechanical Engineering  
J D College of Engineering & Management  
Nagpur



# **EXPERIMENTAL INVESTIGATION OF EFFECT OF NANOFLUID DURING TURNING OPERATION OF EN31 STEEL**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**in**

**Mechanical Engineering**

**Submitted by**

**Mr. Kunal R. Naukarkar      Mr. Gaurav A. Ragit**

**Mr. Gajanan M. Lambat      Mr. Liladhar K. Kamdi**

**Mr. Niraj V. Thakre**

**Under the Guidance of**

**Prof. Anup A. Junankar**



Education to Eternity

**Department of Mechanical Engineering**

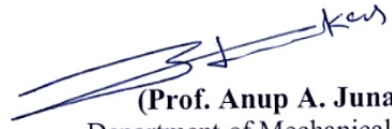
**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**year 2019-2020**


## CERTIFICATE

This is to certify that the project report entitled, "**Experimental Investigation of Effect of Nanofluid During Turning Operation of EN31 Steel**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Kunal Naukarkar, Gaurav Ragit, Gajanan Lambat, Liladhar Kamdi, Niraj Thakre** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

  
(Prof. Anup A. Junankar)  
Department of Mechanical Engineering

Forwarded to:

  
(Prof. Rahul Deshmukh)  
Project Coordinator

  
(Dr. Bhushan R. Mahajan)  
Head of the Department  
of Mechanical Engineering



  
(Dr. S.R. Chaudhari)  
Principal  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on Experimental Investigation of Effect of Nanofluid During Turning Operation of EN31 Steel is approved work done by

Kunal R. Naukarkar


Gaurav A. Ragit

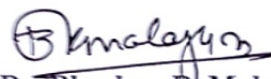
Gajanan M. Lambat

Liladhar K. Kamdi


Niraj V. Thakre

in partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Mechanical Engineering at J D College of Engineering & Management, Nagpur affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur during the academic year 2019-2020.

  
Prof. Anup A. Junankar  
Guide

  
Dr. Bhushan R. Mahajan  
Head of the Department

Project Examination held on 19/09/20

  
Internal Examiner/ Guide

  
External Examiner

## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Experimental Investigation of Effect of Nanofluid During Turning Operation of EN31 Steel”** in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Anup A. Junankar, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: *Nagpur*

Date: *23.02.2021*

Name of Students

Mr. Kunal R. Naukarkar

Mr. Gaurav A. Ragit

Mr. Gajanan M. Lambat

Mr. Liladhar K. Kamdi

Mr. Niraj V. Thakre

# **EXPERIMENTAL INVESTIGATION OF NANOCOOLANT WHILE TURNING ON CNC MACHINE BY USING TAGUCHI METHOD**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Prashantkumar Hemane**

**Anwar Shaikh**

**Manish Singh**

**Prasanna Shambharkar**

**Palash Kathane**

**Milindkumar Patle**

**Under the Guidance of  
Prof. Suhas A. Rewatkar**



Education to Eternity

**Department of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Experimental Investigation of Nano coolant while Turning on CNC machine by using Taguchi Method”** in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Suhas A. Rewatkar**, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: *nagpur*  
Date: *22/02/2021*

Name of Students  
Prashantkumar Hemane  
Prasanna Shambharkar  
Manish Kumar Singh  
Milindkumar Patle  
Palash Kathane  
Anwar Shaikh

## CERTIFICATE

This is to certify that the project report entitled, "**Experimental Investigation of Nanocoolant while Turning on CNC machine by Using Taguchi Method**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Prashantkumar Hemane, Prasanna Shambharkar, Milindkumar Patle, Manish Singh, Palash Kathane, Anwar Shaikh** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. Suhas A. Rewatkar**  
Department of Mechanical Engineering

Forwarded to:



**Prof. Rahul G. Deshmukh**  
Project Coordinator



**Dr. Bhushan R. Mahajan**  
Head of the Department  
Department of Mechanical Engineering



**Dr. S. R. Choudhary**  
Principal  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **Experimental Investigation Of Nanocoolant While Turning On Cnc Machine By Using Taguchi Method** is approved work done by

