Criterion 1: Curricular Aspects

1.3 Curriculum Enrichment

1.3.4.1: Number of students undertaking field projects / internships / student projects

Programme Name: B.E Electrical and Electronics Engineering.

Sl.No.	Description	Page Number
1	Internships	1-80
2	Field Projects / Student Projects	81-226
3	Minor Projects	226-524
4	Industrial Visit	525-538

Criterion 1: Curricular Aspects

1.3 Curriculum Enrichment

1.3.4.1: Number of students undertaking field projects / internships / student projects

Programme Name: B.E Electrical and Electronics Engineering.

Internships Proof

CT INFOTECH

19 September 2022.
Karur

TO WHOM SO EVER IT MAY CONCERN

To

The Head of the department,
Department of Electrical and Electronics Engineering,
M. Kumarasamy college of Engineering,
Thalavapalayam - 639114.

Subject: Permission letter for academic internship.

This is to certify that **Mr. Sasikumar S (Reg No: 19BEE4306)**, student at your college is permitted for his academic internship in our company CT Infotech India Private Limited, Karur.

During the period from Wednesday 21st September 2022 to December 2022, S Sasikumar will be working on the specialization in Smart Factory solution development program in our company.

Yours sincerely,

V. Balakrishnan.

Director

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Shri Sai Plaza, 10th Street, No.9 (Above Axis Bank),
Tatabad, Coimbatore - 641012, Tamilnadu

OFFER LETTER

Saravanakumar. SS

6/13a, Sidco, Opposite paramathi road,

Namakkal, Tamil Nadu - 637001

Dear Saravanakumar SS,

This letter is to offer you a **Digital Marketing Intern** with the Cloudin. It is with great pleasure that we offer you an internship in Digital Marketing . You will be based in Coimbatore and report to Manjuriya P. Your place of work will be "Coimbatore". Based on your capabilities and accomplishments, I believe that your talents will not only benefit Cloudin but also that our mutual relationship will assist you in reaching your personal and professional goals.

This position is scheduled to begin 7 September,2022 and will be a six-month paid internship opportunity ending on 31 March, 2023 .Your compensation for the six months will be Rs.42000 (Fourty TwoThousand Rupees Only).

During your temporary employment with Cloudin Software Tech Labs Pvt Ltd, you may have access to trade secrets and confidential or proprietary business information belonging to our company. By accepting this offer, you acknowledge that this information must remain confidential and agree to refrain from using it for your own purposes or disclosing it to anyone outside of Cloudin. Also, you agree that upon completion of your internship, you will promptly return any company-issued property and equipment along with information and documents belonging to the company. By accepting this offer, you acknowledge that you understand participation in this program is not an offer of employment, and successful completion of the program does not entitle you to an employment offer from Cloudin.

This offer letter represents the full extent of the internship offer and supersedes any prior conversations about the position. We look forward to having you begin your career at Cloudin Software Tech Labs Pvt Ltd. and wish you a successful internship. Welcome to our team!

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

+91 422 4223273, +91 95855 52999
info@cloudin.email
www.cloudintechnologies.com

lease indicate your acceptance of this offer by signing one copy of this letter in the space provided

Saravanakumar SS, We look forward to having you join our team.
Should you have any questions,please do not hesitate to contact us.

Sincerely:

Manjuriya P
Non - Technical Lead
Cloudin Software Tech Labs Pvt Ltd

I accept this action as outlined above and confirm that my start date is:

Job Title : Digital Marketing Intern

Signature:

Name: Saravanakumar SS

Date: 07-09-2022

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Zoho Corporation Private Limited
Plot 140, 151, Estancia IT Park, Vallancheri,
Chengalpattu District, Tamilnadu, 603 202.
Ph: +91 - 44 - 6744 7070
www.zohocorp.com
SEZ Unit

INTERNSHIP CERTIFICATE

This is to certify that Mr/Ms. **LEKHA S - SI-2416** has undergone his/her internship training in **Zoho Corporation Private Limited** , from 15-Jul-2022 to 12-Aug-2022 . During this period, his/her performance and conduct were found to be good.

Yours Sincerely,

For Zoho Corporation Private Limited

Saajudeen S

Saajudeen S

Associate HR

Date of issue: 24 Aug 2022

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Corporate Identification No: **U40100TN2010PTC075961**
e-mail ID: **hr-team@zohocorp.com**

Gmail A V KEERTHANA <keerthanavejay@gmail.com>

IGNITE | 8th Semester Pre Onboarding Internship Program | Offer Letter

1 message

Campus Onboarding <Campus.Onboarding@ltimindtree.com> 28 February 2023 at 15:46
To: "keerthanavejay@gmail.com" <keerthanavejay@gmail.com>

Dear KEERTHANA A V,

We are pleased to offer you an internship opportunity ("**Internship**") at LTIMindtree Limited ("**LTIMindtree**"). The terms and conditions of this offer are as follows and your Internship will be subject to and governed by these terms and conditions which shall be binding upon you receiving this email.

1.	Internship Duration	:	9 to 12 weeks
2.	Commencement Date	:	21 Feb 2023
3.	Location	:	Remote
4.	Stipend	:	Milestone based - Refer 12.

Additional Terms:

1. You acknowledge that the purpose of this Internship is to provide you with the opportunity to learn generally about information technology work and to gain practical experience and insights into the workplace and industry and LTIMindtree does not derive an immediate advantage from the activities performed by you during the Internship Duration. It is essential for you to actively participate in this internship by completing the learnings successfully in the stipulated time period
2. The Stipend stipulated above is payable on completion of the milestones as set out in Clause 12 and on you joining LTIMindtree as a full-time employee. The amount of stipend that you will be entitled to will be determined as per the criteria set out in Clause 12. Please note that the said amount will be a one-time payment and will not form part of your cost to the company as a full-time employee. The said amount will be payable to you subject to applicable statutory and other deductions, and applicable tax withholdings. Any costs and expenses borne by you in connection with the Internship shall be your sole responsibility.
3. You may be permitted to be absent during the Internship Duration after obtaining prior approval from your Mentor and your stipend may be reduced, at LTIMindtree's sole discretion and option, by the period of your absence. Prolonged, frequent, or unapproved absences may lead to immediate termination of your Internship upon notice from LTIMindtree.
4. While with us, you will be required to adhere to policies/practices of LTIMindtree as applicable to you in your capacity as an intern and as amended from time to time solely at the discretion of LTIMindtree ("**Policies**"). These policies will be shared with you before your internship commences and during the Internship Duration.
5. **Confidentiality:** As an intern, you will be privy to, have access to or receive Confidential Information (as defined below). You shall (i) use such Confidential Information solely in relation to and to fulfill your Internship; (ii) disclose Confidential Information only to such persons and as permitted in writing by LTIMindtree; (iii) treat the Confidential Information with all reasonable care; and (iv) return all Confidential Information (and all copies thereof) to LTIMindtree immediately upon termination or completion of your Internship. Your obligations to maintain secrecy and confidentiality of the Confidential Information shall continue after the termination of your Internship with LTIMindtree.

*"**Confidential Information**" which means any information, data or non-public business, commercial, personal, or technical information of LTIMindtree, its affiliates, parent company, their personnel, or that of their clients including but not limited to research and development projects, services, and business operations, which may be disclosed in writing, orally, electronically, by or on behalf of LTIMindtree. Any documents and information which reflect, incorporate and/or are generated using any such Confidential Information will also be deemed as Confidential Information. All Confidential Information shall be deemed as LTIMindtree's trade secrets.*

6. **Intellectual Property:** Title, interest, and ownership in all information, data, outputs, reports, codes, proprietary information or rights, materials, tools, presentations, records, and intellectual property rights conceived, created or developed by you in connection with or arising from your Internship, and/or making use of the Confidential Information shall vest solely and exclusively with LTIMindtree immediately upon creation without the need for any further act or

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

payment of any remuneration. It is clarified that Section 19(4) of the Indian Copyright Act, 1957 shall not apply to any assignment of copyrights under this Letter and you hereby agree not to raise and waive all rights to raise, any objection or claim before the Indian Copyright Board with respect to the assignment pursuant to Section 19A of the Indian Copyright Act, 1957. Also, you may conceive newer and advanced methods to improve processes or systems during your internship; this will remain the sole property of LTIMindtree.

7. You agree to defend, indemnify and hold harmless LTIMindtree for any loss, liability, claim, costs, fines, and or damage suffered by LTIMindtree and its personnel as a consequence of any breach by you of this Letter, LTIMindtree' s instructions or any Policies.
8. LTIMindtree, at its sole discretion and option, reserves the right to withdraw, suspend and/or amend the offer of Internship and the terms of this Letter at any time prior to the Commencement Date specified above, and you acknowledge and agree that any such action and/or amendment by LTIMindtree shall be binding upon you immediately without any consequence on LTIMindtree.
9. You will be an Intern for the Internship Duration. This Letter and the Internship Duration may be suspended, terminated, or reduced (as appropriate) immediately with notice from LTIMindtree to you.
10. Issuance of Internship Certificate is always subject to the successful completion of the entire Internship Duration and at the sole discretion of LTIMindtree.
11. LTIMindtree may receive and collect personal data relating to you, including sensitive personal data or information (as defined in the Information Technology Act 2000 and rules made thereunder) (collectively "**Personal Information**"). LTIMindtree may process such Personal Information for relevant and limited purposes in connection with managing your internship and/or the business of LTIMindtree. You consent to (i) the collection, use, processing, storage, export, and transfer of your Personal Information by LTIMindtree and third parties; and (ii) the transfer and disclosure of your Personal Information held by LTIMindtree to any third parties within India or outside of India, in accordance with the LTIMindtree's privacy policy and subject to applicable law.
12.

Internship Milestone	8th Sem Stipend Reward (INR)*
Learning Completed with score 80% and above in first attempt in all 3 milestones	20,000
Learning Completed with score 60% - 79%	10,000
Learning Completed with score <60%	Not Entitled

*** This will be a one-time payment credited upon successfully completing the internship and post-onboarding as a full-time employee, followed by completion of L&D's Initial Learning Program.**

This Letter contains the entire understanding between you and LTIMindtree for your Internship and supersedes all previous discussions and agreements, whether oral or otherwise.

You agree and acknowledge that the Internship is being granted solely for training purposes and that you are not an 'employee' or a 'workman' of LTIMindtree for the purposes of any employment statute or under any law, and you are not entitled to any wages or any employment benefits (including but not limited to leave and statutory benefits) that are provided solely to employees of LTIMindtree.

This Letter and the relationship between us shall be governed by the laws of India and the courts at Bangalore, Karnataka, shall have exclusive jurisdiction over any disputes that may arise therefrom. LTIMindtree may apply for injunctive or other appropriate relief from any court of competent jurisdiction.

You agree that your electronic signature below will have the same force and validity as a handwritten signature, and that your signature represents your acceptance of this Letter and your agreement to abide by the terms herein.

We are confident that you will enjoy your experience with us and that the learning you derive will be mutually beneficial.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Looking forward to seeing your expertise in action soon!

Thanking You,

University Liaison & Early Career Engagement

LTIMindtree

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Zoho Corporation Private Limitec
Plot 140, 151, Estancia IT Park, Vallancher
Chengalpattu District, Tamilnadu, 603 202
Ph: +91 - 44 - 6744
www.zoho

INTERNSHIP CERTIFICATE

This is to certify that Mr/Ms. **SOBIKA P - SI-2400** has undergone his/her internship training in **Zoho Corporation Private Limited** , from 15-Aug-2022 to 26-Aug-2022 . During this period, his/her performance and conduct were found to be good.

Yours Sincerely,

For Zoho Corporation Private Limited

Saajudeen S

Associate HR

Date of issue: 09 Sep 2022

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

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Ph: +91 - 44 - 6744 7070
www.zohocorp.com
SEZ Unit

INTERNSHIP CERTIFICATE

This is to certify that Mr/Ms. MANOJ S - SI-2404 has undergone his/her internship training in **Zoho Corporation Private Limited** , from 15-Jul-2022 to 05-Aug-2022 . During this period, his/her performance and conduct were found to be good.

Yours Sincerely,
For Zoho Corporation Private Limited

Saajudeen S

Saajudeen S
Associate HR

Date of issue: 24 Aug 2022

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SAEW

ISO 9001 : 2015
JAS-ANZ Accreditation No : M4430310IC

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www.abiramiengg.com e-mail : saew92@gmail.com

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Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, GE, EMCO, ABB Transformers

SAEW/HR/OFFER/G-031/23-24

Date:25.01.2023

To
Vignesh V
Karur

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Vignesh V,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled. Please sign and return the duplicate of this order as a token of acceptance.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS.

SHREE ABIRAMI ENGGINEERING WORKS Chennai 600 116.

25/01

Accepted:

V. Vignesh

SAEW
ISO 9001 : 2015
JAS-ANZ Accreditation No : 3444300100

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Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, GE, EMCO, Crompton, ABB Transformers

SAEW/HR/OFFER/G-038/23-24 Date:25.01.2023

To
Sharansharvesh S
Karur-639114

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR.Sharansharvesh S,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as Engineer Trainee on a salary of Rs.15,000/-. On completion of Three Month Probation Period with satisfactory per of one year, the joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS

A. Sebasi 25.01

SHREE ABIRAMI ENGINEERING WORKS Chennai 600 116.

S. Sharvesh
Accepted

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SAEW

ISO 9001 : 2015
JAS ANZ Accreditation No : M4430310IC

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Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, ABB Transformers

SAEW/HR/OFFER/G-037/23-24 Date:25.01.2023

To
Thirumukilan V
Tirchy-621214

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR.Thirumukilan V,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS.

25/01

Accepted:

V.T. V.T

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

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www.ab[illegible] email : [illegible]

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[illegible]facturers up to 400kv Power Transformers Power Transformers on Rental NABL accredited Transformer Oil Testing Lab
Impulse test upto 2400 KV

Authorized service representatives for Schneider ABB Transformers

Date:25.01.2023

SAEW/ER/OFFER/G-035/23-24

To
Vignesh C
Dindigul-624616

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR.Vignesh C,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS.

Accepted

SHREE ABIRAMI ENGGINEERING WORKS Chennai 600 116.

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

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Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, GE, EMCO, ABB Transformers

SAEW/HR/OFFER/G-033/23-24 Date:25.01.2023

To
Sivasankar P
Namakkal-637213

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR.Sivasankar P,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS,

25/01

Chennai 600 116

Accepted:

P. Sivasankar

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

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JAS-ANZ Accreditation No : M4430310IC

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Authorized service representatives for Schneider Electric, Emco, ABB Transformers

SAEW/HR/OFFER/G-036/23-24 Date:25.01.2023

To
Surendar Selvaraju
Kanganipatti-Parali

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Surendar Selvaraju,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS,

25/01

Chennai 600 116

Accepted:
S. Surendar

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

AEW

SHREE ABIRAMI
ENGGINEERING WORKS

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Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric GE Emco BHEL ABB Transformers

SAEW/HR/OFFER/G-032/23/-24 Date:25.01.2023

To
Vishnukumar T
Namakkal-637213

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Vishnukumar T,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS,

ABIRAMI ENGGINEERING WORKS Chennai 600 116.

Accepted:

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SAEW

ISO 9001 : 2015
JAS-ANZ Accreditation No : M443001QC

SHREE ABIRAMI
ENGGINEERING WORKS

Plot No.56, Arunachalam Main Road, Ambal Nagar,
Porur, Chennai - 600 116. GSTN : 33AABFS8828D1ZA
Phone : 044-24825906 / 24827256 / 2482 7769 Telefax : 044-2482 7572
www.abiramiengg.com e-mail : saew926@gmail.com

Repairing & Overhauling of Power Transformers and Hydro Generators / Electrical Super A grade Contractors.
Manufacturers up to 400kv Power Transformers/Power Transformers on Rental/NABL accredited Transformer Oil Testing Lab/
Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, GE, EMCO, Voltamp, ABB Transformers

SAEW/HR/OFFER/G-040/23-24 Date:25.01.2023

To
Kumaresan E
Namakkal-637213

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Kumaresan E,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for **SHREE ABIRAMI ENGGINEERING WORKS**

A. Selvi 25.01

SHREE ABIRAMI ENGGINEERING WORKS Chennai 600 116.

Accepted:

E. Dt

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SAEW

ISO 9001 : 2015
JAS-ANZ Accreditation No : M4410316IC

SHREE ABIRAMI ENGGINEERING WORKS

Plot No.56, Arunachalam Main Road, Ambal Nagar,
Porur, Chennai - 600 116. GSTN : 33AABFS8828D1ZA
Phone : 044-24825906 / 24827250 / 2482 7769 Telefax : 044-2482 7572
www.abiramiengg.com e-mail : saew92@gmail.com

Repairing & Overhauling of Power Transformers and Hydro Generators / Electrical Super A grade Contractors.
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Impulse test upto 2400 KV
Authorized service representatives for Schneider EMCO ABB Transformers

SAEW/HR/OFFER/G-039/23-24

To
Gokul R
Erode-638151

Date:25.01.2023

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Gokul R,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS

25/01

SHREE ABIRAMI ENGGINEERING WORKS Chennai 600 116.

Accepted:

R. Gokul

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SAEW

ISO 9001 : 2015
JAS-ANZ Accreditation No : M4430310IC

SHREE ABIRAMI ENGGINEERING WORKS

Plot No.56, Arunachalam Main Road, Ambal Nagar,
Porur, Chennai - 600 116. GSTN : 33AABFS8026D1ZA
Phone : 044-24825906 / 24822256 / 2482 7769 Telefax : 044-2482 7572
www.abiramiengg.com e-mail : saew926@gmail.com

Repairing & Overhauling of Power Transformers and Hydro Generators / Electrical Super A grade Contractors,
Manufacturers up to 400kv Power Transformers/Power Transformers on Rental/NABL accredited Transformer Oil Testing Lab/
Impulse test upto 2400 KV
Authorized service representatives for Schneider Electric, Emco, ABB Transformers

SAEW/HR/OFFER/G-041/23-24 Date:25.01.2023

To
Manikandan P
Namakkal -637208

RECRUITMENT OF GRADUATE ENGINEER TRAINEE

Dear MR. Manikandan P,

With reference to the Interview dated on 25.01.2023, and subsequent discussions you had with the undersigned, we are pleased to appoint you as **Engineer Trainee** on a salary of **Rs.15,000/-**. On completion of Three Month Probation Period with satisfactory performance. The Salary will be revised to **Rs.17,000/-** per month. The joining date will be intimated to you later through letter/mail

You should be prepared to take up any kind of related works that the management assigns you as and when necessary. You should work two years from the day of your appointment, you will have a notice period of one month &if you resign within two years then, one month salary will be deducted.

However, if for any reason du-e to any acts of misconducts or due to any other inevitable circumstances, the management reserves the right to terminate your services forthwith without assigning any reason or notice or any compensation in lieu of.

This offer will be valid till 27.06.2023. Your regular appointment letter will be issued after you join us. In the event of your not joining us by 27.06.2023 our offer shall stand cancelled.

Please sign and return the duplicate of this order as a token of acceptance.

Thanking you,

Yours faithfully,
for SHREE ABIRAMI ENGGINEERING WORKS.

25.01

Accepted:
P. Manikandan

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Joining Report

Date of Joining: 30.09.2022

Name: SNEKA (First Name) _____ (Middle Name) E (Last Name)

Gender: Female **Marital Status:** Single **Degree:** B.E., EEE

Date of Birth: 24.03.2002 **Place of Birth:** Erode **Nationality:** Indian

Blood Group: O positive **PAN Card No:** LSSPS0739M

Passport No: V9642457 **Passport issued Place:** Tiruchirappalli

Contact No: 9360973976 **Aadhaar card No:** 334841233994

Permanent Address: F-85, TNPL COLONY,
KAGITHAPURAM, KARUR.
PIN: 639 136

Corresponding Address: F-85, TNPL COLONY,
KAGITHAPURAM, KARUR.
PIN: 639 136

Parents / Guardian Details:

	Name	*DOB*	*Blood Group*	*Occupation*
FATHER	ELANGO P	23.02.1972	B^-	TNPL Employee
MOTHER	GANDHI E	13.04.1973	O^-	Housewife
GUARDIAN (if applicable)				

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Emergency Contact Person
Please indicate whom to contact in case of emergency.

Name of the Family Member: Elango P

Relationship with You: Father

Email Address: tmalaielango@gmail.com
Phone No. (with STD code): +91 9865447596
Alternate Number: +91 9787818116
Address: F-85, TNPL Colony,
Kagithapuram,
Karur.

Pin code: 639136

Employment & Non-Disclosure Agreement

This is to state that, I have read the terms and conditions of the enclosed Proprietary Information and Inventions Agreement and they are acceptable to me.

SNEKA E		
First Name	Middle Name	Surname
Intern Id	Signature	26.09.2022
		Date

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

M

Interns Joining Formalities FY 23 - Batch VI

1 message

Humanresources <Humanresources@kaartech.com> Wed, 28 Sep, 2022 at 12:46 PM
To: Humanresources <Humanresources@kaartech.com>, Employee Life Cycle Management <hrelm@kaartech.com>
Cc: Payroll <payroll@kaartech.com>, Gokulavani V <vgokulavani@kaartech.com>, Sanjai Kumar R <rsanjai@kaartech.com>, Muralidharan V <vmuralidharan@kaartech.com>, Asha Jayaraman <jasha@kaartech.com>, Vishnu R <rvishnu@kaartech.com>

Dear Intern,

Welcome to the Kaar Family!

Hope you and family are doing well. We are happy to virtually onboard you for internship in Batch 6 and the joining details are as follows. Kindly give attention to each line of this mail.

We request you to respond to this mail and fill the MS form immediately.