Prashantkumar Hemane

Prasanna Shambharkar

Milindkumar Patle

Manish Kumar Singh

Palash Kathane

Anwar Shaikh

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020



**Prof. Suhas A. Rewatkar**  
Guide



**Dr. Bhushan R. Mahajan**  
Head of the Department

---

Project Examination held on 13-09-2020



**Internal Examiner/ Guide**



**External Examiner**



# **Experimental Investigation of Influence of Nanofluid Quenching Oil During Hardening Of EN-19 and EN-24 steel**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

- 1. Harsh Agrawal**
- 2. Sunurvayu Mishra**
- 3. Karan Meshram**
- 4. Shubham Meshram**
- 5. Saket Agrawal**
- 6. Dipak Barekar**

**Under the Guidance of**

**Prof. Siddharth Ghosh**



**Department Of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project reported titled, **“Experimental Investigation Of Influence Of Nanofluid Quenching Oil During Hardening Of EN-19 and EN-24 Steel”** in the subject **Mechanical Branch** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Siddharth Ghosh**, Mechanical Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 15/12/2021

1. Harsh Agrawal
2. Sunurvayu Mishra
3. Karan Meshram
4. Shubham Meshram
5. Saket Agrawal
6. Dipak Barekar



## CERTIFICATE

This is to certify that the project report entitled, "**Experimental Investigation Of Influence Of Nanofluid Quenching Oil During Hardening Of EN-19 and EN-24 Steel**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Name of the Students to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree **Bachelor of Engineering** is a bonafied record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

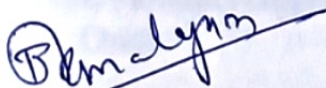


**Prof. Siddharth Ghosh**  
Mechanical Engineering

Forwarded to: HOD of Mechanical Engineering



**Prof. Rahul Deshmukh**  
Project Coordinator



**Dr. Bhushan Mahajan**  
Head of the Department  
Mechanical Engineering



**Dr. S. V. Sonekar**  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on Experimental Investigation Of Influence Of Nanofluid Quenching Oil During Hardening Of EN-19 and EN-24 steel is approved work done by

- ❖ Sunurvayu Mishra
- ❖ Harsh Agrawal
- ❖ Karan Meshram,
- ❖ Shubham Meshram
- ❖ Saket Agrawal,
- ❖ Dipak Barekar

In partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.




**Prof. Siddhart Ghosh**  
Guide



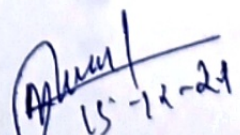
**Dr. Bhushan Mahajan**  
Head of the Department

---

Project Examination held on 19/09/2020



**Internal Examiner/ Guide**

  
15-11-21

**External Examiner**

# **“EXPERIMENTAL INVESTIGATION OF CONVECTIVE HEAT TRANSFER COEFFICIENT BY USING DOUBLE U CUT TWISTED TAPE.”**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical**

**Submitted by**

**Name of the Students**

**Mr.Yogesh.J.Borkar**

**Mr. Lokesh.G.Pustode**

**Mr.Hemkrushna.V.Nandardhane**

**Mr.Pavan.B.Meshram**

**Ms.Pinkal.G.Belkhede**

**Under the Guidance of**

**Prof. D. A .Agrawal**



**Education to Eternity**

**Mechanical Department**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“EXPERIMENTAL INVESTIGATION OF CONVECTIVE HEAT TRANSFER COEFFICIENT BY USING DOUBLE U CUT TWISTED TAPE ”** in the subject **Mechanical** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. **D A Agrawal** Mechanical Department, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 10/10/2021

Mr.Yogesh.J.Borkar

Mr.Lokesh.G.Pustode

Mr.Hemkrushna.V.Nandardhane

Mr.Pavan.B. Meshram

Ms.Pinkal.G.Belkhede



## CERTIFICATE

This is to certify that the project report entitled, "**EXPERIMENTAL INVESTIGATION OF CONVECTIVE HEAT TRANSFER COEFFICIENT BY USING DOUBLE U CUT TWISTED TAPE**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Yogesh.J.Borkar,Lokesh.G.Pustode,Hemkrushna.V.Nandardhane, Pavan.B.Meshram, Pinkal.G.Belkhede** to **RashtrasantTukadojiMaharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