1. **Date of Internship Joining:** 30th September 2022 (Friday).

   Internship will be done virtually (work from home) as of now, until further orders from management.

2. **Online Induction Programme:** On 30th September 2022 (Friday) at 10.00AM IST via Zoom Meeting.

   Zoom Meeting Link is below.
   Kaar Training is inviting you to a scheduled Zoom meeting.

Topic: FY23 FTF Batch 6
Time: This is a recurring Zoom Meeting

Join Zoom Meeting
https://kaartech.zoom.us/j/84342828008?pwd=WCsyRVlPY0pMeWREN253OUdyczU3UT09

Meeting ID: 843 4282 8008

Passcode: 289562

3) Required Documents:

- Attached Joining Report
- Bank Passbook Copy/Cancelled Cheque Copy
- Address Proofs – Aadhar, PAN, Passport (If Available)
- 10th, 12th, UG Marksheets (Till Current Semester)
- Click Here – **to fill your other requested information***

Note : Kindly share soft copies of the above requested documents and fill the Microsoft Forms as well.

PRINCIPAL,
K. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

4) Other Preparation:

- **Personal Laptop:** We will not be issuing official laptops owing to the BYOD (Bring Your Own Device) practice. Hence please use personal laptops.
- **Individual Talent Showcase:** Everyday 5 of you will be asked to showcase your unique talent (singing, dancing, mimicry, instrumental, etc.) for a few minutes.

5) Other Important Information:

- **Dress Code:** Business casuals. Associates are required to keep their hair clean, trim, and neat. Shoes for men and appropriate footwear for women is mandatory. No extreme, immodest, and revealing dress. Violation of dress code may lead to disciplinary action.
- **Work Location (If Applicable):** Work from Home.

Your acknowledgement for this mail is mandatory.

Looking forward for your onboarding...

Warm Regards,
Human Resources

[redacted]

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Joining Report

Date of Joining: 30.09.2022

Name Elango M

Gender: Male **Marital Status:** Single **Degree:** B.E

Date of Birth: 20.10.2001 **Place of Birth:** Vellakovil **Nationality:** Indian

Blood Group: O+ **PAN Card No:** AELPE7548E

Passport No: _____ **Passport issued Place:** _____

Contact No: 9944711524 **Aadhaar card No:** 775534620658

Permanent Address: 126,Erasinampalayam,
Mulanur,
Tiruppur district-638106.

Corresponding Address: 126,Erasinampalayam,
Mulanur,
Tiruppur district-638106.

Parents / Guardian Details:

	Name	*DOB*	*Blood Group*	*Occupation*
FATHER	Manimuthu P	01/10/1976	O-	Farmer
MOTHER	Dhanalakshmi M	07/06/1980	B+	Housewife
GUARDIAN (if applicable)				

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Emergency Contact Person
Please indicate whom to contact in case of emergency.

Name of the Family Member: Manimuthu P

Relationship with You: Father

Email Address:engo1279@gmail.com
Phone No. (with STD code): 6369309962
Alternate Number: 9488222532
Address: 126, Erasinampalayam,Erasinampalayam(po),
Mulanur,
Tiruppur district-638106.

Pin code:638106

Employment & Non-Disclosure Agreement

This is to state that, I have read the terms and conditions of the enclosed Proprietary Information and Inventions Agreement and they are acceptable to me.

ELANGO		M
First Name	Middle Name	Surname
	E.Kgo.M	28/09/2022
Intern Id	Signature	Date

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113.

Interns Joining Formalities FY 23 - Batch VI

Message

Humanresources <Humanresources@kaartech.com> Wed, 28 Sep, 2022 at 12:46 PM
To: Humanresources <Humanresources@kaartech.com>, Employee Life Cycle Management <hrelm@kaartech.com>
Cc: Payroll <payroll@kaartech.com>, Gokulavani V <vgokulavani@kaartech.com>, Sanjai Kumar P <rsanjai@kaartech.com>, Muralidharan V <vmuralidharan@kaartech.com>, Asha Jayaraman <jasha@kaartech.com>, Vishnu R <rvishnu@kaartech.com>

Dear Intern,

Welcome to the Kaar Family!

Hope you and family are doing well. We are happy to virtually onboard you for internship in Batch 6 and the joining details are as follows. Kindly give attention to each line of this mail.

We request you to respond to this mail and fill the MS form immediately.

1. Date of Internship Joining: 30th September 2022 (Friday).

   Internship will be done virtually (work from home) as of now, until further orders from management.

2. Online Induction Programme: On 30th September 2022 (Friday) at 10.00AM IST via Zoom Meeting.

   Zoom Meeting Link is below.
   Kaar Training is inviting you to a scheduled Zoom Meeting.

   Topic: FY23 FTF Batch 6
   Time: This is a recurring Zoom Meeting

   Join Zoom Meeting
   https://kaartech.zoom.us/j/84342828008?pwd=WCsyRVlPYOpMeWREN253QUdyczU3UT09

   Meeting ID: 843 4282 8008

   Passcode: 289562

3) Required Documents:

- Attached Joining Report
- Bank Passbook Copy/Cancelled Cheque Copy
- Address Proofs – Aadhar, PAN, Passport (If Available)
- 10th, 12th, UG Marksheets (Till Current Semester)
- Click Here – to fill your other requested information*

Note : Kindly share soft copies of the above requested documents and fill the Microsoft Forms as well.

4) Other Preparation:

- Personal Laptop: We will not be issuing official laptops owing to the BYOD (Bring Your Own Device) practice. Hence please use personal laptops.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

- Individual Talent Showcase: Everyday 5 of you will be asked to showcase your unique talent (singing, dancing, Mimicry, instrumental, etc.) for a few minutes.

5) Other Important Information:

- Dress Code: Business casuals. Associates are required to keep their hair clean, trim, and neat. Shoes for men and appropriate footwear for women is mandatory. No extreme, immodest, and revealing dress. Violation of dress code may lead to disciplinary action.
- Work Location (If Applicable): Work from Home.

Your acknowledgement for this mail is mandatory.

Looking forward for your onboarding...

Warm Regards,
Human Resources

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Joining Report

Date of Joining: 30/09/2022

Name: Jananiha _____ Ramalingam

Gender: Female **Marital Status:** Single **Degree:** B.E

Date of Birth: 30 /05/2002 **Place of Birth:** Kulithalai **Nationality:** India

Blood Group: A+ **PAN Card No** CEPPJ0953L

Passport No: _____ **Passport issued Place:** _____

Contact No: 9361573362 **Aadhaar card No:** 896757349711

Permanent Address: 74/1,Periyar St
T Pet Road,
Musiri -621211 Trichy DT

Corresponding Address : 74/1,Periyar St
T.Pet Road,
Musiri -621211 Trichy DT

Parents / Guardian Details:

	Name	*DOB*	*Blood Group*	*Occupation*
FATHER	Ramalingam P	30.05.1967	O+	Driver
MOTHER	Boomavathi R	15.08.1979	A+	House Wife
GUARDIAN (if applicable)				

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Emergency Contact Person

Please indicate whom to contact in case of emergency.

Name of the Family Member: Ramalingam P

Relationship with You: Father

Email Address:
Phone No. (with STD code): 9489252677
Alternate Number: 8825752393
Address: 74/1,Periyar St,
T.Pet Road,
Musiri.

Pin code: 621211

Employment & Non-Disclosure Agreement

This is to state that, I have read the terms and conditions of the enclosed Proprietary Information and Inventions Agreement and they are acceptable to me.

Jananiha		Ramalingam
First Name	Middle Name	Surname
Intern Id	Signature	28/09/2022 Date

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Joining Report

Date of Joining: 30-09-2022

Name: SUBHASHINI MANI

Gender: FEMALE Marital Status: SINGLE Degree: BE

Date of Birth: 27/09/2001 Place of Birth: NAMAKKAL Nationality: INDIAN

Blood Group: $A1^{+VE}$ PAN Card No: LPMPS8489F

Passport No: V7354278 Passport issued Place: COIMBATORE

Contact No: 9940434353 Aadhaar card No: 714561428363

Permanent Address: 10/107, GANGANAICKANPATTI, SEVITTURANGANPATTI, KUMARAIPALAYAM, MOHANUR, NAMAKKAL – 637015.

Corresponding Address: 10/107, GANGANAICKANPATTI, SEVITTURANGANPATTI. KUMARAIPALAYAM, MOHANUR, NAMAKKAL – 637015.

Parents / Guardian Details:

	Name	*DOB*	*Blood Group*	*Occupation*
FATHER	*MANI S M*	*27/04/1965*	*AB^{+VE}*	*FARMER*
MOTHER	*SELVI M*	*12/07/1974*	*$A1^{+VE}$*	*FARMER*
GUARDIAN (if applicable)				

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Kaar

Emergency Contact Person

Please indicate whom to contact in case of emergency.

Name of the Family Member: SHANMATHI M

Relationship with You: ELDER SISTER

Email Address: shanmathimani06@gmail.com
Phone No. (with STD code): +91 8973003003
Alternate Number: +91 8973003008
Address: 10/107, GANGANAICKANPATTI, SEVITTURANGANPATTI,
KUMARAIPALAYAM, MOHANUR, NAMAKKAL

Pin code: 637015

Employment & Non-Disclosure Agreement

This is to state that, I have read the terms and conditions of the enclosed Proprietary Information and Inventions Agreement and they are acceptable to me.

SUBHASHINI		MANI
First Name	Middle Name	Surname
	M. Subhash	
		28.09.2022
Intern Id	Signature	Date

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

31

4X

SL Lumax Limited

[illegible]

APPRENTICE APPOINMENT ORDER

Ref: SL/HR/416014

07.02.2023

SANJAY S
SMALL LAMP
416014

DEAR SANJAY S,

Further to your application dated **07.02.2023** and the interview you had with us on **07.02.2023** we are pleased to engage you as an Apprentice on terms and conditions mentioned below.

1. PERIOD: The Apprenticeship commences on 3 years from **07.02.2023** ends on **06.02.2026**
2. STIPEND: During the period of Apprenticeship, you will be paid a monthly stipend as follows:

   a. I year -**Rs. 12,850.00**
   b. II year -**Rs. 14,250.00**
   c. III year -**Rs. 15,500.00**

If you are a diploma candidate or have any arrear in academic till clear the same. Your stipend will be automatically revised after you submit the degree certificate or all clear mark list.

3. RIGHT TO EXTEND THE PERIOD : Your progress as an apprentice will be closely assessed and therefore the any phase of apprenticeship is liable to be extended for such period as may be deemed necessary if your progress is not satisfactory.

4. PLACE OF APPRENTICESHIP: Your place of apprenticeship will be at SL Lumax Ltd., Sriperumbudur. You are, however liable to be transferred to any departments of our establishments, anywhere in India and your apprenticeship may be loaned to any of our Group/Associate Companies.

5. AUTOMATIC CESSATION : Unless the management considers it necessary to take you on the rolls of the company, you engagement as an Apprentice shall automatically cease on completion of the apprenticeship period.

6. RULES AND REGULATIONS : You shall abide by the rules and regulations of the company which are in force and which may enforced from time to time.

7. LEAVE ENTITLEMENT: Except for the holidays which the company may declare, you are not entitled to any leave during your Apprenticeship period.

8. NATURE OF TRAINING: You will undergo training in any of the machines / shifts as decided by the management from time to time. The training imparted to you will also include on the job training.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

9. SAFETY AND DISCIPLINE: You will observe regulations concerning safety and conduct yourself within the disciplinary norms prescribed by the management.

10. MEDICAL FITNESS: Your engagement as an apprentice is subject to your being found medically fit at all times, for medical fitness is a pre-requisite for continued engagement.

11. SECRECY: You shall maintain strict secrecy with regard to work entrusted to you and matters connected with the company

12. PROHIBITION AGAINST OTHER AVOCATION: You shall not engage yourself in any trade, business or occupation during the period of your association with our company.

13. MISREPRESENTATION OF FACTS: If information furnished by you in your application regarding qualification, previous experience, employment details etc. are found to be incorrect inadequate or not true, your apprenticeship is liable to be terminated.

14. TERMINATION DURING THE PERIOD OF APPRENTICESHIP: In any event if the management deems that your activities will interfere with the training which is being imparted to you or your performance is not satisfactory the management is entitled to terminate your apprenticeship during the period of apprenticeship.

15. EMPLOYMENT: There is no obligation whatsoever on company's part to offer you any employment after completion of your apprenticeship.

16. RESIDENTIAL ADDRESS: Any change in your residential address shall be intimated to the management within three days of such change.

17. This appointment will be terminated instantly at any time. Under the following clauses.

17.1 If you involve in anti-company activities like money scandal either within the company or with vendor / suppliers, involving participating in the activities affecting the Industrial peace etc.

17.2 If your performance does not meet the changing organizational needs

17.3 Disobey of Company Policy, Rules & Regulation continues more than an occasion.

If the aforesaid terms and conditions are acceptable, Please return the duplicate copy of the letter duly signed in token of your acceptance of the above terms.

Thanking you,

For SL LUMAX LTD.,

TAE SUNG LEE
MANAGING DIRECTOR

I accept the above terms & conditions.
Signature

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

cognizant

15-Feb-2023

Candidate ID: 24493310

Surthi M
B.E. Electrical & Electronics Engineering
M Kumarasamy College of Engineering, Karur

Dear **Surthi M,**

Further to our Letter of Intent / Offer for the position of Programmer Analyst Trainee / Programmer Analyst aligned to the hiring category and in response to your subsequent confirmation for Internship Program with us, we are pleased to offer you an Internship on premises with us for **a period of 3 to 6 months.** Your Internship onboarding will be scheduled based on your availability factoring your college exam schedule and our business requirements.

During this period, you will be provided with a stipend of **INR 12,000** per month equated to the planned duration of the Internship curriculum and will be paid only subject to successful completion of milestones as defined in the curriculum prior to the monthly stipend processing window for a given month based on your performance and attendance.

Though Cognizant Internship is a pre-requisite skill and capability development program, it does not guarantee employment and there is no employer – employee relationship during the course of this internship program. However, the successful completion of internship will form a critical part of your eligibility for employment with Cognizant if an opportunity arises in future.

You will undergo a learning curriculum as per the learning track assigned to you. The learning path will include in-depth sessions, hands on exercise and project work. There will also be series of webinars, quizzes, SME interactions, mentor connects, code challenges, assessments etc. to accelerate your learning. The outcome during Internship would be monitored through formal evaluations.

Prior to joining on the rolls of Cognizant, you must have successfully completed the prescribed Internship program. In the event of unsatisfactory Internship, Cognizant reserves rights at its sole discretion to revoke its employment offer.

Please also note that:

- The Internship timings would be for 10 hours per day from Monday through Friday aligned to the working timings followed in Cognizant which based on the need could also be operated on a shift model. Attendance is mandatory on all the days to stay active in the Internship Program. The Intern Offer would be terminated if the mandatory requirement of minimum 90% attendance at office is not met in a month.

- Interns are covered under Cognizant's calendar holidays of the respective location of internship, and you would need to adhere with minimum attendance requirements. Prior approvals are must towards any unavoidable leave or break requests during the program and internship would be terminated if leaves are availed without prior approvals.

- You would be required to ensure timely completion and submission of assignments, project work and preparation required prior to the sessions failing which your internship would be terminated.

- The Technical skills track mapped could change at the start or mid-way or even later during the program depending on business demand changes and you would be required to be flexible for this change failing which your internship would be terminated.

- After successful completion of your Internship if there is a business demand which expects you to get skilled on a different skill, you would be expected to get skilled in that demand failing which your Full Time Offer would be cancelled / withdrawn.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

cognizant

• Stipend payment will be done for the prescribed Internship Curriculum period only and no additional payment will be done for any delay in completion. Attendance and successful completion of Milestone(s) are the eligible factors for processing stipend payment and tenure spent will not guarantee your monthly stipend payment

• There would be zero tolerance to plagiarisms and misconduct during the internship. Adherence to Cognizant Internship policies and guidelines is mandatory and any breach of incident reported will lead to immediate cancellation of Internship without any notice.

• During the course of your Internship and at all times, you shall be governed by Cognizant's Social Media Policy and shall, refrain from posting malicious, libelous, defamatory, false, obscene, political, anti-social, abusive, and threatening messages/statements or disparaging the Company, clients, associates, competitors, or suppliers or any third parties, irrespective of whether any such statements are likely to cause damage to any such entity or person. Any breach of this section would lead to immediate termination of the Internship and revocation of the Employment Offer/Agreement.

• Cognizant reserves rights regarding IT infra as applicable and access to information and material of Cognizant during the internship period and may modify or amend the Cognizant GenC program terms and conditions from time to time.

At the time of your reporting for the internship, you will be required to sign a Non - Disclosure Agreement with the company. During the course of your Internship and after completion of the same, you are required to maintain strictest confidentiality with respect to company proprietary or products that you access or come into contact with, during your project as an Intern, at all times as per our Policy. Use of company proprietary information or products shall not be made without prior permission from the concerned authority. Any breach of information security will be dealt as per Company Policy.

This offer from Cognizant shall be active and **valid for only 3 calendar days** and hence you are expected to accept or decline the offer through the company's online portal within the said time-period of 3 calendar days and you will also be required to submit the mandatory documents at least **7 days** before your Internship Onboarding Date as part of your Pre-joining & Background Verification (BGV) process. In case you don't comply to the above timelines, this Offer shall stand withdrawn and will be considered as cancelled. Any official written extension to the offer validity and the above-mentioned timelines will be at the sole discretion of Cognizant.

Below are the **mandatory documents** to be submitted as part of your **Background Verification**:
• Your Pan Card
• Letter of Authorization (LOA) which should be downloaded from the BGV application hand signed with your name and date and reuploaded back to the application

Below are the **mandatory documents** to be submitted as part of your **Pre-joining formalities**:
• 2 Passport sized Photographs preferably with a Grey / White background
• Personal individual bank account from a nationalized bank for processing stipend

Please do not hesitate to call us for any information you may need.
We wish you good luck.

Yours sincerely,
For Cognizant Technology Solutions India Pvt. Ltd.,

Maya Sreekumar
Vice President - Human Resources

I have read the offer, understood and accept the above mentioned terms and conditions.

Signature: **Date:**

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR-639 113

Proserv India Oil & Gas Solutions LLP
LLPIN: AAH-4124

Phone: +91 44 66202500
www.Proserv.com

Regd. Office Address:
302, Anna Salai, Teynampet
Chennai – 600006
India

Ref:2023/Intern/20237

March 17, 2023

Letter of Internship

Gowtham J K
3/69 A Panan kattu Aayan
Thottam Thoppappatty(P.O),
Rasipuram (T.K) Namakkal(D.T),
Tamil Nadu, 637406,

Dear Gowtham,

Proserv is pleased to extend an offer of internship for a 3-month tenure in 2023. Please find the following confirmation of the specifics of your internship:

Position	:	Engineering Internship
Start date	:	March 23, 2023
End date	:	June 22, 2023
Contract	:	Full-time
Working hours	:	40 hours per week (Monday to Friday)
Stipend	:	₹15, 000 per month

As an intern, you are not entitled for any Intern benefits that a regular Company Intern receives, including but not limited to casual leave and sick leave, paid holidays, or participation in organisation's development, department KRA's and organisations' KPI.

CONFIDENTIALITY, INTELLECTUAL PROPERTY, AND DATA PROTECTION

The confidentiality and data protection and intellectual property obligations of the intern shall be dealt with under the separate declaration to be executed by the intern in favor of the Employer. The same shall be construed as an integral part of this Contract.

Corporate Office:
Type II, Plot No 6, Phase 1, Second Street,
Dr. Vikram Sarabhai Industrial Estate, Thiruvanmiyur,
Chennai, Tamil Nadu – 600 041. India

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Proserv India Oil & Gas Solutions LLP
LLPIN: AAH-4124

Regd. Office Address,
302, Anna Salai, Teynampet
Chennai – 600006
India

Phone: +91 44 66202500
www.Proserv.com

BUSINESS ETHICS

The intern is required to comply and sign the Employer's Business Ethics Policy which includes but is not limited to provisions related to anti-bribery, anti-corruption, and the acceptance of business gifts. Failure to do so may result in disciplinary action being taken against the Intern, up to and including dismissal for gross misconduct.

GENERAL PROVISIONS

- In the event of a discrepancy between the terms set out in this Contract and/or the Intern Handbook in force from time to time, the terms set out in this Contract shall prevail.
- In addition to this Contract, the Employer has produced an Intern Handbook (the "handbook"). The handbook sets out several policies, procedures, and rules which apply to his / her employment with the Employer. The handbook shall be subject to regular review and the provisions of the handbook may be changed, supplemented or new parts introduced. The Intern shall be advised by the Employer before the introduction of a new version of the handbook.
- Any amendment to this Contract must be made in writing to be legally valid. Each Party declares having received a copy of this Contract duly signed by both Parties.
- This Contract constitutes and represents the entire agreement between the Parties and supersedes any previous written or oral agreements, understandings, negotiations, and discussions between the Parties about the matters dealt with in this Contract.
- This contract is governed by and construed by the laws of the Republic of India. The Employer and the Intern agree to submit to the exclusive jurisdiction of the courts of Chennai about any dispute arising in connection with this contract.
- Any notices, requests, demands or other communication required or permitted to be given under this Contract shall be written in English and shall be delivered in person, or sent by courier or by certified or registered mail, postage prepaid, or transmitted by email and properly addressed as per the Information provided in the Intern Information Form.

or at such other address as the Party to whom such notices, requests, demands or other communication is to be given shall have last notified the Party giving the same in the manner provided in this Section, but no such change of address shall be deemed to have been given until it is

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Chennai, Tamil Nadu – 600 041. India

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THALAVAPALAYAM,
KARUR - 639 113

received by the Party sought to be charged with the knowledge of its contents. Any notice, request, demand, or other communication delivered to the Party to whom it is addressed as provided in this Section 17.7 shall be deemed (unless there is evidence that it has been received earlier) to have been given and received, if:

(i) sent by mail, except airmail, 5 (five) Business Days after posting it;

(ii) sent by airmail, 3 (three) Business Days after posting it; and

(iii) sent by email, when confirmation of its transmission has been recorded by the sender's computer.