(Prof. D. A. Agrawal)  
Mechanical Engineering

Forwarded to:



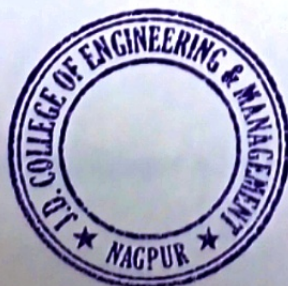
(Prof. R. G. Deshmukh)  
Project Coordinator



(Dr. B.R. Mahajan)  
Head of the Department  
Mechanical Engineering



(Dr.S.R. Choudhari)  
Principal



**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **EXPERIMENTAL INVESTIGATION OF CONVECTIVE HEAT TRANSFER COEFFICIENT BY USING DOUBLE U CUT TWISTED TAPE** is approved work done by

Mr.Yogesh.J.Borkar

Mr.Lokesh.G.Pustode

Mr.Hemkrushna.V.Nandardhane

Mr.Pavan.B. Meshram

Ms.Pinkal.G.Belkhede

In partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.

  
Prof.D.A.Agrawal


Guide

  
Dr.B.R.Mahajan

Head of the Department

Project Examination held on 19/09/2020

**Internal Examiner/ Guide**

 <sup>year.</sup>  
**External Examiner**



# **DEVELOPMENT OF IOT INTEGRATED AIR COMPRESSOR**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Rushikesh Dapurkar**

**Manish Yadav**

**Rohit Ramteke**

**Siddhant Nagdeve**

**Rijnesh Saroj**

**Yogesh Thakre**

**Under the Guidance of**

**Prof. Shyamal Chakrabarty**



Education to Eternity

**Department of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**  
**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



## DECLARATION

We hereby declare that the work presented in this project report entitled, “**Development Of IOT Integrated Air Compressor**” in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Shyamal Chakrabarty, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 19/09/2020

Rushikesh Dapurkar

Rohit Ramteke

Rijnesh Saroj

Siddhant Nagdeve

Manish Yadav

Yogesh Thakre

## CERTIFICATE

This is to certify that the project report entitled, "**Development Of IOT Integrated Air Compressor**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Rushikesh Dapurkar, Manish Yadav, Rohit Ramteke, Siddhant Nagdeve, Rijnes Saroj, Yogesh Thakre** to **Rashttrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



(**Prof. Shyamal Chakrabarty**)  
Department of Mechanical Engineering

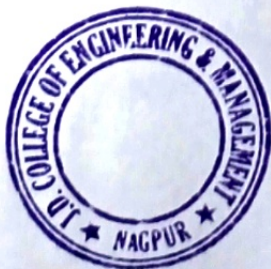
Forwarded to:



(**Prof. Rahul .G. Deshmukh**)  
Project Coordinator



(**Dr. Bhushan Mahajan**)  
Head of the Department  
Department of Mechanical Engineering



(**Dr. S. R. Choudhari**)  
Principal  
**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **DEVELOPMENT OF IOT INTEGRATED AIR COMPRESSOR** is approved work done by

**Rushikesh Dapurkar**

**Rohit Ramteke**

**Rijnesh Saroj**

**Manish Yadav**


**Siddhant Nagdeve**

**Yogesh Thakre**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



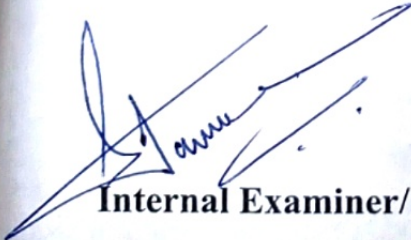
**Prof. Shyamal Chakrabarty**  
Guide



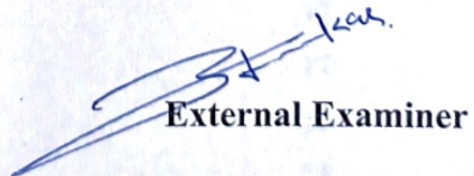
**Dr. Bhushan Mahajan**  
Head of the Department

---

Project Examination held on 19/09/2020



**Internal Examiner/ Guide**



**External Examiner**



# **EXPERIMENTATION OF WELDING PROCESS ON CAST IRON MATERIAL BY USING DIFFERENT ELECTRODE TO REPAIR THE CASTING**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Saurabh Mangate  
Bhushan Nehare**

**Sangharkshak Manwatkar  
Nikhil Borkar**

**Under the Guidance of  
Prof. Rohit Sharma**



**Department Of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Experimentation of Welding process on Cast Iron material By using different Electrode to repair the Casting**" in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Rohit Sharma** Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 19/09/2020

### **Name of Students**

Saurabh Arun Mangate

Sangharkshak A Manwatkar

Bhushan Gangadhar Nehare

Nikhil Ashok Borkar



## CERTIFICATE


This is to certify that the project report entitled, **“Experimentation of Welding process on Cast Iron material by using different Electrode to repair the Casting”** in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Saurabh Arun Mangate, Sangharakshak Ankush Manwatkar, Bhushan Gangadhar Nehare, Nikhil Askok Borkar** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.


**(Prof. Rohit Sharma)**

Department of Mechanical Engineering

Forwarded to:

  
**(Prof. Rahul Deshmukh)**  
Project Coordinator

  
**(Prof. Bhushan Mahajan)**  
Head of the Department  
Mechanical Engineering  
Head of Department  
Mechanical Engineering  
J D College of Engineering & Management  
Nagpur

  
**(Dr. S. R. Choudhari)**  
Principal





## **CERTIFICATE OF APPROVAL**

This is to certify that the Project Report on **EXPERIMENTATION OF WELDING PROCESS ON CAST IRON MATERIAL BY USING DIFFERENT ELECTRODE TO REPAIR THE CASTING** is approved work done by

**Saurabh Arun Mangate  
Sangharkshak Ankush Manwatkar  
Bhushan Gangadhar Nehare  
Nikhil Ashok Borkar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020



**Prof. Rohit Sharma**  
Guide



**Prof. Bhushan Mahajan**  
Head of the Department

14/09/2020

Project Examination held on \_\_\_\_\_



**Internal Examiner/ Guide**



**External Examiner**

## ACKNOWLEDGEMENT

We express our sincere gratitude, for giving us the opportunity to work on the project during our final year of B.E.

We owe our sincerest gratitude towards **Dr. S. R. Choudhari**, Principal J D College of Engineering & Management, Nagpur, for providing the platform and necessary facilities.

We also express our sincere gratitude towards **Dr. S.V. Sonekar**, Vice Principal and Dean Academics, J D College of Engineering and Management, Nagpur, for continuous support and motivation.

The constant guidance and encouragement received from **Prof. Bhushan Mahajan**, Head, Department of **Mechanical Engineering** J D College of Engineering & Management, Nagpur, has been of great help in carrying out the project work and is acknowledged with reverential thanks.

We would like to thank **Prof. Rahul Deshmukh** Project Coordinator, J D College of Engineering & Management, Nagpur for providing proper guidelines and continuous efforts taken towards the completion of the project.

We would like to express a deep sense of gratitude and thanks profusely to our Guide **Prof. Rohit Sharma & Prof. Aamir Sayed**, Department of Mechanical Engineering, J D College of Engineering & Management, Nagpur. Without his wise counsel and able guidance, it would have been impossible to complete the project in this manner.

We would like to thank the members of the Departmental Research Committee for their valuable suggestions and healthy criticism during our presentation of the work. We express gratitude to other faculty members of the Mechanical Engineering Department, J D College of Engineering & Management, Nagpur, for their intellectual support throughout the course of this work.

Saurabh Arun Mangate  
Sangharkshak Ankush Manwatkar  
Bhushan Gangadhar Nehare  
Nikhil Ashok Borkar

# **EXPERIMENTATION OF WELDING PROCESS ON CAST IRON MATERIAL BY USING DIFFERENT ELECTRODE TO REPAIR THE CASTING**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Akash Shankar Kogade**

**Akash Shrichand Lilhare**

**Bablu Pradip Bhimte**

**Akshay Ratanakar Wankhede**

**Tarique Ahmed**

**Under the Guidance of**

**Prof. Aamir Sayed**



**Education to Eternity**

**Department Of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**



# **EXPERIMENTATION OF WELDING PROCESS ON CAST IRON MATERIAL BY USING DIFFERENT ELECTRODE TO REPAIR THE CASTING**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Akash Shankar Kogade**