ACCEPTANCE

The Intern shall, after reading and satisfying itself of the terms and conditions of the Contract, acknowledge receipt of this Contract of Employment which details the Intern's terms and conditions of employment. This should be done by signing two copies of the contract and returning one copy by **March 18, 2023,** to the Employer.

Signature of the intern	
Name of the Intern	
Date	

Signed by Employer Representative, duly authorized to sign for and on behalf of the Employer:

Treesa Antileeta Anthony	Suresh Subramanian
HR Manager - India	General Manager - India
March 17, 2023	March 17, 2023

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

POPULAR SYSTEMS

No 483

(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Organisation)

No.6, A-Block, Narayanasamy Layout,
Narasimanaickenpalayam,
Coimbatore - 641 031, Tamil Nadu India
E-mail : popularsystems@yahoo.co.in
info@popularsystems.net
web:http://www.popularsystems.net Ph : 0422 2462372

TIN No: 33182025595 } Dt: 18-09-2005
CST No: 859259
Area code : 1956
GSTIN : 33AMBPK2864K1Z1
Dated: 28-06-2017

To whomever it may concern

This is to certify that (C.VIGNESH -REGNO: 20BEE4105) Electrical and Electronics Engineering - Second year from (M.KUMARASAMY COLLEGE OF ENGINEERING) has undergone Internship in our organisation from 04.07.2022 to 20.07.2022. During the period of his internship programme with us he was found punctual and hardworking.

POPULAR SYSTEMS Coimbatore

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

POPULAR SYSTEMS

No: 487

(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Organisation)

No.6, A-Block, Narayanasamy Layout,
Narasimanaickenpalayam,
Coimbatore - 641 031, Tamil Nadu India.
E-mail : popularsystems@yahoo.co.in
info@popularsystems.net
web:http://www.popularsystems.net Ph : 0422 2462372

TIN No : 33182025595
CST No : 859259
Area code : 106
GSTIN : 33AMBPK2864K1Z1
Dated : 26-06-2017
} Dt : 16-09-2005

To whomever it may concern

This is to certify that (G.NAVEEN-REGNO: 20BEE4057) Electrical and Electronics Engineering - Second year from (M.KUMARASAMY COLLEGE OF ENGINEERING) has undergone Internship in our organisation from 04.07.2022 to 20.07.2022. During the period of his internship programme with us he was found punctual and hardworking.

POPULAR SYSTEMS Coimbatore

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M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

POPULAR SYSTEMS

No. 486

(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Organisation)

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Coimbatore - 641 031, Tamil Nadu India.
E-mail : popularsystems@yahoo.co.in
info@popularsystems.net
web:http://www.popularsystems.net Ph : 0422 2462372

TIN No 33182025595 } Dt : 16-09-2005
CST No 859259
Area code : 1[0]6
GSTIN : 33AMBPK2864K1Z1
Dated : 26-06-2017

To whomever it may concern

This is to certify that (P.SABARINATHAN -REGNO: 20BEE4073) Electrical and Electronics Engineering - Second year from (M.KUMARASAMY COLLEGE OF ENGINEERING) has undergone Internship in our organisation from 04.07.2022 to 20.07.2022. During the period of his internship programme with us he was found punctual and hardworking.

POPULAR SYSTEMS Coimbatore

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

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Narasimanaickenpalayam,
Coimbatore - 641 031, Tamil Nadu India
E-mail : popularsystems@yahoo.co.in
info@popularsystems.net
web:http://www.popularsystems.net Ph : 0422 2462372

To whomever it may concern

This is to certify that (R.SUDAHAR -REGNO: 20BEE4093) Electrical and Electronics Engineering - Second year from (M.KUMARASAMY COLLEGE OF ENGINEERING) has undergone Internship in our organisation from 04.07.2022 to 20.07.2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

POPULAR SYSTEMS Coimbatore

Authorized signatory

POPULAR SYSTEMS No 481

(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Organisation)

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Narasimanaickenpalayam,
Coimbatore - 641 031, Tamil Nadu India
E-mail : popularsystems@yahoo.co.in
info@popularsystems.net
web:http://www.popularsystems.net Ph: 0422-2462372

Dt: 15.09.2005

To whomever it may concern

This is to certify that (R.MOUREESWARAN -REGNO: 20BEE4316) Electrical and Electronics Engineering - Second year from (M.KUMARASAMY COLLEGE OF ENGINEERING) has undergone Internship in our organisation from 04.07.2022 to 20.07.2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

POPULAR SYSTEMS Coimbatore

Authorized signatory

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No.6, A-Block, Narayanasamy Layout,
Narasimanaickenpalayam,
Coimbatore – 641 031, Tamil Nadu India.
E-mail : hrd@popularsystems.net
Web:http://www.popularsystems.net

TIN No : 33102255955
CST No : 859259
Area Code : 106
GSTIN : 33AMHPK2064K1Z1
Dated : 26.06.2017

To whomever it may concern

This is to certify that (R.DHARUNKUMAR -REGNO: 20BEE4014) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

POPULAR SYSTEMS

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Coimbatore - 641 031. Tamil Nadu India
E-mail: hrd@popularsystems.net
Web http://www.popularsystems.net

TIN No: 3318225595
CST No: 859259
Area Code: 106
GSTIN: 33AMBPK2864K1Z1
Dated: 26.06.2017

To whomever it may concern

This is to certify that (A.P.DHARUNISH-REGNO: 20BEE4015) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

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Narasimanaickenpalayam,
Coimbatore – 641 031, Tamil Nadu India
E-mail : hrd@popularsystems.net
Web:http://www.popularsystems.net

TIN No 3318[illegible]
CST No 959[illegible]
Area Code 106
GSTIN 33AMBPK[illegible]
Dated 26.06.201[illegible]

To whomever it may concern

This is to certify that (R.KAMALESH-REGNO: 20BEE4025) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

Authorized signatory

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

POPULAR SYSTEMS

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Coimbatore – 641 031, Tamil Nadu India.

E-mail : hrd@popularsystems.net

Web:http://www.popularsystems.net

TIN No : 3318225595

CST No : 859259

Area Code : 106

GSTIN : 33AMBPK2864K1Z1

Dated : 26.06.2017

To whomever it may concern

This is to certify that (M.JEEVA-REGNO: 20BEE4024) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

Authorized signatory

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

POPULAR SYSTEMS

(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 CERTIFIED organisation)

No.6, A Block, Narayanasamy Layout,

Narasimanaickenpalayam,

Coimbatore – 641 031. Tamil Nadu India.

E-mail : hrd@popularsystems.net

Web:http://www.popularsystems.net

TIN No : 33182255955

CST No. : 859259

Area Code : 106

GSTIN : 33AMBPK2864K1Z1

Dated : 26.06.2017

To whomever it may concern

This is to certify that (T.SATHISH-REGNO: 20BEE4083) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

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(An IATF 16949:2016, ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 CERTIFIED organisation)

No 6, A Block, Narayanasamy Layout,

Narasimanaickenpalayam,

Coimbatore – 641 031, Tamil Nadu India.

E-mail : hrd@popularsystems.net

Web:http://www.popularsystems.net

TIN No : 3318225595

CST No : 859259

Area Code : 106

GSTIN : 33AMBPK2864K1Z1

Dated : 26.06.2017

To whomever it may concern

This is to certify that (M.SUGADEV-REGNO: 20BEE4095) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

TNPL **Tamilnadu Newsprint and Papers Limited**
(A Government of Tamilnadu Enterprise)
Kagithapuram - 639 136, Karur Dist. Tamilnadu, India.
Phone : (0091) 04324 - 277001 to 277010 (10 Lines)
Fax : (0091) 04324 - 277025 PMD : 04324 - 277027
HR : 04324 - 277273 Cell : 94860 41341 to 41343

CERTIFICATE

HR/31.21/INT/EEE/2022/09/03 November 1, 2022

Name : **PAVITHRA. P**

Department : B.E. (EEE)

Name of the Institution : M. Kumarasamy College of Engineering Karur.

Departments in Which Undergone Internship Training : Paper Machine, Pulp Mill, Energy and Soda Recovery

Internship Training Duration : From: 28.09.2022 To: 27.10.2022.

SENIOR MANAGER – HR

K.S. SIVAKUMAAR
Sr. Manager - HR
Tamilnadu Newsprint and Papers Limited,
Kagithapuram - 639 136, Karur Dist.

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Corporate Office: 67, Mount Road, Guindy, Chennai - 600 032
PAN No. The Corporate Identity Number: L22121TN1979PLC007799
Fax: 044 - 22351834, 22354814, Phone: 044 - 22354415 / 16 / 18, 22301094 - 97

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HR : 04324 - 277273 Cell : 94860 41341 to 41343

ICSI NATIONAL AWARD FOR EXCELLENCE IN CORPORATE GOVERNANCE

CERTIFICATE

HR/31/21/INT/EEE/2022/09/02 November 1, 2022

Name : **MALATHI. P**

Department : B.E. (EEE)

Name of the Institution : M. Kumarasamy College of Engineering Karur.

Departments in Which Undergone Internship Training : Paper Machine, Pulp Mill, Energy and Soda Recovery

Internship Training Duration : From: 28.09.2022 To: 27.10.2022.

SENIOR MANAGER – HR

K.S. SIVAKUMAAR
Sr. Manager - HR
Tamilnadu Newsprint and Papers Limited,
Kagithapuram - 639 136, Karur Dist.

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

ENERGY CONTROL CORPORATION

ELECTRICAL CONTRACTORS AND SYSTEM DESIGNERS

15-A, Kannika Parameshwari Layout, Ramanathapuram,
Coimbatore - 641 045.

Date : 20.10.2022

TO WHOM SOEVER THIS MAY CONCERN

This is to certify that **Mr.PRAKASH.N** S/o Mr.Nagaraj studying at M.Kumarasamy College of Engineering,Karur (B E- EEE Register No:19BEE4059) have completed his Internship in Electrical Design Division and all other departments successfully in our Organization from 23.09.2022 to 15.10.2022 and during his period of stay his performance was well appreciable.

We wish him all the success in his future endeavor.

For ENERGY CONTROL CORPORATION

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

ENERGY CONTROL CORPORATION

ELECTRICAL CONTRACTORS AND SYSTEM DESIGNERS

15-A, Kannika Parameshwari Layout, Ramanathapuram,
Coimbatore - 641 045.

Date : 20.10.2022

TO WHOM SOEVER THIS MAY CONCERN

This is to certify that **Mr.MANIKANDAN.K** S/o Mr.N.Kannan studying at M.Kumarasamy College of Engineering.Karur (B.E- EEE Register No:19BEE4047) have completed his Internship in Electrical Design Division and all other departments successfully in our Organization from 23.09.2022 to 15.10.2022 and during his period of stay his performance was well appreciable.

We wish him all the success in his future endeavor.

For ENERGY CONTROL CORPORATION

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

ESA 333 PHONE NUMBER : 0422-2314052, 2319182 EMAIL : ecc_tns@yahoo.com GSTIN : 33ACRPT5081B1ZH

ENERGY CONTROL CORPORATION

ELECTRICAL CONTRACTORS AND SYSTEM DESIGNERS

15-A, Kannika Parameshwari Layout, Ramanathapuram,
Coimbatore - 641 045.

Date : 20.10.2022

TO WHOM SOEVER THIS MAY CONCERN

This is to certify that **Mr.KAMESH.V** S/o Mr.M.Visvanathan studying at M.Kumarasamy College of Engineering,Karur (B.E- EEE Register No:19BEE4029) have completed his Internship in Electrical Design Division and all other departments successfully in our Organization from 23.09.2022 to 15.10.2022 and during his period of stay his performance was well appreciable.

We wish him all the success in his future endeavor.

For ENERGY CONTROL CORPORATION

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

ENERGY CONTROL CORPORATION

ELECTRICAL CONTRACTORS AND SYSTEM DESIGNERS

15-A, Kannika Parameshwari Layout, Ramanathapuram,
Coimbatore - 641 045.

Date : 21.10.2022

TO WHOM SOEVER THIS MAY CONCERN

This is to certify that **Mr.JAGADEESH.S** S/o Mr.Shanmugam studying at M.Kumarasamy College of Engineering.Karur (B.E- EEE Register No:19BEE4026) have completed his Internship in Electrical Design Division and all other departments successfully in our Organization from 23.09.2022 to 21.10.2022 and during his period of stay his performance was well appreciable.

We wish him all the success in his future endeavor.

For ENERGY CONTROL CORPORATION

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

ESA 333 PHONE NUMBER : 0422-2314052, 2319182 EMAIL : ecc_tns@yahoo.com GSTIN : 33ACRPT5081B1ZH

THE
ACETECH
MACHINERY
COMPONENTS
INDIA PRIVATE LIMITED

CE/001/HR 2022-23

15 OCT 2022

INTERNSHIP CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

IS CERTIFY THAT**MR. SAKTHI NITHESH,(ROLL.NO.19BEE4067),** FROM M.KUMARASAMY COLLEGE OF NGINEERING KARUR, SUCCESSFULLY COMPLETED HIS INTERNSHIP OF 1 MONTH WITH CE TECH MACHINERY COMPONENTS INDIA PRIVATE LIMITED

URING HIS TENURE, WE FOUND HIM ACTIVE AND COMPETENT IN EXCUTING ALL ASSIGNED TASKS AND ERVICES WERE FOUND TO BE SATISFACTORY. HE WAS PUNCTUAL AND HARDWORKING THROUGHT HIS ERIOD AND WE WISH HIM GREAT SUCCESS IN ALL OF HIS FUTURE ENDEAVOUR.

VITH KIND REGARDS,

ROM ACE TECH MACHINERY COMPONENTS INDIA PRIVATE LIMITIED

WETHA RAMALINGAM M
SST.MANAGER (SAP EXECUTIVE AND HR)

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

S.F.No :306,Kadathur,KunnathurVillage,SathyMainRoad,Coimbatore-641107,TamilNadu,India
Mobile :+919363365344|Phone:+91422-2653770/2653771
GSTNo:33AACCT6770D1ZH|CIN:U29269TZ006TZ006TC012800
E-mail:infoa@acetechindia.in|Website:www.acetechindia.in

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NATIONAL AWARD FOR EXCELLENCE IN CORPORATE GOVERNANCE

CERTIFICATE

HR/31/21/INT/EEE/2022/09/01

October 17, 2022

Name : **S. SIVASUBRAMANIYAM**

Department : B.E (EEE)

Name of the Institution : M. Kumarasamy College of Engineering Karur.

Departments in Which Undergone Internship Training : Paper Machine, Soda Recovery, Pulp Mill and Energy

Internship Training Duration : From: 14.09.2022 To: 13.10.2022.

SENIOR MANAGER – HR
K.S. SIVAKUMAAR
Sr. Manager - HR
Tamilnadu Newsprint and Papers Limited,
Kagithapuram - 639 136. Karur Dist.

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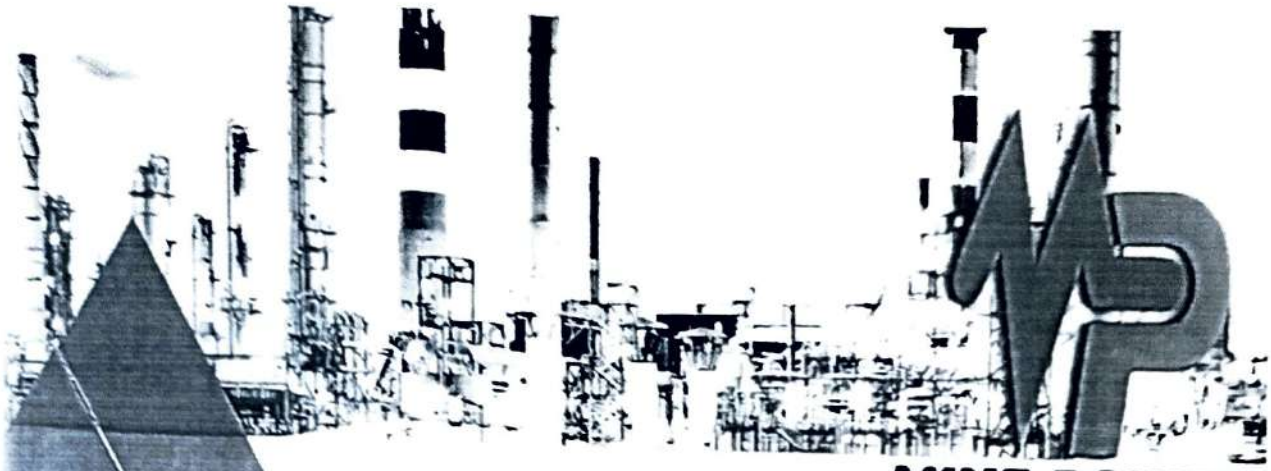
KARUR - 639 113



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IV Year ,Electrical & Electronics Engineering,
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AAKASH JAMES R

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M. Kumarasamy College Of Engineering, Karur, TN.

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in Automation Department.

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KARUR - 639 113.

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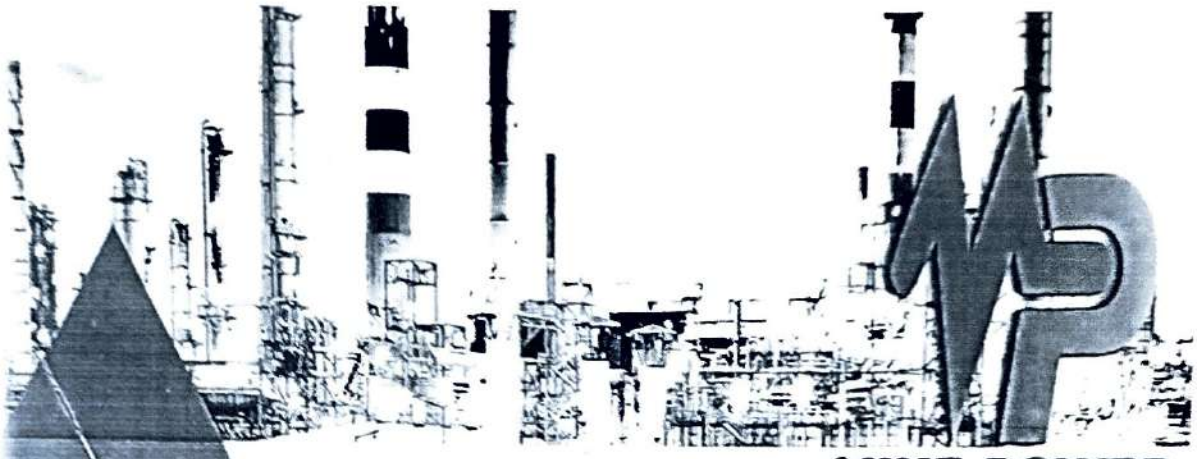

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GOWTHAM J K

IV Year ,Electrical & Electronics Engineering,
M. Kumarasamy College Of Engineering, Karur, TN.

Was in our company as an intern from 12/09/2022 to 12/10/2022

in Automation Department.

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To whoever it may concern

This is certify that **S.Akash** - Reg no: (**19BEE4003**) from **Department of Electrical and Electronics Engineering** final year from **M.Kumarasamy college of Engineering** has undergone Internship program in our organization from (**27-09-2022 to 28-10-2022**).During the period of his internship with us he was found punctual and hardworking

thorized by

Navin Kumar
Asst.Manager(pugalur Branch)
20-10-2022

SWELECT ENERGY SYSTEMS LIMITED CHENNAI 600 004

For SWELECT ENERGY SYSTEMS LIMITED
R. SATHISHKUMAR
Company Secretary

PRINCIPAL,
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THALAVAPALAYAM,
KARUR - 639 113

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To whoever it may concern

This is certify that **S.ARVINTHSAMY** - Reg no: (**19BEE4301**) from **Department of Electrical and Electronics Engineering** final year from **M.Kumarasamy college of Engineering** has undergone Internship program in our organization from (**27-09-2022 to 28-10-2022**).During the period of his internship with us he was found punctual and hardworking

thorized by

Navin Kumar
Asst.Manager(pugalur Branch)
20-10-2022

SWELECT ENERGY SYSTEMS LIMITED
CHENNAI
600 004

R.

For SWELECT ENERGY SYSTEMS LIMITED
R. SATHISHKUMAR
Company Secretary

PRINCIPAL,
M. Kumarasamy College of Engineering,
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Certificate of Achievement

To whoever it may concern

This is certify that **L.LALITHEASWARAN** - Reg no: (**19BEE4043**) from **Department of Electrical and Electronics Engineering** final year from **M.Kumarasamy college of Engineering** has undergone Internship program in our organization from (**27-09-2022 to 28-10-2022**).During the period of his internship with us he was found punctual and hardworking

thorized by

Navin Kumar
Asst.Manager(pugalur Branch)
20-10-2022

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R. SATHISHKUMAR
Company Secretary

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Certificate of Achievement

To whoever it may concern

This is certify that **B.GOWTHAM** - Reg no: (**19BEE4019**) from Department of **Electrical and Electronics Engineering** final year from **M.Kumarasamy college of Engineering** has undergone Internship program in our organization from (**27-09-2022 to 28-10-2022**).During the period of his internship with us he was found punctual and hardworking

Authorized by

Navin Kumar
Asst.Manager(pugalur Branch)
20-10-2022

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For SWELECT ENERGY SYSTEMS LIMITED
R. SATHISHKUMAR
Company Secretary

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SOL [illegible]

SF NO 899 NOCH NAGAR KUMARAPALAYAM MONJANUR VILLAGE PUGALUR TK KARUR DT PINCODE 639208

M. Kumarasamy College of Engineering
Thalavapalayam Karur-639113
Kind Attention: Mr.Ramesh Babu N, Prinicipal .

Respected Sir,

Subject:Internship for DHARUN KUMAR S, SETHU MADHAVAN J

Ref:Your letter No:693 **MKCE INTERNSHIP EEE 2022-2023 Dated 10 10 22**

This Is To Confirm The Acceptance Of Your Request To Allow Your Student
Mr.DHARUN KUMAR S [illegible] 19BEE[illegible] Mr SETHU MADHAVAN J [illegible] Year B.E
[illegible] Engineering [illegible] Internship [illegible] Organization From 12 10 2022 To 27 10 2022

[illegible] The Student Will Be Receiving Academic Credit For This Internship. He Will Not Be Provided Any Stipend During The [illegible] The Rules And Regulations Of Our Organization

[illegible]

SWELECT GREEN ENERGY SOLUTIONS PVT LTD.

[illegible] KUMAR

Asst. Manager(Maintenance Engineer).

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E-mail : batpl@baseautomation.co.in CIN No U30006TN1995PTC033518

BATPL/HR/004/2022-2023

July 14, 2022

To

M. Kumarasamy College of Engineering,
Thalavapalayam, Karur -639 113.

Kind Attention: Mr. Ramesh Babu N, Principal

Dear Sir,

Sub: Internship for Mr. Dinesh Kumar S.

Ref: Your letter 658/MKCE/INTERNSHIP/EEE/2022-2023 Dated 13th July 2022

This is to confirm the acceptance of your request to allow your student **Mr. Dinesh Kumar S, (Roll. No. 19BEEE4302),** IV-year, B.E in Electronics and Electronics Engineering to undergo Internship in our organization from **July 18, 2022, to July 30, 2022**.

As the student will be receiving academic credit for this Internship, he will not be provided any stipend during this period, and he should adhere to the rules and regulations of our organization.

With kind regards,

For BASE Automation Technologies Pvt. Ltd

Pushpalatha K
Asst. Manager (HR & Quality)

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SHIVAA ENGINEERING WORKS

No.1, SHOBA NAGAR, AVARAMPALYAM, GANAPATHY,
COIMBATORE-641006,Tamil Nadu (33).
Email Id:shivaaengg8@gmail. Phone No.:+91-9489757630)
GSTIN: 33CZIPS6517B1ZF

Quotation No: QU T00004 Date of Quotation: 02-05-2022

To whoever it may concern

This is certify that ***S. ARVINTH SAMY – REGNO : (19BEE4301)*** *Electrical and Electronics engineering – final year from (M. KUMARSAMY COLLEGE OF ENGINEERING) has undergone Internship in our organization from* ***(25-07-2022 to 05-08-2022).*** *During The period of his internship programme with us he was found Punctual and hand working.*

Shiva Engineering Works 6/8/22

Authorized signatory

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

SHIVAA ENGINEERING WORKS

No.1, SHOBA NAGAR, AVARAMPALYAM, GANAPATHY,
COIMBATORE-641006,Tamil Nadu (33)
Email Id:shivaaengg8@gmail Phone No.: +91-9489757630
GSTIN: 33CZIPS6517B1ZF

Date of Quotation: 02-05-2020

To whoever it may concern

This is certify that ***V. LOGESHWARAN*** *– REGNO :* ***(19BEE4303)*** *Electrical and Electronics engineering – final year from (M. KUMARSAMY COLLEGE OF ENGINEERING) has undergone internship in our organization from* ***(25-07-2022 to 05-08-2022).*** *During The period of his internship programme with us he was found Punctual and handworking.*

Shivaa Engg. 6/8/22

Authorized signatory

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

THE INDIA CEMENTS LIMITED
SANKARI WORKS

Sankari West P.O., Salem District, Pin : 637 303, Tamil Nadu
Phone : 04283-240387, Fax : 04283-240051, www.indiacements.co.in
CIN : L26942TN1946PLC000931

Ref :

Date : 30-03-2023

To whomsoever it May Concern

This is to certify that **Mr. ELAVARASAN R (Roll No.19BEE4015) 4th Year B.E – Electrical and Electronics Engineering from M Kumarasamy College of Engineering, Karur - 639113** has completed Internship Training in our Organization from 09-01-2023 (to) 30-03-2023.

In the span of Internship duration he was found Satisfactory.

We wish him a bright Future.

For The India Cements Limited.,

Assistant General Manager (HR)

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Caliber Embedded

Technologies India (P) Ltd.

DATE : 19.01.2023

Dear **Akash S 19BEE4003,**
Gowtham B 19BEE4019,
Lalitheaswaran L 19BEE4043,
Arvinthsamy S 19BEE4301,

We are pleased to inform you that Caliber Embedded Technologies has accepted your request to intern at our company **from 27/01/2023 to 01/03/2023.**

We look forward to welcoming you to our team and to providing you with a valuable learning experience. During your time here, you will have the opportunity to work with some of the most talented engineers and developers in the industry and gain hands-on experience with the latest technologies.

We are confident that you will make a valuable contribution to our team and will be an asset to our organization.

Thank you for choosing Caliber Embedded Technologies for your internship.

Sincerely,

Caliber Embedded Technologies

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

Sarath Technologies

22/02/2023
Coimbatore

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. U. HARSHAVARSHINI , 19BEE4024** , Final Year B.E.EEE , M.Kumarasamy College of Engineering, Thalavapalayam, Karur - 639113. Has successfully completed a internship in our company from 01/02/2023 to 21/02/2023.

During the period of her internship program with us she had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish her every success in her life and career.

Authorized signatory

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

352/210, Ooty Main Road, Jothipuram, Coimbatore-641047, Tamilnadu, India.
Email: sarathtechnologies@gmail.com | Mobile: 9585548922 / 9790331648 | GSTIN: 33GHPS8801C1ZW

Sarath Technologies

06/03/2023
Coimbatore

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. S.B. JAYAKIRUTHIKA , 19BEE4028** , Final Year B.E.EEE , M.Kumarasamy College of Engineering, Thalavapalayam, Karur - 639113. Has successfully completed a internship in our company from 01/02/2023 to 04/03/2023.

During the period of her internship program with us she had been exposed to different processes and was found diligent, hardworking and inquisitive.

We wish her every success in her life and career.

Authorized signatory

PRINCIPAL,
M. Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

352/210, Ooty Main Road, Jothipuram, Coimbatore-641047, Tamilnadu, India.
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HR : 04324 - 277273 Cell : 94860 41341 to 41343

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HR/31/23/INT/EEE/2023/01/05 February 9, 2023

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Department : B.E (EEE)

Name of the Institution : M. Kumarasamy College of Engineering Thalavapalayam, Karur

Departments in Which Undergone Internship Training : Paper Machine, Pulp Mill, Soda Recovery & Energy

Internship Training Duration : From: 19.01.2023 To: 03.02.2023. (Excluding Weekly Off)

PRINCIPAL,
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KARUR - 639 113

MANAGER - HR 7/2/23

J.VENKATESAN
Manager - HR
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Contact: 9843064700
Gmail : karursakthielectronics@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that (B.KARTHIKEYAN-REG NO: 20BEE4310)ELECTRICAL AND ELECTRONICS ENGINEERING – Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organization from (09 –JAN-2023 TO 09-FEB-2023).

During the period of his internship programme with us he was found punctual and hardworking

DATE: 08-02-2023

AUTHORISED SIGNATORY

Sakthi Electricals and Electronics

29,Suresh complex,1st Floor, Old Bye-Pass Road, Karur-639 001

Contact: 9843064700
Gmail : karursakthielectronics@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that (M.DEENADHAYALAN-REG NO: 20BEE4304)ELECTRICAL AND ELECTRONICS ENGINEERING – Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organization from (09 –JAN-2023 TO 09-FEB-2023).

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DATE: 08-02-2023

AUTHORISED SIGNATORY

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Sakthi Electricals and Electronics

29,Suresh complex,1st Floor, Old Bye-Pass Road, Karur-639 001

Contact: 9843064700
Gmail : karursakthielectronics@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that (P.KAVIYARASAN-REG NO: 20BEE4312)ELECTRICAL AND ELECTRONICS ENGINEERING – Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organization from (09 –JAN-2023 TO 09-FEB-2023).

During the period of his internship programme with us he was found punctual and hardworking

DATE: 08-02-2023

AUTHORISED SIGNATORY

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Sakthi Electricals and Electronics

29,Suresh complex,1st Floor, Old Bye-Pass Road, Karur-639 001

Contact: 9843064700
Gmail : karursakthielectronics@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that (V.KARTHICK-REG NO: 20BEE4309)ELECTRICAL AND ELECTRONICS ENGINEERING – Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organization from (09 –JAN-2023 TO 09-FEB-2023).

During the period of his internship programme with us he was found punctual and hardworking

DATE: 08-02-2023

AUTHORISED SIGNATORY

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THALAVAPALAYAM,
KARUR - 639 113

Sakthi Electricals and Electronics

29,Suresh complex,1st Floor, Old Bye-Pass Road, Karur-639 001

Contact: 9843064700

Gmail : karursakthielectronics@gmail.com

TO WHOM IT MAY CONCERN

This is to certify that (S.BARATH-REG NO: 20BEE4302)ELECTRICAL AND ELECTRONICS ENGINEERING – Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organization from (09 –JAN-2023 TO 09-FEB-2023).

During the period of his internship programme with us he was found punctual and hardworking

DATE: 08-02-2023

AUTHORISED SIGNATORY

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THALAVAPALAYAM,
KARUR - 639 113

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Web:http://www.popularsystems.net

TIN No : 3318225595
CST No : 859259
Area Code : 106
GSTIN : 33AMBPK2864K1Z1
Dated : 26.06.2017

To whomever it may concern

This is to certify that (S.P.KAVINKUMAR-REGNO: 20BEE4034) ELECTRICAL AND ELECTRONICS ENGINEERING - Third year from (M.Kumarasamy College of Engineering) has undergone Internship in our organisation from 12th August 2022 to 28th September 2022. During the period of his internship programme with us he was found punctual and hardworking.

PRINCIPAL,
M.Kumarasamy College of Engineering,
THALAVAPALAYAM,
KARUR - 639 113

Authorized signatory

Criterion 1: Curricular Aspects

1.3 Curriculum Enrichment

1.3.4.1: Number of students undertaking field projects / internships / student projects

Programme Name: B.E Electrical and Electronics Engineering.

Field Projects/Student Projects Proof

DESIGN AND IMPLEMENTATION OF SMART INVERTER USING POWER ELECTRONIC DEVICES

A PROJECT REPORT

Submitted by

DEEPIKA M	(19BEE4008)
GOWTHAM P	(19BEE4021)
KARTHIKEYAN P	(19BEE4034)
KEERTHANA A V	(19BEE4038)

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

ELECTRICAL AND ELECTRONICS ENGINEERING

M. KUMARASAMY COLLEGE OF ENGINEERING, KARUR

(Autonomous Institution affiliated to Anna University, Chennai)

ANNA UNIVERSITY : CHENNAI 600 025

DECEMBER 2022

M.KUMARASAMY COLLEGE OF ENGINEERING

(Autonomous Institution affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this project report "**DESIGN AND IMPLEMENTATION OF SMART INVERTER USING POWER ELECTRONIC DEVICES**" is the bonafide work of **"DEEPIKA M (19BEE4008), GOWTHAM P (19BEE4021), KARTHIKEYAN P (19BEE4034), KEERTHANA A V (19BEE4038)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

Dr.C.KUMAR M.E.,Ph.D.,

HEAD OF THE DEPARTMENT

Department of Electrical and Electronics Engineering,

M.Kumarasamy College of Engineering,

Thalavapalayam, Karur-639113.

SIGNATURE 12/12/2022

Dr.M.LAKSHMANAN M.Tech.,Ph.D.,

SUPERVISOR

Department of Electrical and Electronics Engineering,

M.Kumarasamy College of Engineering,

Thalavapalayam, Karur-639113.

This Project Work - I (18EEP401L) report has been submitted for the End Semester Project Viva Voce Examination held on 13-12-2022

INTERNAL EXAMINER

13/12/2022

EXTERNAL EXAMINER

ABSTRACT

In solar PV systems, when the batteries are directly connected to the PV modules there is no protection against overcharging. To overcome this problem, charge controllers are used. PWM charge controllers are less efficient since they do not operate at maximum power. In this system, an MPPT based charge controller is suggested to increase the efficiency. The proposed work aims to simulate a smart inverter using the MPPT technique to extract the maximum power from a photovoltaic panel in order to quickly charge the battery. PWM controllers have the more basic charging feature with an efficiency of 75 to 80%. The MPPT charge controller determines the maximum operating point of the solar panel and it has an efficiency of 94 - 99%. The MPPT charge controller is superior in terms of battery charging and total harmonic distortion when compared to PWM charge controller. The Perturb & Observe MPPT method is used in the proposed system because of its simple algorithm and ease of implementation.

TABLE OF CONTENTS

CHAPTER 7

CONCLUSION

7.1 CONCLUSION

The charging voltage of MPPT is more than the PWM controller's charging voltage. Thus, the system which uses MPPT charge controller, quickly charges the battery. Total Harmonic Distortion is less in MPPT based smart inverter than the system which uses PWM charge controller. While using MPPT, the State Of Charge(SOC) of the battery decreases slowly which in-turn decreases fastly while using PWM controller. MPPT controller has obtained the maximum power from the PV module and delivered the maximum voltage to the battery. The smart inverter with MPPT charge controller was simulated successfully. This MPPT charge controller has protected the battery from overcharging by comparing the charging voltage and battery voltage by using the P&O algorithm which has voltage sensor and measured these voltages continuously for finding the peak power point. The maximum operating point of the solar panel was determined by this controller with an efficiency of around 96%. MPPT charge controller is proved to be superior to PWM charge controller in-terms of Battery charging voltage, its SOC and Total Harmonic Distortion.

7.2 FUTURE SCOPE

In this system, P&O algorithm is used among different MPPT algorithms. In future, different MPPT methods such as Incremental Conductance, Fractional Short Circuit Current, Fractional Open Circuit Voltage, Neural Networks and Fuzzy Logic can be implemented.

DESIGN OF MULTIMODEL CHARGER WITH CONSTANT VOLTAGE/CONSTANT CURRENT CONTROL FOR ELECTRIC VEHICLES

A PROJECT REPORT

Submitted by

GOGUL S	**(19BEE4016)**
HARI ADITHYAN K	**(19BEE4022)**
HEERA SREE D	**(19BEE4025)**
KUMARESAN E	**(19BEE4042)**

In partial fulfillment for the award of degree

of

BACHELOR OF ENGINEERING

in

ELECTRICAL AND ELECTRONICS ENGINEERING

M. KUMARASAMY COLLEGE OF ENGINEERING, KARUR

(Autonomous Institution affiliated to Anna University, Chennai)

ANNA UNIVERSITY: CHENNAI 600 025

DECEMBER 2022

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BONAFIDE CERTIFICATE

Certified that this project report **"DESIGN OF MULTIMODEL CHARGER WITH CONSTANT VOLTAGE/CONSTANT CURRENT FOR ELECTRIC VEHICLES"** is the bonafide work of **"GOGUL S (19BEE4016), HARI ADITHYAN K (19BEE4022), HEERA SREE K (19BEE4025), KUMARESAN E (19BEE4042)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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EXTERNAL EXAMINER

ABSTRACT

The proposed Universal EV charging station, which is based on the concept on the concept of Step down DC/DC convertor. It consists of three conversion stages. They are the transformer less active front varying the duty-cycle of PWM and Step down chopper or Buck converter based dc/dc converters. The multi model electric vehicle charger is need to have different output voltages for charging the different model vehicles. Electric vehicles are now becoming mainstream transportation. But the charging stations available for electric vehicles are very low. So many reasons are affecting the implementation of charging stations. The most important factor was the battery voltage of an electric vehicle. That is the main thing because in the electric vehicle market so many brands are involved, to make the electric vehicle efficient and better performing that the voltage and capacity of the battery will be designed by the engineers depending upon the needs of the vehicle models. So, many vehicles are having their unique voltage levels of charging If the charging station will be implemented means that need to have all the charging voltage levels for charging the different brands. In one brand also there are different models of vehicles are having different voltages of batteries. So, the charging station that provides the single voltages is not enough to handle this problem. Because the charging circuit can provide a single output voltage means the charging station needs to have many circuits like that for compensating the need. By proposing a chargerthat can be used for the charging of all the brands and all the models of electric vehicles so the one circuit will be the solution for all these problems. By implementing this idea in the charging stations means it will make a huge difference in the design of the electric vehicle charger. This one circuit will replace the number of single voltage-providing circuits so this project can increase the number of charging ports to charge the vehicle batteries simultaneously.

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7.1 CONCLUSION

Electric vehicle voltages are vary from brand to brand for example in HERO electric, AVON electric are having the different models of vehicles in same brand itself having a different battery voltages like 24v, 48v, 72v batteries.

Standardize the manufacturer's production of vehicle models was possible, but the different capacity vehicles are available in the market. That are selecting a batteries based on the various factors so it can't done by the single voltage or output power of an battery. So Implementing this project we can have the availability of the charging stations within a small area that can charge the various models of vehicle.

An universal output voltage is achieved which is suitable for wide range of electric vehicles. By implementing this charging infrastructure it will be the revolutionary thing in the Electric Vehicle market. So the charging station can be implemented in the any places easily because of the very less space is enough for the charging station. Multiple output voltages with the very efficient way of voltage control is the benefit of this system. The destination of the project is to get an variable output voltage at the stable level with low ripple in the output. It was achieved by this converter in an efficient manner.

DESIGN AND IMPLEMENTATION OF NON-INVASIVE TECHNIQUE BLOOD GLUCOSE AND CHOLESTEROL DETECTION USING MACHINE LEARNING

A PROJECT REPORT

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ABSTRACT

In the present world, diabetes and cholesterol is one of the common factors for the diseases. Diabetic person need to keep track of their blood glucose level and measure it regularly to determine their insulin dose intake and to ensure that glucose level is always within the normal range. This is implemented by an invasive method which involves finger pricking with the thin lancet and it is painful. If this become a daily routine it causes blood related infections, trauma and many diseases like Hepatitis B, Hepatitis C, AIDS, etc. To overcome these problems, the proposed project brings out an idea of measuring glucose and cholesterol levels without the need of blood samples or involving contact. This is implemented by using NIR sensor and Raspberry pi . The patient's finger is placed on the NIR sensor which is used for the measurement of glucose and cholesterol. To provide rapid and accurate glucose and cholesterol levels, this a simple, portable and non-invasive method. The wavelength of NIR sensor is longer than the visible light ranges from 700nm-1400nm on electromagnetic spectrum. Based on the NIR sensor, values are fed to the Raspberry pi. With the help of the machine learning algorithm dumped in the Raspberry pi, the values of glucose and cholesterol are calculated. Data are collected from the receiving circuit and sent to a micro controller, then exporting it to Excel Sheet, in which mean values and graphs are obtained.

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7.1 CONCLUSION

This project presents a machine learning models for both blood glucose and cholesterol measurement using non-invasive technique.The non invasive glucose and cholesterol measurement are using NIR sensor has more efficient than the invasive method. NIR sensor is highly sensitive and able to detect very low concentration of glucose and cholesterol measurement. This non-invasive method will measure the parameters without blood samples. This method is more comfortable for continuous monitoring of glucose for the diabetic patients, pregnant ladies and children admitted in ICU and this system is also more comfortable for cholesterol measurement than invasive method. The test results showed that the application system to measure both blood glucose and cholesterol levels functioned properly. Using this system people can measure glucose and cholesterol by their own without hospital or testing lab support. The main advantage of this system is portable because the measured data sent to the cloud, so it can be accessed anywhere by using personal computer or mobile phone. This non-invasive method can be improved for better results and its usage by making it effective, environmental and user friendly. This module can also be improved by measuring other parameters like pulse rate, oxygen saturation level, body temperature and heart beat. Future advancement of this project can be done in storing and transferring the data to respective doctor using cloud computing.

7.2 FUTURE SCOPE

This non invasive technique measures both glucose and cholesterol. But in future by using advanced algorithm in Raspberry pi it paves the way to measure some additional parameters like temperature, heartbeat, pressure, etc... This tends to transform as a medical kit by measuring many parameters in a single kit.

HIGH GAIN DC – DC CONVERTER FOR PV APPLICATIONS

A PROJECT REPORT

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ABSTRACT

The increasing demand for electricity has pushed more effort to focus on renewable energy sources to satisfy the consumer. All industries are producing power for their own purposes using renewable energy sources, because it is endless and environmentally beneficial. Solar energy is one of the most significant renewable energy sources. It has been utilized to provide light, heat, and electricity. The main drawbacks of solar cells are their high initial cost, poor photo-conversion efficiency, and intermittent nature. The voltage generated by the solar cell is not sufficient for any consumer load and it is also variable. Herein, to improve photovoltaic (PV) system efficiency, Maximum Power Point Tracker (MPPT) is designed for harvesting the maximum power available from the PV system under given insolation and temperature conditions. Among different MPPT techniques, perturb and observe (P&O) technique gives excellent results and thus is used. This work involves the design of MPPT controller using DC-DC boost converter. It is necessary to implement DC-DC converter for regulating and improving the output voltage of the solar panel with reduced duty cycle and low output voltage ripple. This increases the efficiency of the converter. The results show that the designed MPPT controller improves the efficiency of the PV panel when compared to conventional boost controllers. The conventional boost converter has many limitations such as high switching loss, high input current ripple, high output voltage ripple and low efficiency. Hence, to overcome these issues, some high gain converter topologies are being employed for PV systems.