**Akash Shrichand Lilhare**

**Bablu Pradip Bhimte**

**Akshay Ratanakar Wankhede**

**Tarique Ahmed**

**Under the Guidance of**

**Prof. Aamir Sayed**



**Education to Eternity**

**Department Of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Experimentation of Welding process on Cast Iron material By using different Electrode to repair the Casting**" in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Aamir Sayed, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Date: 19/09/2020

Place: Nagpur

### Name of Student

Akash Shankar Kogade

Akash Shrichand Lilhare

Bablu Pradip Bhimte

Akshay Ratanakar Wankhede

Tarique Ahmed




## CERTIFICATE

This is to certify that the project report entitled, "Experimentation of Welding process on Cast Iron material by using different Electrode to repair the Casting" in the subject Mechanical Engineering in the faculty of Science and Technology submitted by Akash S. Kogade, Akash S. Lilhare, Bablu P. Bhimte, Akshay R. Wankhede, Tarique Ahmed to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur for the award of the degree of Bachelor of Engineering is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.


(Prof. Aamir Sayed)  
Department of Mechanical Engineering

Forwarded to:

  
(Prof. Rahul Deshmukh)  
Project Coordinator

  
(Dr. Bhushan Mahajan)  
Head of the Department of  
Mechanical Engineering

Head of Department  
Mechanical Engineering  
J D College of Engineering & Management  
Nagpur

  
(Dr. S.R. Chaudhari)  
Principal






## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **EXPERIMENTATION OF DIFFERENT WELDING PROCESS ON CAST IRON MATERIAL BY USING DIFFERENT ELECTRODE TO REPAIR THE CASTING** is approved work done by

Akash Shankar Kogade  
Akash Shrichand Lilhare  
Bablu Pradip Bhimte  
Akshay Ratanakar Wankhede  
Tarique Ahmed

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering** in **Name of Branch** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020

  
Prof. Aamir Sayed  
Guide

  
Dr. Bhushan Mahajan  
Head of the Department

19/09/2020

Project Examination held on \_\_\_\_\_

  
Internal Examiner/ Guide

  
External Examiner

# **“DESIGN & DEVELOPMENT OF AUTOMATED & CUSTOMIZED GOMAY SOAP MACHINE FOR VATSALYA UNIQUE PRODUCTS PVT. LTD.”**

A Project Report submitted in partial fulfillment of the requirements

For the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Name of the Students**

- |                       |                     |
|-----------------------|---------------------|
| 1. Yogendra Shivankar | 2. Yogesh Tembhurne |
| 3. Apurv Jambhulkar   | 4. Lumit Badole     |
| 5. Nagesh Sonkamble   |                     |

**Under the Guidance of**

**Prof. Nikhil V. Bhende**



Education to Eternity

**Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-2020**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Design & development of Automated & Customized Gomay Soap Machine for Vatsalya Unique Products Pvt. Ltd**" in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Nikhil V. Bhende, Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 10/10/2021

Yogendra Shivankar

Yogesh Tembhurne

Apurv Jambhulkar

Lumit Badole

Nagesh Sonkamble



## CERTIFICATE

This is to certify that the project report entitled, "**Design & development of Automated & Customized Gomay Soap Machine for Vatsalya Unique Products Pvt. Ltd**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Yogendra shivankar, Yogesh Tembhurne, Apurv Jambhulkar, Lumit Badole & Nagesh Sonkamble** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



**Prof. N. V. Bhende**  
Mechanical Engineering

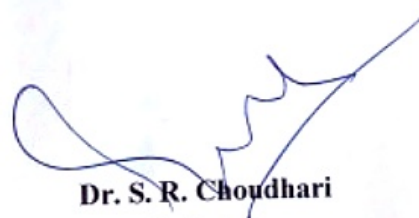
Forwarded to:



**Prof. R. G. Deshmukh**  
Project Coordinator



**Dr. B. R. Mahajan**  
Head of the Department  
Mechanical Engineering



**Dr. S. R. Choudhari**  
Principal

**Principal**

**J.D. College of Engineering & Management**  
Khandala, Katol Road  
Nagpur-441501




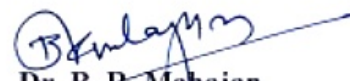
## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **DESIGN & DEVELOPMENT OF AUTOMATED & CUSTOMIZED SOAP MACHINE FOR VATSALYA UNIQUE PRODUCTS PVT. LTD.** is approved work done by

1. Yogendra Shivankar
2. Yogesh Tembhurne
3. Apurv Jambhulkar
4. Lunit Badole
5. Nagesh Sonkamble


in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering** in Name of Branch at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.