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7.1 CONCLUSION

The renewable energy sources are used to produce power without initial cost. In that renewable energy sources, the solar energy plays a major role in power production. To harvest maximum power from a PV module, MPPT based on optimized P&O algorithm is implemented in this project. The circuit is a combination of quadratic boost converter and switched inductor cell in which we have replaced the diode into boost capacitor for high voltage gain. The PV panel acts as an input for a high gain DC-DC converter which produces less voltage ripple with the high voltage gain compared to the other conventional topologies discussed. The result of our simulation shows that the proposed system is more efficient than the conventional design. The major goal of this design is to get a high voltage gain with a low ripple and reduced duty cycle. Thus, increasing the efficiency of the converter. Hence, the proposed high gain DC-DC converter is suitable for PV applications.

7.2 FUTURE SCOPE

- This project work would create new possibilities for forth coming studies on non-isolated high gain dc to dc converters.
- The proposed circuit can be tested with intelligent controllers to enhance its performance

WIRELESS POWER TRANSFER FOR CHARGING ELECTRIC VEHICLE

A PROJECT REPORT

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ABSTRACT

Remote power move is the transmission of electrical energy without wires as a genuine affiliation. Remote power includes comparative fields and waves as remote contraptions. Different radiofrequency (RF) progressions are used for remote power transmission. Variable repeat unbalanced heartbeat width change (VFAPWM) is comprehensively used in remote power move (WPT) structures to control how much power moved. This control plot is furthermore embraced in Qi, one of the world's most eminent remote charging rules. Generally, Examination of WPT systems relies upon first music gauge (FHA), which simply contemplates the urgent symphonious signs. This could be mistaken for variable repeat upside down beat width directed WPT structures .on the grounds that VFAPWM naturally makes various sounds. In this paper another coherent system, called various music assessment (MHA), is made to analyze series compensated WPT structures. The MHA procedure is a thorough arrangement foundation and gives a lot of closed structure deals with expect sums, for instance, zero-voltage trading (ZVS) and voltage gain. New eccentricities in ZVS and voltage gain are found. The precision of MHA is moreover certified by both amusement and preliminary assessment.

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7.1 CONCLUSION

This paper summarizes a new analysis process for the computation of wireless charging technology and its performance as documented at the ORNL during the execution of a technology demonstration project funded by the U.S. DOE. The approach taken is novel in that primary side power regulation is selected and developed with the aim to minimize vehicle on board complexity, size, and cost while retaining key scalability features considered necessary to meet future higher power WPT applications .The specific analysis methodology employed develops beyond the power electronic fundamentals used to compute the electric current flow from an ac source through a line inductance into a fixed dc voltage load, such as a battery, via a diode rectifier

For the secondary, the analysis parallels that of a utility network or a micro grid in which reactive power compensation is utilized for voltage control, which in a WPT system, is the voltage appearing at the input of the full-wave rectifier. The primary side of the coupler on the other hand is treated as the center frequency selectivity stage needed to ensure that a high mutual flux is developed, that in turn facilitates power transmission.

A high productivity remote power move framework for electric vehicle charging application is proposed. Framework setup and plan contemplations were examined and talked about exhaustively. The famous sustainable wellsprings of energy, sun-based energy source is separately demonstrated and afterward joined to address a disseminated age framework in the Simulink model.

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This project work – I (18EEP401L) has been submitted for the End Semester Project viva voce Examination held on 13/12/2022

13/12/22

INTERNAL EXAMINER

13/12/2022

EXTERNAL EXAMINER

OPTIMUM INTEGRATION OF FUEL CELL WITH BATTERY ENERGY STORAGE SYSTEM FOR EV APPLICATIONS

A PROJECT REPORT

Submitted by

PAVITHRA P	**(19BEE4058)**
PRAKASH N	**(19BEE4059)**
REVAN P	**(19BEE4063)**
SOBIKA P	**(19BEE4082)**

in partial fulfillment for the award of

degree of

BACHELOR OF ENGINEERING

in

ELECTRICAL AND ELECTRONICS ENGINEERING

M. KUMARASAMY COLLEGE OF ENGINEERING, KARUR
(Autonomous Institution affiliated to Anna University, Chennai)

ANNA UNIVERSITY: CHENNAI 600 025

DECEMBER 2022

M.KUMARASAMY COLLEGE OF ENGINEERING

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BONAFIDE CERTIFICATE

Certified that this project report **"OPTIMUM INTEGRATION OF FUEL CELL WITH BATTERY ENERGY STORAGE SYSTEM FOR EV APPLICATIONS"** is the bonafide work of **"PAVITHRA P (19BEE4058), PRAKASH N (19BEE4059), REVAN P (19BEE4063), SOBIKA P (19BEE4082)"** who carried out the project work during the academic year **2022- 2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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This project work – I (18EEP401L) has been submitted for the End Semester Project viva voice Examination held on 15-12-2022

15/12/22

INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

We affirm that the Project report titled **"OPTIMUM INTEGRATION OF FUEL CELL WITH BATTERY ENERGY STORAGE SYSTEM FOR EV APPLICATIONS"** being submitted in partial fulfillment for the award of **Bachelor of Engineering** in **Electrical and Electronics Engineering**, is the original work carried out byus. It has not formed the part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

		Signature
PAVITHRA P	(19BEE4058)	
PRAKASH N	(19BEE4059)	
REVAN P	(19BEE4063)	
SOBIKA P	(19BEE4082)	

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Dr.S.JAISIVA M.E., Ph.D.,

(Supervisor)

IMPLEMENTATION OF PV INTEGRATED POWER QUALITY ENHANCEMENT AND PERFORMANCE ANALYSIS OF BATTERY OPERATED ELECTRIC VEHICLE USING BOOST CONVERTER

A PROJECT REPORT

Submitted by

SARANKUMAR M	**(19BEE4073)**
SHARANSHARVESH S	**(19BEE4076)**
SIVAKUMAR S M	**(19BEE4078)**
SRIDHARANI S	**(19BEE4086)**

in partial fulfillment for the award of degree

of

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Certified that this project report **"IMPLEMENTATION OF PV INTEGRATED POWER QUALITY ENHANCEMENT AND PERFORMANCE ANALYSIS OF BATTERY OPERATED ELECTRIC VEHICLE USING BOOST CONVERTER"** is the bonafide work of **"SARANKUMAR M (19BEE4073), SHARANSHARVESH S (19BEE4076), SIVAKUMAR S M (19BEE4078), SRIDHARANI S (19BEE4086)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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INTERNAL EXAMINER

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DECLARATION

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		SIGNATURE
SARANKUMAR M	(19BEE4073)	
SHARANSHARVESH S	(19BEE4076)	
SIVAKUMAR S M	(19BEE4078)	
SRIDHARANI S	(19BEE4086)	

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Mr.M.Hariprabhu M.E.,

(Supervisor)

IMPLEMENTATION OF SOLAR POWER CONVERTER BASED BATTERY MANAGEMENT SYSTEM FOR ELECTRIC VEHICLE

A PROJECT REPORT

Submitted by

SUBHASHINI M	**(19BEE4088)**
VIGNESH C	**(19BEE4099)**
MALATHI P	**(19BEE4304)**
PRADEEP G	**(19BEE4305)**

in partial fulfillment for the award of degree

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DECEMBER 2022

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BONAFIDE CERTIFICATE

Certified that this project report **"IMPLEMENTATION OF SOLAR POWER CONVERTER BASED BATTERY MANAGEMENT SYSTEM FOR ELECTIC VEHICLE"** is the bonafide work of **"SUBHASHINI M (19BEE4088), VIGNESH C (19BEE4099), MALATHI P (19BEE4304), PRADEEP G (19BEE4305)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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DECLARATION

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		Signature
SUBHASHINI M	(19BEE4088)	
VIGNESH C	(19BEE4099)	
MALATHI P	(19BEE4304)	
PRADEEP G	(19BEE4305)	

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Mr.A.UDHAYA KUMAR M.E.,

(Supervisor)

MULTI INPUT RENEWABLE PORT SELECTION WITH ENERGY MANAGEMENT SYSTEM USING INTERNET OF THINGS

A PROJECT REPORT

Submitted by

MONISHA B	**(19BEE4052)**
NAGUL A	**(19BEE4053)**
NAVEEN C	**(19BEE4055)**
SAKTHINITHESH A	**(19BEE4067)**

in partial fulfillment for the award of degree

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Certified that this project report **"MULTI INPUT RENEWABLE PORT SELECTION WITH ENERGY MANAGEMENT SYSTEM USING INTERENT OF THINGS"** is the bonafide work of **"MONISHA B (19BEE4052), NAGUL A (19BEE4053), NAVEEN C (19BEE4055), SAKTHINITHESH A (19BEE4067)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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		Signature
MONISHA B	(19BEE4052)	
NAGUL A	(19BEE4053)	
NAVEEN C	(19BEE4055)	
SAKTHINITHESH A	(19BEE4067)	

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Dr.R.KARTHIKEYAN, M.E., Ph.D.,

(Supervisor)

SENSOR BASED HOTSPOT DETECTION AND ISOLATION IN SOLAR ARRAY SYSTEM USING IOT

A PROJECT REPORT

Submitted by

NANTHAKUMAR J	**(19BEE4054)**
NAVEEN S	**(19BEE4056)**
PRAVEENKUMAR V	**(19BEE4060)**
SANJAY S	**(19BEE4070)**

in partial fulfillment for the award of degree

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BONAFIDE CERTIFICATE

Certified that this project report **"SENSOR BASED HOTSPOT DETECTION AND ISOLATION IN SOLAR ARRAY SYSTEM USING IOT"** is the bonafide work of **"NANTHAKUMAR J (19BEE4054), NAVEEN S (19BEE4056), PRAVEENKUMAR V (19BEE4060), SANJAY S (19BEE4070)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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This project work – I (18EEP401L) has been submitted for the End Semester Project viva voce Examination held on 15.12.2022

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EXTERNAL EXAMINER

DECLARATION

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Signature

NANTHAKUMAR J (19BEE4054) Nanthakumar.J

NAVEEN S (19BEE4056) S.Navi

PRAVEENKUMAR V (19BEE4060) Praveen kumar V

SANJAY S (19BEE4070) Sanjay.S

I certify that the declaration made above by the candidates is true to the best of my knowledge.

14/12/22

Mr.AL.Chockalingam M.Tech.,

(Supervisor)

OPTIMIZING THE THERMAL OPERATION OF LITHIUM-ION BATTERY PACKS USING CELL TO CELL VARIATION

A PROJECT REPORT

Submitted by

NIVISS K	**(19BEE4057)**
PRIYANKA P	**(19BEE4062)**
REVANTH T	**(19BEE4064)**
SABARISH S	**(19BEE4065)**

in partial fulfillment for the award of degree

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Certified that this project report **"OPTIMIZING THE THERMAL OPERATION OF LITHIUM-ION BATTERY PACKS USING CELL TO CELL VARIATION"** is the bonafide work of "NIVISS K (19BEE4057), PRIYANKA P (19BEE4062), REVANTH T (19BEE4064), SABARISH S (19BEE4065)" who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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This project work – I (18EEP401L) has been submitted for the End Semester Project viva voce Examination held on 15.12.2022

INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

We affirm that the Project report titled **"OPTIMIZING THE THERMAL OPERATION OF LITHIUM-ION BATTERY PACKS USING CELL TO CELL VARIATION"** being submitted in partial fulfillment for the award of **Bachelor of Engineering** in **Electrical and Electronics Engineering**, is the original work carried out by us. It has not formed the part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

		Signature
NIVISS K	(19BEE4057)	
PRIYANKA P	(19BEE4062)	
REVANTH T	(19BEE4064)	
SABARISH S	(19BEE4065)	

I certify that the declaration made above by the candidates is true to the best of my knowledge.

13/12/22

Dr. K. Sundararaju, M.E., Ph.D.,

(Supervisor)

ANALYSIS AND IMPLEMENTATION OF POWER QUALITY FILTER IN A DRIVE CONTROL CENTRE

A PROJECT REPORT

Submitted by

SAHUL HAMEED M	**(19BEE4066)**
SIVASANKAR P	**(19BEE4079)**
SNEKA E	**(19BEE4081)**
VELMURUGAN B	**(19BEE4098)**

in partial fulfillment for the award of degree

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BONAFIDE CERTIFICATE

Certified that this project report **"ANALYSIS AND IMPLEMENTATION OF POWER QUALITY FILTER IN A DRIVE CONTROL CENTRE"** is the bonafide work of **"SAHUL HAMEED M (19BEE4066), SIVASANKAR P (19BEE4079), SNEKA E (19BEE4081), VELMURUGAN B (19BEE4098)"** who carried out the project work during the academic year **2022 – 2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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DECLARATION

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SIGNATURE

SAHUL HAMEED M	(19BEE4066)	M. Sahulhameed
SIVASANKAR P	(19BEE4079)	P. Sivasankar
SNEKA E	(19BEE4081)	E. Sneka
VELMURUGAN B	(19BEE4098)	B. Velmurugan

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Mrs.P.Sasirekha, M.E.,

(Supervisor)

IOT BASED SMART COMMUNICATION SYSTEM FOR ACCIDENT PREVENTION

A PROJECT REPORT

Submitted by

SAMPATH M	**(19BEE4068)**
SETHU MADHAVAN J	**(19BEE4075)**
SHARMITHA T	**(19BEE4077)**
SRI MUGESH D	**(19BEE4085)**

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Certified that this project report **"IOT BASED SMART COMMUNICATION SYSTEM FOR ACCIDENT PREVENTION"** is the bonafide work of **"SAMPATH M (19BEE4068), SETHU MADHAVAN J (19BEE4075), SHARMITHA T (19BEE4077), SRI MUGESH D (19BEE4085)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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		Signature
SAMPATH M	(19BEE4068)	M.Sampath
SETHU MADHAVAN J	(19BEE4075)	J.Sethu madhavan
SHARMITHA T	(19BEE4077)	T.Sharmitha
SRI MUGESH D	(19BEE4085)	D.Sri

I certify that the declaration made above by the candidates is true to the best of my knowledge.

N. Selvam

Mr.N.SELVAM M.E.,

(Supervisor)

MULTIOBJECTIVE OPTIMIZATION OF PHOTOVOLTAIC BATTERY SYSTEM SIZING FOR GRID CONNECTED RESIDENTIAL PROSUMERS UNDER TIME-OF-USE TARIFF STRUCTURE

A PROJECT REPORT

Submitted by

SANTHOSHKUMAR R	**(19BEE4072)**
SOUNDARA RAJ R	**(19BEE4083)**
SREERAM BHALAJI N	**(19BEE4084)**
SURYA S	**(19BEE4092)**

in partial fulfillment for the award of degree of

of

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DECEMBER 2022

M.KUMARASAMY COLLEGE OF ENGINEERING

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BONAFIDE CERTIFICATE

Certified that this project report **"MULTIOBJECTIVE OPTIMIZATION OF PHOTOVOLTAIC BATTERY SYSTEM SIZING FOR GRID CONNECTED RESIDENTIAL PROSUMERS UNDER TIME-OF-USE TARRIFF STRUCTURE"** is the bonafide work **of "SANTHOSH KUMAR R (19BEE4072), SOUNDARA RAJ R (19BEE4083), SREERAM BHALAJI N (19BEE4084), SURYA S (19BEE4092)"** who carried out the project work during the academic year **2022- 2023** under my supervision.Certified further,that to best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

SIGNATURE

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EXTERNAL EXAMINER

DECLARATION

We affirm that the Project report titled **"MULTIOBJECTIVE OPTIMIZATION OF PHOTOVOLTAIC BATTRY SYSTEM SIZING FOR GRID CONNECTED RESIDENTIAL PROSUMERS UNDER TIME-OF-USE TARRIFF STRUCTURE"** being submitted in partial fulfillment for the award of **Bachelor of Engineering** in **Electrical and Electronics Engineering,** is the original work carried out by us. It has not formed the part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Signature

SANTHOSH KUMAR R (19BEE4072) _____

SOUNDARA RAJ R (19BEE4083) _____

SREE RAM BHALAJI N (19BEE4084) _____

SURYA S (19BEE4092) _____

I certify that the declaration made above by the candidates is true to the best of my knowledge.

Dr.C.KUMAR M.E., Ph.D.,

(Supervisor)

DESIGN AND IMPLEMENTATION OF SOLAR POWERED BATTERY AND DIESEL GENERATOR OF ELECTRIC VEHICLE CHARGING STATION USING HYBRID INTELLIGENT CONTROLLER.

A PROJECT REPORT

Submitted by

SARAVANA KUMAR S S	**(19BEE4074)**
SWATHI R	**(19BEE4093)**
VIGNESH S	**(19BEE4100)**
VIMAL P	**(19BEE4101)**

in partial fulfillment for the award of degree

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Certified that this project report "**DESIGN AND IMPLEMENTATION OF SOLAR POWERED BATTERY AND DIESEL GENERATOR OF ELECTRIC VEHICLE CHARGING STATION USING HYBRID INTELLIGENT CONTROLLER**" is the bonafide word of "**SARAVANA KUMAR S S (19BEE4074), SWATHI R (19BEE4093), VIGNESH S (19BEE4100), VIMAL P (19BEE4101)**" who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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DESIGN AND IMPLEMENTATION OF SOLAR BASED MPPT POWER TRACKING USING MACHINE LEARNING

A PROJECT REPORT

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CUK CONVERTER INTEGRATED WITH ENERGY STORAGE SYSTEM

A PROJECT REPORT

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POWER SYSTEM FREQUENCY STABILISER FOR MODERN POWER SYSTEMS

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SMART ENERGY METER AUDITING WITH POWER DEMAND CONTROLLER USING INTERNET OF THINGS

A PROJECT REPORT

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INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

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SMART INVERTER

A PROJECT REPORT

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INTERNAL EXAMINER

EXTERNAL EXAMINER

ABSTRACT

The proposed work aims to design a smart inverter in which AC loads as well as DC loads are powered up from the solar power system. AC loads are powered from the circuit with the help of H-Bridge inverter and step-up transformer. This system is denoted as smart inverter since IoT features will be added to monitor the panel output voltage, battery output voltage and State of Charge of the battery. The solar panel absorbs the sunlight and produces electricity by photovoltaic effect. The voltage obtained from the panel is denoted as solar voltage. Since the solar output is a fluctuating one, it will be stored in the battery to obtain continuous power supply. The output from the 12V lithium ion battery will be given to the power supply board which acts a voltage regulator. The regulated voltage from the power supply board will be used to power up the DC load which is Brushless DC motor in this case and also the supply from battery will be provided to inverter circuit to convert DC voltage to AC voltage and then the AC voltage will be step-up with the help of step-up tranformer and it will be utilised to power up the AC load which is 15W bulb. This circuit includes arduino controller in which all the codes are embedded to display some of the parameters like solar voltage, battery voltage and battery's SOC in the LCD display. To view these parameters in our mobile application through IoT, NodeMCU which is an IoT interface module will be used in the circuit.

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8.1 CONCLUSION

In the proposed work, the smart inverter has been implemented. In Hardware system, the solar panel absorbed the sunlight and produced electricity by photovoltaic effect. In order to get a continuous power supply, the solar output has been stored in the battery source. The 12V lithium ion battery has been used in the circuit. The battery voltage is provided as input to the power supply board and two different voltages of 5V and 12V are obtained as output from the board. 5V output from the power supply board is used to provide power supply to the voltage sensors and LCD display. 12V output provides power to the DC load which is Brushless DC motor. The supply from battery has been provided to H-Bridge inverter circuit which converts DC voltage to AC voltage. The AC output of inverter circuit is utilised to power up the 15W bulb which is a AC load in this system. The arduino controller is used in this system in which the codes are embedded to display some of the parameters like solar voltage, battery voltage and battery's SOC in the LCD display. NodeMCU, which is an IOT interface has been used to receive the details of those parameters from the arduino controller and display these parameters in the mobile with the help of blynk IoT application.

8.2 FUTURE SCOPE

In this system, P&O algorithm is used among different MPPT algorithms. In future, different MPPT methods such as Incremental Conductance, Fractional Short Circuit Current, Fractional Open Circuit Voltage, Neural Networks and Fuzzy Logic can be implemented.

MULTIMODEL CHARGER FOR LITE ELECTRIC VEHICLES

A PROJECT REPORT

Submitted by

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INTERNAL EXAMINER

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ABSTRACT

The proposed multi-model EV charging station, which is based on the concept on the concept of Step-down DC/DC converter. The active front varying the duty-cycle of PWM and Step-down chopper or Buck converter-based dc/dc converters. The multi model electric vehicle charger is need to have different output voltages for charging the different model vehicles. Electric vehicles are now becoming main stream transportation. But the charging stations available for electric vehicles are very low. So many reasons are affecting the implementation of charging stations. The most important factor was the battery voltage of an electric vehicle.

That is the main thing because in the electric vehicle market so many brands are involved, to make the electric vehicle efficient and better performing that the voltage and capacity of the battery will be designed by the engineers depending upon the needs of the vehicle models. So many vehicles are having their unique voltage levels of charging If the charging station will be implemented means that need to have all the charging voltage levels for charging the different brands. In one brand also there are different models of vehicles are having different voltages of batteries.

So the charging station that provides the single voltages is not enough to handle this problem. Because the charging circuit can provide a single output voltage means the charging station needs to have many circuits like that for compensating the need. By proposing a charger that can be used for the charging of all the brands and all the models of electric vehicles so the one circuit will be the solution for all these problems.

By implementing this idea in the charging stations means it will make a huge difference in the design of the electric vehicle charger. This one circuit will replace the number of single voltage-providing circuits so this project can increase the number of charging ports to charge the electric vehicle batteries.

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CHAPTER 8

CONCLUSION

8.1 CONCLUSION

Electric vehicle voltages are vary from brand to brand for example in HERO electric, AVON electric are having the different models of vehicles in same brand itself having a different battery voltages like 24v, 36v, 48v batteries.

Charging stations for lite electric vehicles are need to be installed in the places where the people are gathering and spending long time on the places but the different battery voltages and battery capacity makes it harder. Our implemented multi model charger will provide the very large range of output voltages to charge the different type of batteries used in the different model lite electric vehicles.

Implementing this charging circuit it will satisfy the drivers and manufactures in the Electric Vehicle market. This project implemented in the closed loop control method so the battery terminal voltage was monitored simultaneously when charging the battery so the charging depends on the capacity and voltage of the battery. So the battery life and chargingcycle will be high than the traditional charging methods. This charger can be used for the Lead Acid batteries and Li-ion battery based vehicles. Over voltage or over temperature conditions are occurred then the charging circuit will be isolated from EV it was an add-on advantage for this charger because safety and protection are the essential part of the EV charging stations.

7.1 FUTURE SCOPE

The future potential of electric vehicles is enormous. The world is moving away from the traditional gasoline-powered car. Electric vehicles (EV), a punch line for many car enthusiasts as recently as ten years ago, have never been more popular. In 2010, there were just 17,000 electric vehicles on the road worldwide. Fast forward to 2019, and that number increased to 7.2 million electric vehicles in use-including 1.4 million in the U.S. The trend toward electric cars has become so powerful that California and 11 other states have signed on to a program to ban the sale of new internal combustion vehicles by 2035.The charging stations for electric vehicles offer a way in which pollution can be reduced and also help to create jobs in regions where employment is little. If people in small cities start using an electric vehicle then they face the challenge of charging stations. Already seen that technology for these vehicles is here and becoming far more advanced.

The obvious starting point for these vehicles is the charging station. This is however only the first step in a potential journey which will see charge Banks and other industrial areas as well as homes and cities. The future scope of electric vehicles is therefore massive. The present day technology will no doubt be far more advanced in a few years. Some believe that will soon see electric vehicles that can power themselves by harvesting energy from their environment. Such vehicles will require very little maintenance and can even run off alternative energy sources such as wind.

- Necessity of electric vehicle charging station is more and thus everyone can able to charge their vehicle at preferred location.
- If any damage or repair occurs to the vehicle can be easily rectify that defect and that are using multi-model charger so it can easily charge all the type of vehicles.
- Easy to access at every location and it is more reliable.
- It is very easy to implement the charging station at any place as per need.

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Certified that this project report "**MACHINE LEARNING MODELS FOR NON-INVASIVE BLOOD GLUCOSE AND CHOLESTEROL PREDICTION**" is the bonafide work of **AAKASH JAMES R (19BEE4001), GOKUL M (19BEE4017), KARTHIKA V (19BEE4033), MATHUMITHA M K (19BEE4050)** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"IMPLEMENTATION OF SINGLE SWITCH HIGH GAIN DC – DC CONVERTER"** is the bonafide work of **"DHARANISREE D (19BEE4010), JAYAKIRUTHIKA S B (19BEE4028), LOGESHWARAN V (19BEE4303)"** who herein carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"WIRELESS POWER TRANSFER FOR CHARGING ELECTRIC VECHILE USING SOLAR ENERGY"** is the bonafide work of **"KARANN KA (19BEE4030), KAVIN M (19BEE4037), LALITHEASWARAN L(19BEE4043)"** who carried out the project work during the academic year 2022-2023 under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report "**DESIGN AND IMPLEMENTATION OF FUZZY CONTROLLER BASED DC TO DC CONVERTER FOR PV SYSTEM**" is the bonafide work of "**ELAVARASAN R (19BEE4015), JANANIHA R (19BEE4027), KARTHIKEYAN R (19BEE4035), ARVINTHSAMY S (19BEE4301)**" who carried out the project work during the academic year 2022-2023 under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"AUTONOMOUS SAFETY SURVEILLANCE SYSTEM FOR INDOOR ENVIRONMENTS"** is the bonafide work of **"ARUL K (19BEE4006), GOWTHAM B (19BEE4019), KAMESH V (19BEE4029) and MANOJ S (19BEE4049)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"SOC ESTIMATION FOR A LITHIUM-ION BATTERY IN AN ELECTRIC VEHICLE BASED ON MACHINE LEARNING"** is the bonafide work of **"JAGADEESH S (19BEE4026), MADHUMITHRA N (19BEE4046), MANIKANDAN K (19BEE4047)"** who carried out the project work during the academic year 2022-2023 under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"MAXIMIZING RENEWABLE ENERGY OUTPUT WITH MPPT FOR SOLAR AND WIND POWER SYSTEMS"** is the bonafide work of **"DHAMOTHARA PRASATH K P (19BEE4009), DHARUN KARTHICK S (19BEE4012), DHEENA B (19BEE4013), KEERTHANA P (19BEE4040)"** who carried out the project work during the academic year 2022-2023 under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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INTERNAL EXAMINER

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OPTIMUM INTEGRATION OF SOLAR PANEL WITH BATTERY ENERGY STORAGE SYSTEM FOR EV APPLICATIONS

A PROJECT REPORT

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ABSTRACT

Considering the intermittent nature of renewable energy, a storage system to reserve power in off-peak hours and then to supply it during peak hours is necessary. However, if these storage devices in a network are not placed in an appropriate manner. In this project, the allocation and sizing strategies of a Battery Energy-Storage System (BESS) in an optimal way are proposed to improve the performance of the radial distribution networks. The optimization algorithm adopted is the Deep learning algorithm. The system is studied for 24 hours with a step size of 15 minutes, employing a time-sweep analysis of dynamic load. It is studied under three different scenarios and the results are compared. The results illustrate a considerable reduction in power losses in the case of the optimized Battery Energy-Storage System. The total losses before the optimization process are 16365.57 kW. The total losses after the employment of the proposed solution are 10246.5 kW, which means that the losses are reduced by ≤62%.

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9.1 CONCLUSION

This paper aims to develop a practical rule-based EMS with multi-objective optimization capability in an FCHEV system. Based on the real-time power allocation ability of rule-based EMS, the multi-objective GA is applied to improve its performance through optimization with small number of parameters. Three objective functions, i.e., hydrogen consumption, battery charge sustaining, and fuel cell efficiency, are optimized offline under three typical driving conditions through multi-objective NSGA-II method. It provides a minimum hydrogen consumption relative to the DP benchmark with admissible SOC variation.

The adaptability of the proposed EMS is verified in other similar three driving cycles. The sensitivity of the initial battery SOC to power management is studied systematically. As a result of this study, the proposed EMS assures that the battery can work in the optimized charging sustaining mode, which contributes to energy saving a battery health. The rule-based EMS with multi-objective GA optimization can realize a real-time optimization for similar driving pattern. The shortcoming of this study is that it lacks online pattern recognition for unknown driving patterns to provide an optimal solution, so further study is necessary.

9.2 FUTURE SCOPE

In future it implemented for the sensitivity of the initial battery SOC value to power distribution and system performance is investigated. Results indicate that the proposed EMS can guarantee battery charge sustenance, optimizing the hydrogen consumption and improving the long driving capability of a FCHEV system.

PHOTOVOLTAIC BASED HARMONIC REDUCTION AND PERFORMANCE ANALYSIS OF LITHIUM FERRO PHOSPHATE BATTERY OPERATED BEV USING P&O ALGORITHM

A PROJECT REPORT

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12/4/23
INTERNAL EXAMINER

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EXTERNAL EXAMINER

ABSTRACT

In the recent days, the need for renewable energy sources is on the rise because of the acute energy crisis in the world. All the sectors are using the renewable energy sources to produce power for their own needs. This project brings many concepts like performance analysis of battery, increases the efficiency of a nonlinear loads and improving the powerquality by using the boost converter. A solar PV (Photovoltaic) array, a Battery Energy Storage System (BESS) and boost converter based EV charging station is utilized to provide the incessant charging. The charging station is primarily designed to use the solar photovoltaic array and a BES to charge the electric vehicle (EV) battery. An innovative topology of shunt active power filter in combination with photovoltaic systems to regulate the voltage quality issue is proposed. The presence of voltage quality issues has enough capability to affect the consumer's electronics and develop various problems in the connected network. The output voltage during the operation of the shunt active power filter should maintain constant value to achieve better performance. The three phase Pulse Width Modulation (PWM) inverter helps to maintain the power quality enhancement and also used to charge the electric vehicle in AC supply. The effective battery charging is implemented by using Maximum Power Point Tracking (MPPT). The Maximum power point tracking techniques which are used in PV systems to increase the PV array output power by tracking continuously the maximum power point depends on the panels of temperature and irradiance. To reduce the harmonics of inverter output voltage, shunt active power filter is used and it helps in recharging the main propulsion batteries of a large-scale electric vehicle. Therefore, the filter circuit is used for Harmonic reduction. The harmonic reduction improves energy efficiency, extend equipment life and reduce losses. From the THD analysis, the total harmonic distortion is 5.09%. The operation of the proposed system is experimentally validated using the prototype developed.

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CONCLUSION

8.1 CONCLUSION

The renewable energy sources are used to produce power without initial cost. In that renewable energy sources, the solar energy plays a major role in power production. To harvest maximum power from a PV module, MPPT based controller is implemented. The PV fed shunt connected filters is able to compensate the voltage related problem satisfactorily and maintain the voltage across the load. In this work, the use of boost converter which helps to reduce power leakage in the transmission line from photovoltaic module to battery. With the use of PV, the harmonic distortion level is low. The Battery used in this system is the Lithium Ferro Phosphate battery offers lots of benefits compared to lead-acid batteries. Longer life span, no maintenance, extremely safe, improved discharge, lightweight and charge efficiency. As this battery has low self-discharge, it can store for a longer period of time. Additionally, this project has a dc electric vehicle charging which is quicker in recharging the electric vehicle for long journey. An implementation of PV array, LiFePo4 battery, Shunt Active Power filter and Boost converter brings the efficient Electric Vehicle charging and efficient power supply to the ac load. The presented result has been verified that the power storing capacity in LiFePo4 battery is higher than the other lead acid battery and is also verified that the boosted voltage which is in the range of 35-80 volts from the boost converter is also very useful for both the charging EV and supplying the ac load. The shunt active power filter also proves that it eliminates the voltage quality issues so that the supplying load voltage is efficient. The results show that the proposed system is more efficient than the conventional design. The Stable AC source from the solar inverter circuit is obtained. It can be concluded that this charging station with the presented control have the capability to utilize the various energy sources very efficiently and provides the constant and cost-effective charging to the EVs.

PV Fed POWER CONVERTER BASED BATTERY MANAGEMENT SYSTEM FOR ELECTRIC VEHICLE APPLICATION

A PROJECT REPORT

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INTERNAL EXAMINER

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ABSTRACT

In the recent days, the need for renewable energy sources is on the rise because of the acute energy crisis in the world. All the sectors are using the renewable energy sources to produce power for their own needs. The Solar energy is one of the most important renewable energy resources because it is inexhaustible and eco-friendly, and has been used to provide light, heat and electricity. Solar cells convert sun light into electricity, but have the major drawbacks of high initial cost, low photo-conversion efficiency and intermittency. Solar PV modules have two major problems of low efficiency and intermittency, i.e., their efficiency of converting sun light into electric power is generally less than 17%, and the generated electric power changes with weather conditions. Moreover, PV cell characteristics (I-V or V-P) are nonlinear and changes with insolation and temperature. In stand-alone solar PV systems, the PV modules and batteries are the most expensive components. When the batteries are directly connected to the PV modules, there is no protection against overcharging and consequently, battery life-span decreases.

In modern day the raise of power electronic converter and inverter control techniques are evolved. Likewise automobile industries are involved in development pollution free EV's (Electric Vehicle) so the utilization of batteries day by day. This will be intended to propose a new idea implementation of Vehicle to Grid and Grid to vehicle technology. In AC micro Grid, batteries are helped to supply the power when demand time has been raised. In order improve the fast charging capability of batteries and vehicle to grid power transferring, this paper presents a new control technique. A bidirectional power flow control technique is the will increased best option for V to G and G to V. The simulation is developed for wind energy based AC micro grid inverter. The outcome of the test gives the high performance for EV charging station. AC bus voltage has a good stability under dynamic power flow regulation. The proposed control system design is guaranteed in reduced harmonic current distortion.

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CHAPTER 8

CONCLUSION

8.1 CONCLUSION

The renewable energy sources are used to produce power without initial cost. In that renewable energy sources, the solar energy plays a major role in power production. To harvest maximum power from a PV module, MPPT based on optimized P&O algorithm is implemented in this project. The hardware consists of a high efficiency DC/DC boost converter and a microcontroller based MPPT controller, and is tested for battery charging.

A conventional charge controller and the designed charge controller are compared when charging a 12 V battery from a 10 W solar PV module. It shows that the optimized P&O algorithm provides an efficient and reliable maximum power tracking performance under rapid change in irradiance and temperature conditions. The results show that the proposed system is more efficient than the conventional design. The experimental hardware allowing the optimal choice of the two main parameters characterizing the P&O algorithm has been carried out.

The idea underlying the proposed optimization approach lies in the customization of the optimized P&O MPPT parameters to the dynamic behavior of the whole system composed by the specific converter and PV array adopted. The results obtained by means of such approach clearly show that in the design of efficient MPPT regulators the easiness and flexibility of optimized P&O MPPT control technique can be exploited by optimizing it according to the specific system's dynamic characteristics.

In this model the harmonics is 3.11%. So there is no need of adding the filter. In addition to that we were add battery for power backup. By reducing the harmonics we get the Stable AC source from the solar inverter circuit. In this we are increasing the tracking speed by using perturbation and the tracking speed also increase because of MPPT. We convert conventional automobiles into electrical vehicles since they produce no pollution and have lower operating costs than other types of vehicles.

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Certified that this project report **"CONTROL OF HOME APPLIANCES USING IOT FOR ENERGY MANAGEMENT WITH RENEWABLE ENERGY SOURCES"** is the bonafide work of **"MONISHA B (19BEE4052), NAGUL A (19BEE4053), NAVEEN C (19BEE4055), SAKTHINITHESH A (19BEE4067)"** who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Certified that this project report **"PERFORMANCE OPTIMIZATION AND PREDICTION OF LI-ION BATTERY PACKS USING CELL TO CELL VARIATIONS"** is the bonafide work of "NIVISS K (19BEE4057), PRIYANKA P(19BEE4062), REVANTH T (19BEE4064), SABARISH S (19BEE4065)" who carried out the project work during the academic year **2022-2023** under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Criterion 1: Curricular Aspects

1.3 Curriculum Enrichment

1.3.4.1: Number of students undertaking field projects / internships / student projects

Programme Name: B.E Electrical and Electronics Engineering.

Minor Projects Proof

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A Minor Project Report on

BIKE SECURITY SYSTEM IN ANDROID USING IoT

Submitted by

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LIST OF ABBREVIATION

S No.	Abbreviation	Expansion
1	GSM	Global System for Mobile Communication
2	GPS	Global Positioning System

ABSTRACT

This project deals with the design and development of the theft control system for bike. This project is based on Global System for mobile communication (GSM) technology. Here an interfacing cell phone is also connected to the microcontroller which is connected to engine. If the vehicle is stolen, the information is passed on to the central processing insurance system which is in the form of Short Message Service (SMS). [1]
The fixed microcontroller unit reads the message and send to the GPS module. GPS module will give exact location in latitude and longitude to the user's cell phone. Then reading the signal received by mobile and control the ignition of the engine to stop. In this project, we will be Interfacing Fingerprint Sensor with Arduino to design Fingerprint Sensor Based Bike Starter.

Fingerprint sensor-based is one of the safest bikes starting systems as it has the ability to identify and distinguish every person individually without making any error. Also, the module is very small that it can be kept anywhere, and with the portability feature and less power consumption, you can carry it to any place as well.

More vehicles are stolen and it cannot be found back. Security system like fingerprint system can reduce this theft. Fingerprint sensor and Arduino is combined together. The use of vehicle is a must for everyone. In the same way, safeguarding the vehicle against theft is also very essential and it is done by vehicle tracking system. Modern vehicle tracking uses the active vehicle tracking and GPS technology.

The design and development of a ubiquitous tracking system is proposed, in which vehicles are tracked and controlled using the prevailing cellular technologies. The system contains a GPS receiver and a GSM modem interfaced with a microcontroller. To track any vehicle, the vehicle's owner has to send an SMS to the tracking system installed inside the vehicle. Upon receiving the SMS, the microcontroller takes the current location's longitude and latitude coordinates from GPS receiver, packs it into an SMS and sends it to the owner and on a web, server using GSM modem. When the web server receives the SMS containing vehicles coordinates, it will show location of the vehicle on Google Maps. For android users, the location is also displayed on an android application.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

As we all know, there is regular increases in the theft of motor vehicle after the year by year. This project demonstrates how to implement the IOT module to prevent and detect motor vehicle theft. This fingerprint base biometric authentication provides a strong secure authentication of owners and riders. Also, it will send the location of the vehicle every second and alert in case of emergency.[5]

In this project is done on fingerprint-based vehicle security and location tracking system using IoT. The proposed design not only provides switching functionality, but also provides the exact location of the device. Hence theft of the device can easily be detected. It gives complete knowledge of designing microcontroller-based system and developing embedded software. In the future work cloud computing can be included to this project so that every activity performed on the device can be closely monitored. This reduces the need for storing all the log-in information.

5.2 Future Scope

This project will be used in vehicles to make the vehicles more secure and prevent theft .It can be used for all types of vehicles with very little modifications and we can have this security system at low cost, thus not increasing the price of the vehicle by very much.

This project deals with the design and development of the embedded system, which can be used to prevent / control theft of a vehicle. The developed tool is an embedded system based on GSM technology. The tool is installed on the machine of the vehicle. An interface GSM modem is connected to the microcontroller to send a message to the owner's mobile. The main purpose of this tool is to protect the vehicle from any unauthorized access by entering a protected password Report the status of the same vehicle to the authorized person (owner) using the Global System for Mobile. Contact Technology. This system deals with the concept of network security. The key concept in this design is the introduction of mobile Communications in an embedded system.

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A Minor Project Report on

AUTOMATIC OBSTACLE DETECTING ROBOT USING ARDUINO

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ABSTRACT

The project is design to build an obstacle avoidance robotic vehicle using ultrasonic sensors for its movement. A microcontroller (ATmega328) is used to achieve the desired operation. A robot is a machine that can perform task automatically or with guidance. The project proposes robotic vehicle that has an intelligent built in it such that it directs itself whenever an obstacle comes in its path. This robotic vehicle is built, using a micro-controller of AT mega 328 Family.

An ultrasonic sensor is used to detect any obstacles ahead of it and sends a command to the micro-controller. Depending on the input signal received, the micro-controller redirects. The robot to move in an alternate direction by actuating the motors which are interfaced to it through a motor driver. Some of the project is built with the IR sensors has its own applications so in our project those application is not compactable so we are using ultrasonic sensor.

An autonomous robot should be made in such a way that it does not require any human control i.e., it should work autonomously. To achieve this task, robots have to avoid obstacles coming in its path. Obstacle detection and avoidance plays major role in robotics. This robot is the first step in building an autonomous industrial robot. This robot uses an IR sensor to detect the objects or obstacles in its path.

Then it uses a relay-based switching mechanism to control its motion and to avoid the obstacles. This can be done by a relay and transistor assembly. This is a small attempt to make use of basic electronic components in order to build detection and avoidance mechanisms so that anyone with basic knowledge of electronics can easily understand and implement it.

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CONCLUSION AND FUTURE SCOPE

5.1 CONCLUSION:

- An obstacle detection system uses ultrasonic sensors mounted on the front and/or rear bumpers.
- These sensors can measure the distance between your car and nearby obstacles directly around the front or rear bumper.
- The driver is alerted by beeps or the dashboard display.

5.2 APPLICATION:

- Used for household work like automatic vacuum cleaning
- Used in dangerous environment, where human penetration could be fatal.

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A Minor Project Report on

PIR-SENSOR BASED AUTOMATIC LIGHTING FOR WET CONDITION

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LIST OF ABBREVIATION

S No	ABBREVIATION	EXPANSION
1.	PIR	Passive Infrared

ABSTRACT

The purpose of this project is to prevent the people from getting electric shock while they touch the old or damaged switches which leaks the electric current with their wet hands after using the water in the areas like kitchen, rest room and other water using areas . This project is make a use of Passive Infra-red sensor.A PIR-based motion detector is used to sense movement of people, animals, or other objects. It can also be helpful in the security system. With the help of the sensors we can eliminate this shortage by minimizing the wastage of electrical power or saving our generated power.PIR is the type of sensor that gives us signal when anything crosses its rays. It is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view.

CHAPTER 5
CONCLUSION AND FUTURE SCOPE

5.1. Conclusion

Integrating features of all the hardware components used have been developed in it. Presence of every module has been reasoned out and placed carefully, thus contributing to the best working of the unit. Also, the project has been successfully implemented. Thus the project has been successfully designed and tested.

5.2. Applications

- Useful in water using areas like rest room.
- Also useful in small areas or like kitchen , etc...
- Act as the light source at staircase area.
- As the Lighting in the room of kids.