  
**Prof. N. V. Bhende**  
Guide

  
**Dr. B. R. Mahajan**  
Head of the Department

---

Project Examination held on 19/09/2020

  
**Internal Examiner/ Guide**

  
**External Examiner**

# **EXPERIMENTAL INVESTIGATION OF HEAT TRANSFER RATE BY USING ALUMINA OXIDE NANOFLUID IN RADIATOR.**

A Project Report submitted in partial fulfilment of the requirements for the  
award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical**

**By**

**Mr. Nishant Sakhare**

**Mr. Suraj Singh**

**Mr. Akshay Wakade**

**Mr. Shubham Takit**

**Mr. Piyush Tiwari**

**Under the guidance of**

**Dr. Bhushan R. Mahajan**



**Education to Eternity**

**Department of Mechanical Engineering**

**J.D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**2019-2020**



## DECLARATION

we hereby declare that the work presented in this project report entitled, "**Experimental Investigation of Heat Transfer Rate by using Alumina Oxide Nano fluid in Radiator**" in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Dr.Bhushan R. Mahajan, Department of mechanical engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

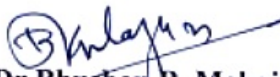
Date: 19/09/2020

- 1) Nishant Sakhare
- 2) Suraj Singh.
- 3) Shubham Takit
- 4) Akshay Wakade
- 5) Piyush Tiwari

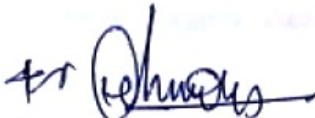
## CERTIFICATE

This is to certify that the Project Report Entitled "**Experimental Investigation of Heat Transfer Rate by using Alumina Oxide Nano fluid in Radiator**" in the subject **Mechanical Engineering** in the faculty of Science and Technology Submitted by **Nishant Sakhare, Suraj singh, Shubham takit, Akshay wakade ,Piyush Tiwari,** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my our supervision. The contents of this Project Report, in full or in parts, have not been submitted to any other Institute Mechanical engineering University for the award of any degree or diploma.


Forwarded To.

  
**Dr. Bhushan R. Mahajan**

(Guide)

  
**Prof. Suhas Rewatker**

(Project Coordinator)

  
**Dr. Bhushan Mahajan**

Head of the Department  
(Mechanical engineering)



  
**Dr. S.R. Chaudhary**

(Principal)


**Principal**  
J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501


## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **EXPERIMENTAL INVESTIGATION OF HEAT TRANSFER RATE BY USING ALUMINA OXIDE NANOFLUID IN RADIATOR** is approved work done by

- 1) Nishant Sakhare
- 2) Suraj Singh
- 3) Shubham Takit
- 4) Akshay Wakade
- 5) Piyush Tiwari

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur**, during the academic year 2019-2020

  
**Dr. Bhushan Mahajan**  
(Guide)

  
**Dr. Bhushan R. Mahajan**  
(Head of the Dept.)

Project Examination held on **19/09/2020**

---

  
**Internal Examiner/Guide**

  
**External Examiner**



# **OPTIMISING CUTTING PARAMETER FOR HOT TURNING ON EN31 MATERIAL**

A Project Report submitted in partial fulfillment of the requirements

for the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Satish K. Rahangdale   Vaibhav R. Kamane   Saurabh V. Yende**

**Shubham D. Bijewar   Sarang R. Warambhe   Ganesh M. Kawale**

**Under the Guidance of**

**Prof. Hemant K. Baitule**



Education to Eternity

**Department of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Optimising cutting parameter for hot turning on EN31 material”** in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of **Prof. Hemant Baitule**, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: Nagpur