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A Minor Project Report on

MIND RELAXING HELMET WITH ALPHA WAVES

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LIST OF ABBREVIATION

S No	ABBREVIATION	EXPANSION
1	BCI	Brain Computer Interface
2	EEG	Electroencephalography

ABSTRACT

A Brain Computer Interface (BCI) enables to get electrical signals from the brain. In this paper, the research type of BCI was non-invasive, which capture the brain signals using electroencephalogram (EEG).

EEG senses the signals from the surface of the head, where one of the important criteria is the brain wave frequency. This paper provides the measurement of EEG using the Emotiv EPOC headset and application developed by Emotiv System.

Two types of the measurements was based on logical and analytical reasoning, which was captured during solving mathematical exercise. The second type was based on relax mind during listening three types of relaxing music.

The results of the measurements were displayed as a visualization of a brain activity. A head massage is useful to help tight muscles. Tight muscles around the head increase head and neck pain causing tension and headaches.

A head massage can focus on decreasing pain and relieving emotions of stress. A head massage can be used as an effective stress reliever after surgery or injury. A head massage helps relieve stress by release of stress hormones and relieving tension in the body.

A head massage creates a therapeutic effect on the body, reducing heart rate and blood pressure. A head massage promotes blood circulation and increased levels of oxygen in the blood to relieve stiffness and soreness in the muscles.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

Thus the Head massager can relaxing the mind using Arduino. Based on the program coded in the Arduino, Relay module can control the Head massager and Alpha waves through the Ear Phones.

Using the Head massager and Ear Phones of the Alpha waves we move better relaxing state of mind.

Due to work pressure the person mind is in stress condition. The mind is relaxed by using our project.

During headache this helmet will give relaxation stage to the person. It can points to promote the blood circulation to the body.

It can improve the sleep quality to the human being. It can relive the pain and pressure to the body.

5.2 Applications

- Alpha wave induce feelings of clam and enhance your ability to absorb new information.
- Alpha wave beneficial for reducing symptoms of anxiety and depression.
- Head massage may help relieve stress and reduce tension and lowers blood pressure.

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1	SMPS	SWITCHED MODE POWER SUPPLY

ABSTRACT

In this paper we explore a less popular but useful source of clean energy i.e. Noise (Sound Energy). Waste form of sound energy can be used for some creative purpose. The law of conservation of energy states that energy can be neither created nor be destroyed but it can be converted from one form to another form of energy. Environmental pollution is a major problem facing by all countries around the world. Rapid growth on the industrial and urban side has concluded in vast quantities of potentially harmful waste being related to the environment. The sound is form of mechanical energy. Some noises cannot be restricted such noises at market, traffic, railway stations, industries etc. Those unwanted noise can be used for generation of electricity. By this approach we can reduce energy consumption from non-renewable sources. Electricity can be formed from various sources such as Wind energy, Tidal energy, Solar energy etc. Since sound energy is a mechanical energy which travels in the form of a wave, and mechanical wave is an oscillation of pressure which requires a medium to travel i.e. it could not travel through vacuum as it need medium. The sound waves displace back and forth between the potential energy of compression or lateral displacement strain of the matter and the kinetic energyof the oscillation. Sound which is tolerable by human ears has frequency ranging from about 20 Hz to 20,000 Hz. For example, microphones and speakers are examples of sound becoming electrical energy. We all consider noise as a form of sound pollution but with technological advancement and great research work going on, it is possible now to convert this universally distributed pollution into useful form energy such as thermal energy and electrical energy. Comparing to commercial power banks, noise pollution based power bank produced a parallel result. Charging is also performed with different gadgets that are most likely use power bank andfound effective and efficient. With the future modification of the noise pollution based power bank,it is possible to make this device a basis of imminent technologies that will make a way of recyclingnoise pollution to be a secondary source of establishing a wide scale electricity source.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The conclusion of the project is to produce electricity by using sound waves. The electricity generated here results in the glowing of the bulb, which depends on the frequencies of sound.

5.2Applications

- This kind of energy will cause revolution in the field of renewable sources of energy.
- Due to development of this technology we can overcome the deficiency of electricity that we are facing in the developing countries across the world.
- The sound energy in the unexplored source which has enormous potential to meet the futuregrowing requirements of electricity.
- This technology is not practically usable till now due to efficiency concerts but the present work on this field makes its future quite promising.

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Design solutions for Complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

PO4: Conduct Investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern Tool Usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The Engineer and Society: Apply reasoning in formed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and Team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES(PSOs)

The following are the Program Specific Outcomes of Engineering Students:

- **PSO1:** Apply the basic concepts of mathematics and science to analyze and design circuits, controls, Electrical machines and drives to solve complex problems.
- **PSO2:** Apply relevant models, resources and emerging tools and techniques to provide solutions to power and energy related issues & challenges.
- **PSO3:** Design, Develop and implement methods and concepts to facilitate solutions for electrical and electronics engineering related real world problems.

Abstract (Key Words)	Mapping of POs and PSOs
Arduino Board, Ultrasonic Sensors, Laser Module, Speaker, Connecting Wires.	PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8 PO9, PO10, PO11, PO12, PSO1,PSO2,PSO3.

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A Minor Project Report on

Garbage Monitoring and Segregation System

Submitted by

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II

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LIST OF ABBREVIATION

S No.	Abbreviation	Expansion
1	ATmega Microcontroller	Atmel Microcontroller

ABSTRACT

This system is a very needed innovative system which will help to keep our society clean and hygienic. A web page is built to show the status to the user control area where monitoring takes place and this control is taken in one connection. Here the color indication will be given to shoe the level of garbage collected and they are showed through LED screen. After monitoring this project also deals with the segregation of the waste and proceed them to next level.

The amount of waste has been increasing due to the increase in human population and urbanization. In cities, the overflowed bin creates an unhygienic environment. Thus degrades the environment, to overcome this situation "Automatic Waste Segregator" is developed to reduce to work for the ragpickers the wastes are segregated by the human beings which leads to health problems to the workers. The proposed system separates the waste into three categories namely wet, dry and metallic waste.

This developed system is not only cost efficient also makes the waste management productive one. Each of the wastes are detected by the respective sensors and gets segregated inside the bins which is assigned to them the details of amount of waste disposal are updated in the server regularly. The wastes which are dumped are segregated by mans which leads to health problems to them.

To overcome this problem a well-organized waste segregation and monitoring system has been designed. It is a smart Waste Segregation and Monitoring system which is an innovative way to keep the cities clean and healthy. Since the population of the world is increasing rapidly, the environment should be clean and hygienic in order to lead a better life. The foremost goal of this project is to automatically segregate the wastes and to perceive the level of the dustbins which is delivered through wireless mesh network.

With such information, litter bin providers and cleaning contractors are able to make better decision for the efficient disposal. IR sensor identifies the object, moisture and metal sensors detects the wet and metal waste. Ultrasonic senor detects the levels of the bin.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

Implementation of the system at local level like, educational Institutes, parks, societies etc. can help to reduce the burden of local authorities. The automation of waste segregator is better step to decrease amount of human intimation. It also minimizes danger to human life. By using the conveyor belt, it makes system more accurate, cost effective and also very easy to install. It might be used at domestic level. Waste segregation at domestic level will be time-saving. While doing implementation of system many problems came across like accuracy of moisture sensor, adjusting range of IR and ultrasonic sensor and nearly further but by doing some modification we tried to make system reliable and feasible as possible but not completely flawless. It provides timely collection and disposal. The proposed system can be deployed on a domestic scale in a household or a large scale in public places.[5]

5.2 Future Scope

One of the primary Problem that India faces is solid waste management. The most of the garbage is seen at roadside due to overload of dustbins as there is no periodic collection of waste. It creates unhygienic condition for people and bad odor in surroundings. This leads to spreading of some deadly diseases and illness. At most the dry and wet waste are not collected separately so proper processing like recycling, composition can't be applied to different kind of waste. This paper focuses on system for garbage collection and segregation which will take care of proper processing of garbage. The system uses ultrasonic sensor and infrared sensor for detecting the level of waste. Arduino UNO, microcontroller for interface. A raindrop sensor for wet and dry waste segregation. The traditional method used for segregation of waste in India is very harmful for people who gets exposed to waste. Here we are discussing about a smart dustbin which is inexpensive and convenient solution for waste segregation i.e. (AWS) auto waste segregator which can also detect level of garbage in dustbin and notify the user when its full.

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A Minor Project Report on

WIRELESS POWER TRANSFER SYSTEM IN SWITCH BOARDS

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

- Wireless power transfer is the transmission of electrical energy without wires as a physical connection.
- A wireless power transmission system, a transmitter device, driven by electric power from a power source, generates a time-varying electromagnetic field, which transmits power across space to a receiver device.
- It uses the same fields and waves as wireless communication devices.
- Various radio-frequency (RF) technologies are used for wireless power transmission.

1.2 SCOPE OF THE WORK

- Wireless power transfer (WPT) systems allow power to be transferred from one electrical network to another without the need for wires or exposed contacts.
- For a large number of diverse applications, this feature is highly advantageous, and in certain cases has enabled new applications to be realized.
- Further, WPT is poised to play a vital role in the worldwide drive to electrify transportation systems and, thus, become ubiquitous throughout technologically advanced future societies.
- Therefore, knowledge in the area of WPT is increasingly important for the modern power electronics engineer.

CHAPTER 2

SYSTEM MODEL

2.1 INTRODUCTION

- Wireless power transfer (WPT), in its general term, has been around us for decades in applications such as telemetry, satellite communications, and radio frequency identification (RFID) tags.
- Most of these applications transfer low amounts of power, in the range of microwatts to milliwatts, for data transfer.
- For higher-power applications, from few watts to several kilowatts, over moderate distances, the WPT has recently been the focus of the industrial developments.

2.2 BLOCK DIAGRAM

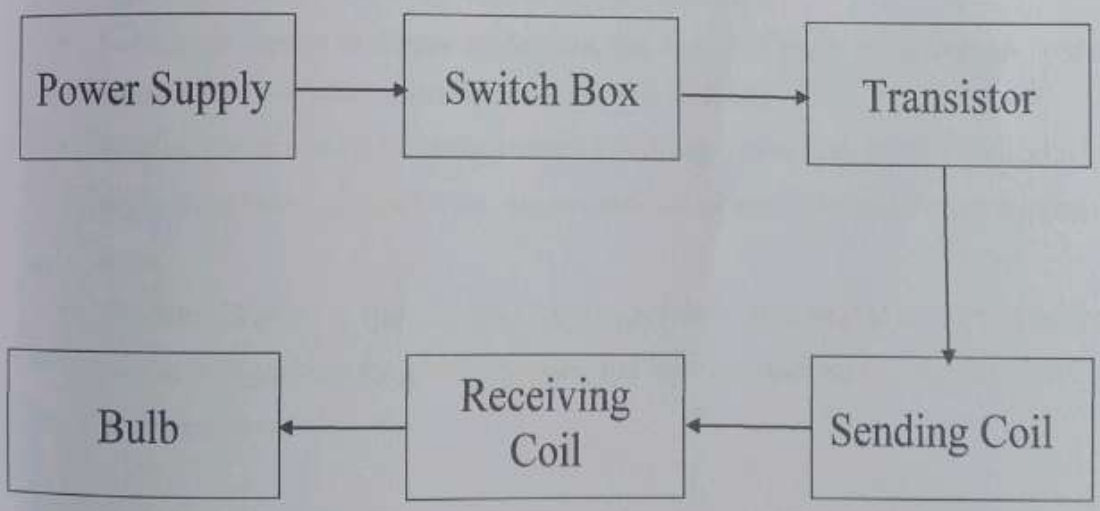

Figure.1 Block Diagram

2.3 BLOCK DIAGRAM DESCRIPTION:

- The wireless power transfer works mainly on the principle of inductive coupling.
- With this inductive coupling idea, we are trying to transfer power wirelessly from the switch board to the adapter.
- This paper gives a method which can be designed to charge a rechargeable battery wirelessly for the purpose using switch board.
- Since charging of the battery is not possible to be demonstrated, we are providing a switch board that runs through wireless power.
- Based on this concept, the paper is developed to transfer power within a small range.
- From the block diagram, it is clear that for the overall functioning of wireless circuit, it required a wireless power transmitter & a wireless power receiver sections.
- The transmitter coil in this wireless power transmitter section converts the DC power from an oscillator to a high frequency AC power signal.
- Wireless power transfer system allow power to be transferred from one electrical network to another without the need for wires or exposed contacts.
- For a large number of diverse applications, this feature is highly advantageous, and in certain cases has enabled new applications to be realized.
- Wireless power transfer can make a remarkable change in the field of the electrical engineering which eliminates the use conventional copper cables and current carrying wires.
- The block diagram is typically used for a higher level, less detailed description aimed more at understanding the overall concepts and less at understanding the details of implementation.

CHAPTER 3

HARDWARE DESCRIPTION

3.1 INTRODUCTION

- One major purpose of receiver-transmitter communication is to maintain the operating point consisting of the amplitude, frequency, and duty cycle of the AC voltage that is applied to the transmitter coil.
- Changing the operating point is necessary to maintain maximum efficiency when the coupling coefficient of the Rx and Tx coil changes.
- Overall, the wireless communication between the transmitter and receiver will keep power transfer efficiency at a maximum no matter what position the receiver is in relative to the transmitter.
- In addition, the communication scheme allows for the transmitter to sense and identify the receiver in order to establish a connection and begin transmitting power.

3.2 CIRCUIT DIAGRAM:

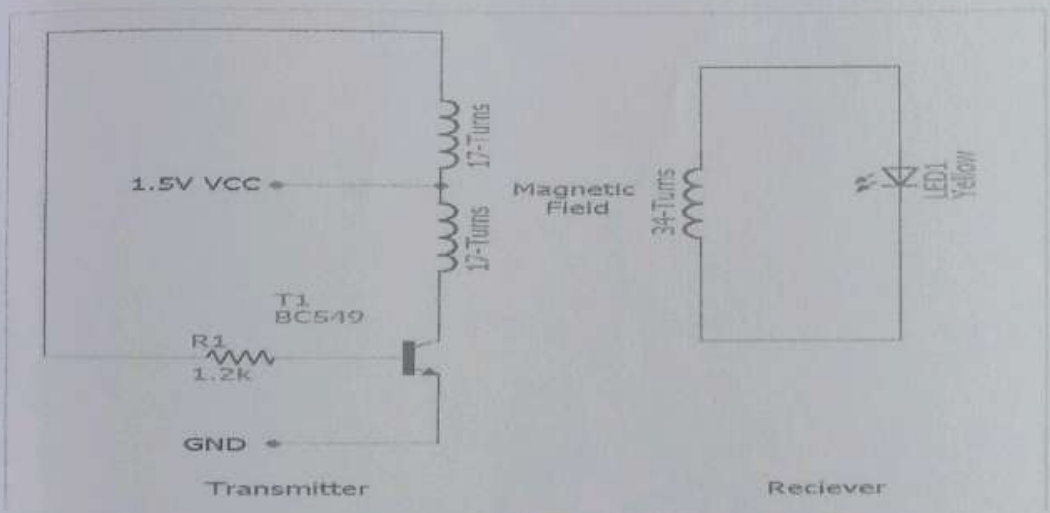

Figure.2 Circuit Diagram

3.3 DESCRIPTION OF THE COMPONENTS

2N2222A TRANSISTOR:

- The 2N2222A is a common NPN Bipolar junction Transistor (BJT) used for general purpose low-power amplifing or switching applications.
- It is designed for low to medium current, low power, medium voltage, and can operate at moderately high speeds.
- It was originally made in the TO-18 metal .
- It is frequently used as a small-signal transistor.
- It remains a small general purpose transistor of enduring popularity.

27K RESISTOR:

- A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element.
- In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmision lines, among other uses.
- High-power resistors that can dissipate many watts of electrical power as heat may be used as part of motor controls.

3.4 HARDWARE COMPONENTS

Table No. 1

COMPONENTS AND ITS COST

S.No	Name of The Component	Specifications	Estimated Cost
1	9V stepdown transformer	It is used to change voltage levels	100
2	2N2222A Transistor	It is used for low power amplifing	10
3	27K resistor	Used to reduce current flow	10
4	Switch box	Can disconnect or connect the conducting path	100
5	Copper Wire	Use for making coil	50
6	LED Bulb	Used for displaying the output	30
		TOTAL	300

CHAPTER 4

RESULT AND DISCUSSION

4.1 HARDWARE IMPLEMENTATION

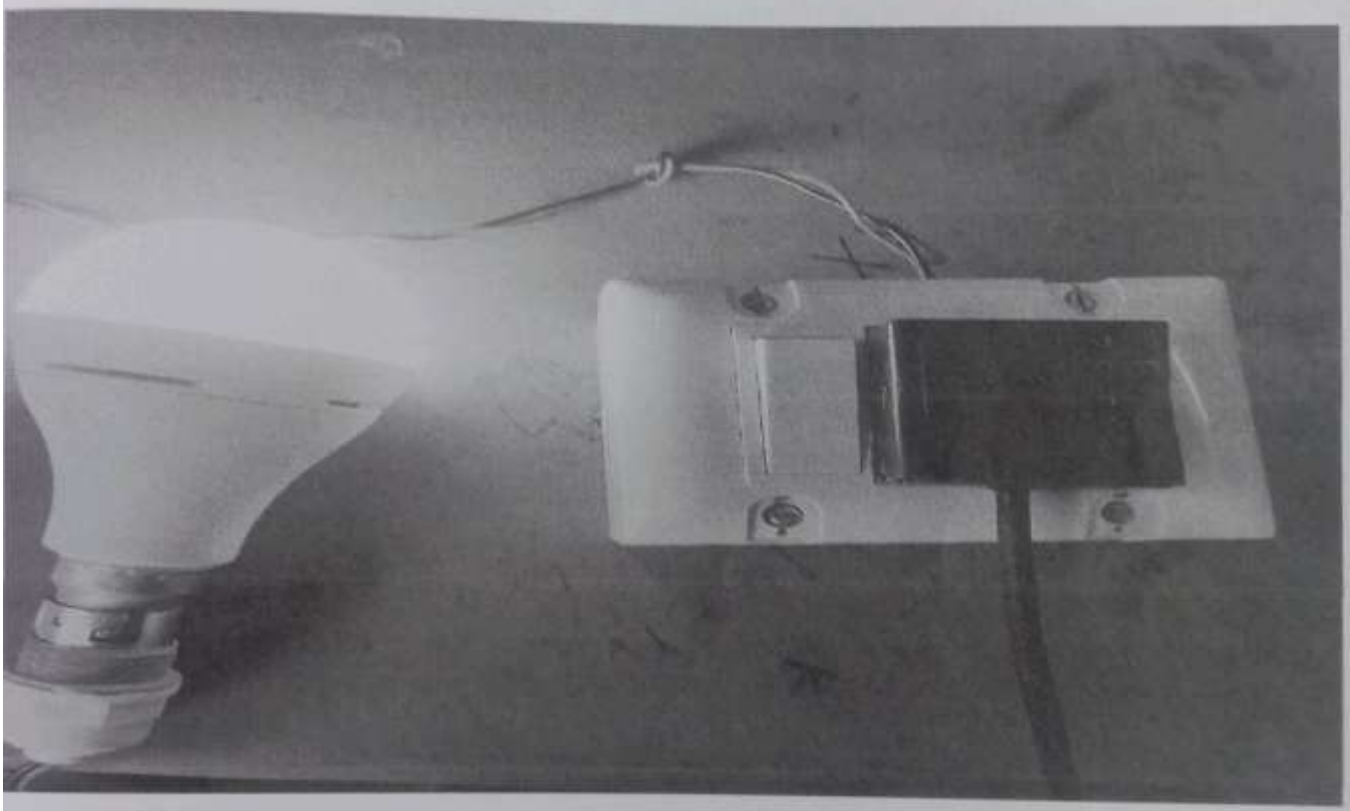

Figure No.3 wireless power transfer in switch boards

4.2 WORKING OF THE PROJECT MODEL

- Using an external trigger signal, the Trig pin on ultrasonic sensor is made logic high for at least 10μs. A sonic burst from the transmitter module is sent. This consists of 8 pulses of 40KHz.
- The signals return back after hitting a surface and the receiver detects this signal. The Echo pin is high from the time of sending the signal and receiving it. This time can be converted to distance using appropriate calculations.
- When the robot is powered on, both the motors of the robot will run normally and the robot moves forward. During this time, the ultrasonic sensor continuously calculates the distance between the robot and the reflective surface.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 CONCLUSION:

- Wireless power transfer has the potential to change this planet on so many different levels.
- Currently wireless power transfer is the most marketable and sustainable.
- a worldwide wireless power transfer system is a possibility in the near future.
- Wireless power transfer has the ability to change the world with all the different applications it has to offer.

5.2 APPLICATION:

- Can be applied in the switch boards and it is very safe to use.
- It prevents form the shock accidents.

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A Minor Project Report on

SMART ATTENDANCE SYSTEM FOR STUDENTS BUS

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LIST OF ABBREVIATION

S No	ABBREVIATION	EXPANSION
1	RFID	Radio Frequency Identification

ABSTRACT

School is the second-best place for kids to inculcate education and ethical values next to home. Providing safety for the students throughout transportation to and from the school plays a vital role. The school will scale back the range of accidents during the transportation. This project helps both parents and therefore the school administration to manage and monitor numerous factors like number of students aboard, details of each student, pickup and drop timings, location, attendance system etc. parents can monitor the situation of the school bus together with the pickup and drop timings of the student through an android application. In our project, a GPS unit and a fingerprint sensing element that is connected to the Node MCU over Wi-Fi through an Arduino Uno. The geographic coordinates of the school bus within which the SKG13 GPS is located updates the location within the database unit. The fingerprint scanner detects the identification of the student once the student boards the bus. The bus unit uses Node MCU to push the data into the database i.e., the school unit. The school unit will add range of students' information in the web application created. Solely the admins will manage and access the database unit. By taking these necessary steps, the child's safety throughout the fleet is achieved.