Date: 19/09/2020

Name of Students

Satish K. Rahangdale

Vaibhav R. Kamane

Saurabh V. Yende

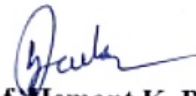
Sarang R. Warambhe

Shubham D. Bijewar

Ganesh M. Kawale

## CERTIFICATE

This is to certify that the project report entitled, "**Optimising cutting parameter for hot turning on EN31 material**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Satish K. Rahangdale, Vaibhav R. Kamane, Saurabh V. Yende, Sarang R. Warambhe, Shubham D. Bijewar, Ganesh M. Kawale** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

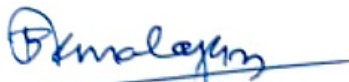


**Prof. Hemant K. Baitule**  
Department of Mechanical Engineering

Forwarded to:



**Prof. Rahul G. Deshmukh**  
Project Coordinator



**Dr. Bhushan R. Mahajan**  
Head of the Department  
Department of Mechanical Engineering



**Dr. S. R. Choudhari**  
Principal  
**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501





## CERTIFICATE OF APPROVAL

This is to certify that the Project Report on **Optimising cutting parameter for hot turning on EN31 material** is approved work done by

Satish K. Rahangdale

Vaibhav R. Kamane

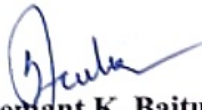
Saurabh V. Yende

Sarang R. Warambhe

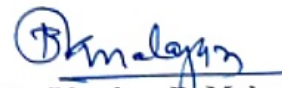
Shubham D. Bijewar

Ganesh M. Kawale

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020



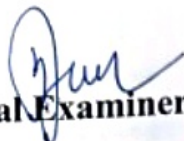
**Prof. Hemant K. Baitule**  
Guide



**Dr. Bhushan R. Mahajan**  
Head of the Department

---

Project Examination held on 19/09/2020



**Internal Examiner/ Guide**



**External Examiner**

# **AUTOMATIC SMART DRILL**

A Project Report submitted in partial fulfillment of the requirements

For the award of the degree of

**Bachelor of Engineering**

**In**

**Mechanical Engineering**

**Submitted by**

**Asif Ansari**

**Mohd. Asif Mansuri**

**Sandesh Kounsalye**

**Akash Gondane**

**Sagar Baraikar**

**Under the Guidance of**

**Prof. PRAFUL P. ULHE**



**Education to Eternity**

**Department of Mechanical Engineering**

**J D College of Engineering and Management, Nagpur-441501**

**Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.**

**Year 2019-20**

## DECLARATION

We hereby declare that the work presented in this project report entitled, "**Automatic Smart Drill**" in the subject **Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Praful P. Ulhe, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

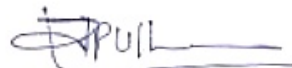
Place: Nagpur  
Date: 19/09/20

Asif Ansari  
Mohd. Asif Mansuri  
Akash Gondane  
Sandesh Kounsalye  
Sagar Baraikar



## CERTIFICATE

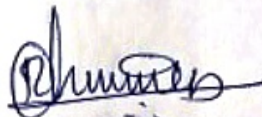
This is to certify that the project report entitled, "**Automatic Smart Drill**" in the subject **Mechanical Engineering** in the faculty of Science and Technology submitted by **Asif Ansari, Mohd. Asif Mansuri, Sandesh Kounsalye, Akash Gondane, Sagar Baraikar** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.



(Prof. Praful P. Ulhe)

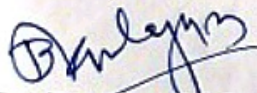
Department of Mechanical Engineering

Forwarded to:



(Prof. Rahul G. Deshmukh)

Project Coordinator



(Dr. Bhushan Mahajan)

Head of the Department

Department of Mechanical Engineering



(Dr. S. R. Choudhari)

Principal

**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501



## CERTIFICATE OF APPROVAL

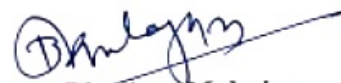
This is to certify that the Project Report on **AUTOMATIC SMART DRILL** is approved work done by

**Asif Ansari**  
**Mohd. Asif Mansuri**  
**Sandesh Kounsalye**  
**Akash Gondane**  
**Sagar Baraikar**

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Mechanical Engineering** at J D College of Engineering & Management, Nagpur affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. Praful P. Ulhe**  
Guide




**Dr. Bhushan Mahajan**  
Head of the Department

---

Project Examination held on 19/09/20

**Internal Examiner/ Guide**

  
**External Examiner**

# **EXPERIMENTAL INVESTIGATION ON REFRIGERATION SYSTEM USING NANOPARTICLES WITH REFRIGERANT**

A Project Report submitted in partial fulfillment of the requirements  
for the award of the degree of

**Bachelor of Engineering  
In  
Department of Mechanical Engineering**

**Submitted by**

**Nehal P. Satange**

**Akshay M. Nimje**

**Nayan M. Bagde**

**Sumedh S. Sevatkar**

**Shraddha I. Harinkhede**

**Under the Guidance of  
Prof. Jitendra S. Pachbhai**



Education to Eternity

**Department of Mechanical Engineering  
J D College of Engineering and Management, Nagpur – 441501  
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.  
Year 2019-2020**



## DECLARATION

We hereby declare that the work presented in this project report entitled, **“Experimental Investigation on Refrigeration System using Nanoparticles with refrigerant”** in the subject **Department of Mechanical Engineering** in the faculty of Science and Technology is the original contribution carried out by us under the guidance of Prof. Jitendra S. Pachbhai, Department of Mechanical Engineering, J D College of Engineering and Management, Nagpur. This work has not been submitted to any other University or Institution for the award of any degree or diploma or certificate course.

Place: *Nagpur*

Date: *30/09/2021*

### **Name of Students**

Mr. Nehal P. Satange

Mr. Nayan M. Bagde

Mr. Akshay M. Nimje

Mr. Sumedh S. Sevatkar

Miss. Shraddha I. Harinkhede

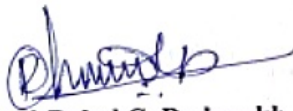
## CERTIFICATE

This is to certify that the project report entitled, "**Name of the Project Title**" in the subject **Name of Branch** in the faculty of Science and Technology submitted by **Name of the Students** to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** for the award of the degree of **Bachelor of Engineering** is a bonafide record of work carried out by them under my supervision. The contents of this Project Report, in full or in parts, have not been submitted or published to any other Institute or University for the award of any degree or diploma.

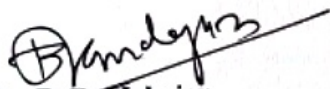


**Prof. Jitendra S. Pachbhai**  
Department of Mechanical Engineering

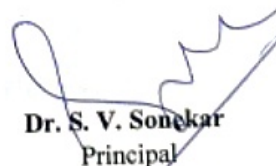
Forwarded to:



**Prof. Rahul G. Deshmukh**  
Project Co-Ordinator



**Dr. B. R. Mahajan**  
Head of the Department  
Department of Mechanical Engineering



**Dr. S. V. Sonkar**  
Principal

**Principal**

J.D. College of Engineering & Management  
Khandala, Katol Road  
Nagpur-441501

## CERTIFICATE OF APPROVAL

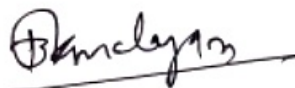
This is to certify that the Project Report on **EXPERIMENTAL INVESTIGATION ON REFRIGERATION SYSTEM USING NANOPARTICLES WITH REFRIGERANT** is approved work done by

- ❖ Mr. Nehal P. Satange
- ❖ Mr. Nayan M. Bagde
- ❖ Mr. Akshay M. Nimje
- ❖ Mr. Sumedh S. Sevatkar
- ❖ Miss. Shraddha I. Harinkhede

in partial fulfillment of the requirements for the award of the degree of **Bachelor of Engineering in Department of Mechanical Engineering** at **J D College of Engineering & Management, Nagpur** affiliated to **Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur** during the academic year 2019-2020.



**Prof. J. S. Pachbhai**  
Guide



**Dr. B. R. Mahajan**  
Head of the Department

---

---

Project Examination held on 19/09/2020



**Internal Examiner/ Guide**



**External Examiner**