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A Minor Project Report on

SMART STORAGE RACK FOR MOBILE PHONES

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LIST OF ABBREVIATION

S No	ABBREVIATION	EXPANSION
1	NFC	Near Field Communication
2	RFID	Radio Frequency Identification

ABSTRACT

Near Field Communication (NFC) is a set of short-range wireless technologies typically requiring a distance of 4cm or less to initiate a connection. NFC allows you to share small payloads of data between two android powered devices. The radio frequency identification reader (RFID reader) is a device used together information from an RFID tag which is used to track individual objects. Relay module is a kind of electro-mechanical component that function as a switch that is commonly used in an automatic control circuit and to control circuit to control a high-current using a low-current signal. The input voltage of the relay signal ranges from 0 to 5v.

Smart storage rack for mobile phones is used to store mobile phones in safety manner. It consists of many rack. Each rack consists of one mobile phones. Once the mobile kept inside the rack will keep safe in the smart storage rack and then it will generate one type of card. After when you need your mobile phone insert the card and the smart storage rack read the card after that you can receive your phone. Near Field Communication (NFC) is a set of short range wireless technologies typically requiring a distance of 4cm or less to initiate a connection.

NFC allows you to share small payloads of data between an NFC tag and an Android-powered device or between two Android-powered devices. This smart card plays a major role for the rack access feature of each smart phones. It can improve the security to the mobile phones and our project is used to the mobile phones are not permitted inside the places like exam hall etc.

The Arduino UNO is a standard board of Arduino. Arduino UNO is based on a ATmega328p microcontroller. It is easy to use compared to other boards, such as the Arduino Mega board, etc. The board consists of digital and analog Input/Output pins(I/O), shields, and other circuits. The Arduino UNO includes 6 analog pin inputs, 14 digital pins, a USB connector, a power jack, and an ICSP header. The Arduino UNO platform has become quite popular with people with people just starting out with electronics and for good reason.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

Smart storage rack for mobile phones is used to store the mobile phones in safety manner. It consists of many rack. Each rack consists of one mobile phones. Once the mobile is kept inside it will keep safe and it will generate one type of card. After when you need your mobile you will insert the card and the smart storage rack the card after that you can receive your mobile phone. Adapter helps to supply the external power supply that converts alternating current from a wall outlet to a direct current needed by an electronic device.

Relay module is an electrical switch that is operated by an electromagnet. The electromagnet is activated by a separate low-power signal from a micro controller. The relay is the device that open or close the contacts to cause the operation of the other electric control. RFID Reader is a radio frequency identification is a device used to gather information from an RFID tag which is used to track individual objects.

5.2 Outcome

- It is easy to store mobile phones safely.
- Smart storage rack reduce the fearness of the mobile phone lost.
- It will reduce missing of the mobile phones.

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A Minor Project Report on

AUTO BABY CRY DETECTOR USING SLEEP MUSIC PLAYER USING PIC

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ABSTRACT

The aim of this research is to develop a portable, efficient and cost effective automatic infant's cry detector and self-soother with real time monitoring system for employed parents. Parents in the present world are busy in their professional life, so they do not get sufficient time to take care of their babies. It is inconvenient for parents to constantly watch over their newborn baby while doing their work or chores. So we have designed an simple system which helps parents This system proposes a simple voice detection system which can be applied practically for designing a device with capability to detect a baby's cry and automatically turning on a Baby sleep music. The system is based on PIC microcontroller. Whenever the baby cries it is detected by the controller with the help of Mic and in order to that turns on the music and sleep mechanism which creates soothing sound as well as dim lights which makes baby sleep again gently. In this project a program is implemented to detect an infant's crying. It can detect baby's cry while ignoring other sounds like clap, sneeze, fan, sudden sounds, environment sounds etc. This all in one module approach gives great benefits to the first-time parents, adoptive parents, caretakers, researchers or physicians by both economically and scientifically. Automatic voice detection of baby cry plays an outstanding role in different applications for smart monitoring of smart baby condition. In this proposed model, a baby's cry is being detected and a music player will be played after detection in order to create a soothing environment for the baby. This system employs a machine learning approach to recognize newborn cry sounds in a variety of residential settings under difficult situations. The automatic detection of a baby cry can be used in a variety of situations involving various types of sounds in the environment. For the purpose of performance evaluation an appropriate dataset containing several audio clips of babies under different domestic environments. The proposed system aims to demonstrate a significant performance improvement with the KNN model when it comes to classifying new data and making predictions when compared to standard machine-learning models, notably with the low false-positive rate.

CHAPTER-1

INTRODUCTION

1.1Introduction

Today's lifestyle of a human being is so busy that is truly affecting the basic livelihood of the human being. In today's hectic world, parents are so preoccupied with their daily professional lives that they don't have enough time to stay at home and care for their children. This makes it difficult for parents to attend to and care for their newborn kid while working. Therefore by considering this, have tried to design a simple system that can help the parents in taking care of the baby. Infant cry is the first verbal communication of new born baby with the world. The crying of the infant is a common phenomenon and probably one of the most difficult problems which parents have to face when taking care of a baby. Moreover, cry induces an internal stress signal in caregivers that triggers instinctive responses. From a psychological perspective, infant cry—as a social interaction modality—contains the core of emotional growth and long-term social skill development. Specific audio-signal spectral characteristics of infant cry are associated with emotional states, health status, gender, and gestational development condition. The existence of pathology-related spectral characteristics is also largely documented. In the last decades, several studies have adopted artificial intelligence methodologies to analyse infant cry and assist medical experts in the early diagnosis of neonatal pathological status.

1.2Scope of Work

This automatic baby cry detection system helps the parents in taking care of their babies at the time of work. It reduces the stress of the parents and it helps in concentrate on their works. So it is very useful. It is helpful in implement in the places like hospitals and it is more helpful in implementing in the workplaces where the ladies or motherhood are working. Thus, monitoring often needs to be conducted over many hours or days to collect meaningful data. In this work, we implement the methods for the detection of cry signals in audio recordings.

CHAPTER-2

INTRODUCTION

2.1Introduction

Infant cry is one of the first distinctive and informative life signals observed after birth. Neonatologists and automatic assistive systems can analyse infant cry to early-detect pathologies. These analyses extensively use reference expert-curated databases containing annotated infant-cry audio samples. However, these databases are not publicly accessible because of their sensitive data. Moreover, the recorded data can under-represent specific phenomena or the operational conditions required by other medical teams. . In the last decades, several studies have adopted artificial intelligence methodologies to analyse infant cry and assist medical experts in the early diagnosis of neonatal pathological status.

2.2Block Diagram

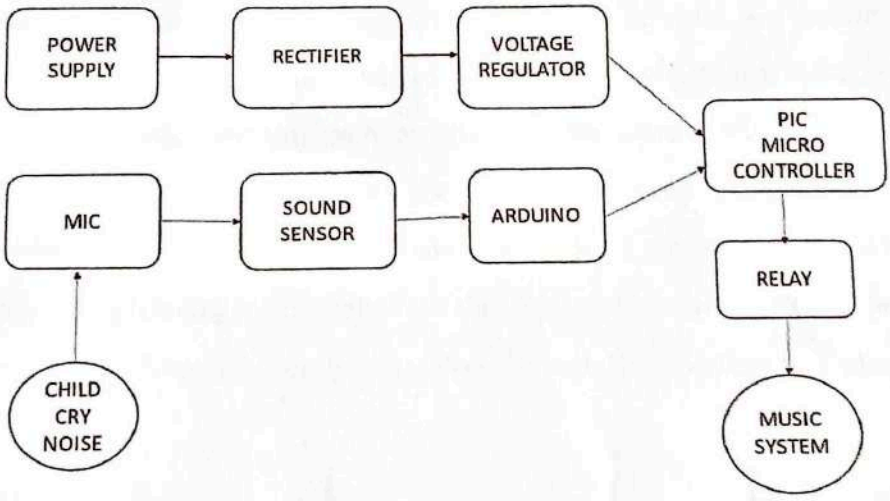

Figure 2.1 Block Diagram of the system

2.3 Description of Various blocks

A power supply is a device that converts one voltage to another more convenient voltage while delivering power. Power supplies are designed from the output back to the input. A voltage regulator is a circuit that creates and maintains a fixed output voltage, irrespective of changes to the input voltage or load conditions. Voltage regulators (VRs) keep the voltages from a power supply within a range that is compatible with the other electrical components. Arduino is an open-source electronics platform based on easy-to-use hardware and software. A microphone is a device that translates sound vibrations in the air into electronic signals and scribes them to a recording medium or over a loudspeaker. Microphones enable many types of audio recording devices for purposes including communications of many kinds, as well as music vocals, speech and sound recording. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. A sound sensor is defined as a module that detects sound waves through its intensity and converting it to electrical signals. sound sensor consists of an in-built capacitive microphone, peak detector and an amplifier (LM386, LM393, etc.) that's highly sensitive to sound. Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, implantable medical devices, remote controls, office machines, appliances, power tools, toys and other embedded systems. The relay permits a small amount of electrical current to control high current loads. When voltage is supplied to the coil, small current passes through the coil, resulting in a larger amount of current passing through the contacts to control the electrical load.

CHAPTER-3

HARDWARE DESCRIPTION

3.1Introduction

The human cry has several roles, depending on developmental stage. The initial function, and thus developmental origin, is relatively clear. For some of the other aspects, there are generally-accepted theories and hypotheses, but not solid conclusions, as we are not sufficiently confident of psychological theory as a means for prediction. The vocal cry is one of the first forms of communication to interact with the caregiver, and is common to more species than humans. proposed that feedback-sensitive attachment behavior is vital to retain the caregivers proximity, and that crying is one of the most important channels for establishing it . In humans, the infant depends on the caregiver for food, safety and warmth . As a result, much of our functioning focuses on a kind of co-regulation that caregivers provide to infants early in life, and adult partners to each other later in life .

3.2 Circuit Diagram

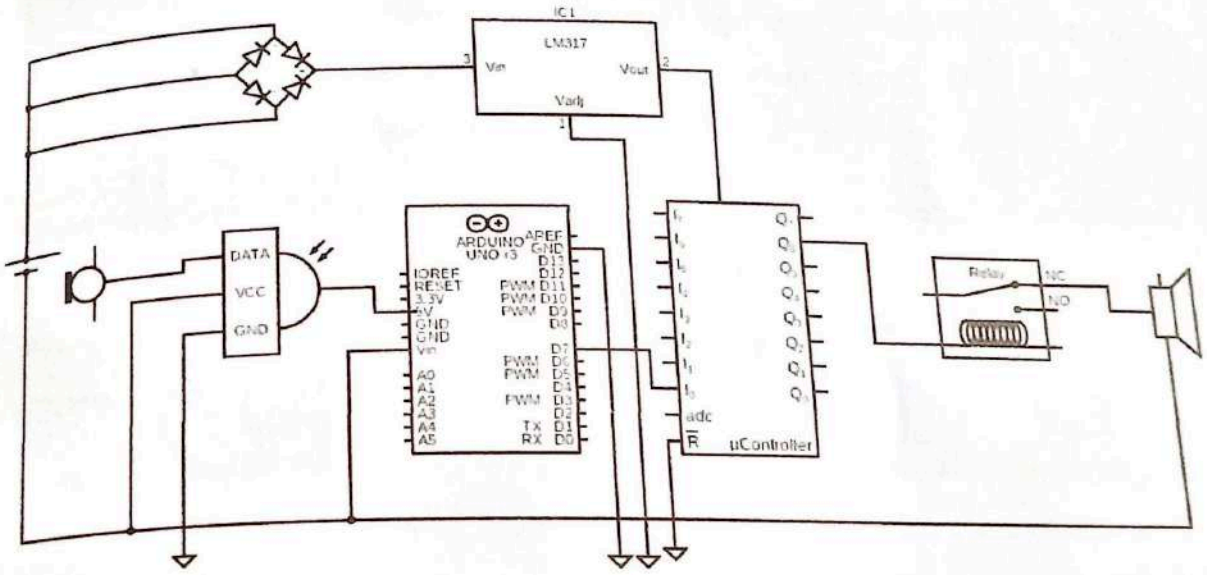

Figure 3.1 Hardware circuit diagram

3.3 Description of Components

Power Supply: A power supply is a device that converts one voltage to another more convenient voltage while delivering power. Power supplies are designed from the output back to the input. A voltage regulator is a circuit that creates and maintains a fixed output voltage, irrespective of changes to the input voltage or load conditions.

Voltage Regulator: Voltage regulators (VRs) keep the voltages from a power supply within a range that is compatible with the other electrical components.

Mic: A microphone is a device that translates sound vibrations in the air into electronic signals and scribes them to a recording medium or over a loudspeaker. Microphones enable many types of audio recording devices for purposes including communications of many kinds, as well as music vocals, speech and sound recording.

Arduino: Arduino is an open-source electronics platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online.

Sound sensor: A sound sensor is defined as a module that detects sound waves through its intensity and converting it to electrical signals. sound sensor consists of an in-built capacitive microphone, peak detector and an amplifier (LM386, LM393, etc.) that's highly sensitive to sound.

Microcontrollers: Microcontrollers are used in automatically controlled products and devices, such as automobile engine control systems, implantable medical devices, remote controls, office machines, appliances, power tools, toys and other embedded systems.

Relay: The relay permits a small amount of electrical current to control high current loads. When voltage is supplied to the coil, small current passes through the coil, resulting in a larger amount of current passing through the contacts to control the electrical load.

3.4 COST OF ESTIMATION

S.NO	COMPONENTS NAME	SPECIFICATION	COST APPROXIMATE
1	Arduino	UNO	700
2	Relay driver	12v	100
3	Mic sound sensor board	-	150
4	Speaker	-	80
5	Power supply adapter	12v-2AMPS	500
6	Memory card	-	160
7	Mp3 Player	-	600
		TOTAL	2,290

CHAPTER-4
RESULT AND DISCUSSION

4.1Hadware Implementation

Figure 4.1 Experimental test setup

4.2Working Project of the Model

Research shows that babies' crying frequencies are different in the different times [6], such as when they are sleeping, the crying frequency is about 6 kHz, and when the baby is hungry, the crying frequency is about 15 kHz. The data collection processing of the baby crying voice is demonstrated in Figs.1. The Common MIC is employed to collect audio signals and the voltage is about 100mV. After researching and analyzing carefully, the filter's passband is set up 4 kHz-17 kHz. Because the analog signal of the MIC is very weak, it is inconvenient for the subsequent processing; the signal is required to amplify. After 50 times magnification, the signal peak value is about 5V. In the general case, the noise can be a considerable distraction. There is a greater chance of false judgment without filtering. Therefore filtering of the signals should be added. By using a diode to shape the signal, the amplitude of the thus obtained signals are positive, which prepares the next envelope processing. Then after the strength envelope, analog signal is converted to digital signals. The physical meaning of the signal is the time of the baby crying duration. Recording starts when the signal from the comparator turns into the high level. If sustained high nominal time constantly remains the same, then the collected signal is considered as crying signals and an interrupt signal would occur.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

.1 Conclusion

- Nowadays, the baby automated monitoring system needs intelligently detect the baby's crying.
- In this paper, a baby crying detection circuit is designed and implemented according the characteristics of the baby crying frequency, which provides the automated data acquisition for the baby crying.
- From the result of testing, the system network is flexibility, good real-time, stable and efficient, which is of great significance to improve medical staff's work efficiency and reduce working intensity.

.2 Future scope

- The presented approach is cost-effective from the point of view of recording session organisation and realisation, since it works even with cellular phone recordings
- Therefore, its realisation would be affordable for many hospitals.
- Our present solution has a large applicability range at the expense of a lower precision and accuracy in some operational conditions.

REFERENCES

1.In 2019, Karinki Manikanta, K.P. Soman, M. Sabarimalai Manikandan proposes a "Deep Learning-Based Effective Baby Crying Recognition Method under Indoor Background Sound Environments" They ran into issues with data availability. There aren't many cry sound databases available for free in the literature. As a result, they are attempting to assess ML-based newborn crying sound detection algorithms.

2.In 2016 Yizhar Lavner, Rami Cohen, Dima Ruinskiy, and Hans Ijzerman proposes a "Baby Cry Detection in Domestic Environment using Deep Learning". The challenges faced are Preprocessing and feature extraction from the dataset to build the model. As a result, the audio recordings are split into overlapping segments, which are then further divided into frames.

3.In 2017 Pruthvi Raj Myakala1, Rajasree Nalumachu2, Shivam Sharma3, and V. K. Mittal4 proposes an "An Intelligent System for Infant Cry Detection and Information in Real-Time" in which information transmitting functionality (through MMS, text messages) is hampered by the availability of strong mobile networks in the system's immediate proximity. The latency of various operations is measured.

4.In 2017 G.V.I.S. Silva, D.S. Wickremasinghe "Baby Cry Recognition in Real-World Conditions" With the help of the proposed cry detection algorithm, it easily identifies the infant's cry and verified it by using KNN with accurate results. To reduce the size of features involved, they used MFCC to obtain the Feature vector. Framing and windowing are followed by FFT and DCT to obtain the features.

5. Desai, N., Dhameliya, K. and Desai, V. (2013). Feature Extraction and Classification Techniques for Speech Recognition International Journal of Emerging Technology and Advanced Engineering[Online] Volume 3, Issue 12, December pp:367-371 Available from: http:// www.ijetae. com/files/ Volume3Issue12/IJETAE_1213_64.pdf[accessed:24/02/2015].

Figure 4.1 Experimental test setup

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A Minor Project Report on

GYROSCOPIC SENSOR BASED DRONE CONTROL

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ABSTRACT

Of all the control techniques, gyroscopic method of control is the latest mode of operation. Through the gyroscopic sensor, axial motion can be tracked, we can produce the similar control signal which makes the drone operate similar to the remote control method. As there is no large number of components used in the input control unit, the power it consume are also comparatively low in this mode of control. This project is discussed all about the design and construction mechanism of the prototype using Arduino and gyroscopic sensor. This Project aims at implementing a new mode of control operation to improve accuracy in control. The project is useful during the need of sensitive control is required. The system requires a RF radar module for the transmission of signal and the control received in the drone. Arduino Uno is used that generates transmission signals periodically to transmit through the transmitter module connected. The power supply for the control board is supplied with the external battery source.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

By this method of control the control of drone can be achieved with high accuracy. This system with Arduino is an essential method of component interfacing to make any project easily. It is a new method of control strategy in electronic device that consume very low power as the components used are limited and simple process.

5.2 Future Scope

- This method of control can adopted to control more number of electronic devices.
- The goals of this project were a purposely kept within what was believed to be attainable within the desired components. As such, many advance improvements can be made up of from the existing design for further developments.
- It is felt this design represents a functioning scale model which could be replicated for a much larger scale in various field of control in accurate level.

Applications

- The field or place where the high accurate level of control is required is applicable.
- This technique can be integrated to the next updated level of control technique.
- This method can be used for the entertainment purpose as the toy for the children to play.
- This mode of operation can be used in the place where the power is to be use in less amount.
- These can be used in home to power the appliances using solar power.
- These can be used in industries as more energy can be saved by using this method of control.

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A Minor Project Report on

AN ARDUINO BASED AUTOMATED CHARGING SYSTEM FOR ELECTRIC VEHICLE

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ABSTRACT

This program contains Arduino microcontroller, inductive coils, motor prototype module. Persistent weather conditions have led to the research and development of electric vehicles over the past decade. Rising global warming has created awareness among people to switch to electric vehicles. The waiting time required for charging stations while the battery is being charged will be reduced the amount of time that the discharge will be performed at the station. Although electric vehicles are an alternative, there is a need for improvements in their charging system to be the best mode of transportation. For this purpose, charging systems should be upgraded.

The proposed system uses wireless charging based on the Arduino microcontroller or a production method for charging electric vehicles. This program contains Arduino microcontroller, inductive coils, motor prototype module. Persistent weather conditions have led to the research and development of electric vehicles over the past decade. Rising global warming has created awareness among people to switch to electric vehicles This charging system can also be used in big cities.

Wireless charging performance is based on Electromagnetic Induction. The cable coils in the base unit act as the main coil and create a magnetic field as the current passes through it. This field sends a stream to the nearest coil without touching it. here we look at this nearby coil as a second turn and connect it to the car, wireless charging is available. The car can charge automatically if it is mounted on a battery-connected coil. This method is used to reduce air pollution and demand in petroleum products.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

- With the development of EV technology, charging infrastructure and grid integration areas, EV popularity is expected to grow significantly over the next decade.
- This paper elaborates on EVs wireless charging technology offers the potential for better power efficiency, lower environmental impacts, lower life cycle costs, and greater comfort and safety operating benefits.

5.2 Future Scope

- Based on policy guidelines and emerging technologies. This section should visualize the future of WEVC Today, the international EV list is growing exponentially. Under the trend of industrial prosperity, the two possible approaches to WEVC include how to ensure sustainable growth of EV ownership and how to allow full play of uncontrolled EV development.
- In addition, the emergence of new technologies, building materials and ideas can make WEVC even more competitive. Powerful electrical appliances can benefit from advanced features as well. First, apart from flux leakage, reversing losses are another major source of energy wastage in the WEVC system.

5.3 Applications

- Environmentally Friendly - The most compelling reason to drive an electric vehicle is to help the environment. When compared to gasoline-powered vehicles, they do not emit poisonous emissions that pollute the air.
- No Costs of Fuel or Gas - Because electric automobiles do not require fuel or gas to operate, consumers may avoid the escalating costs of these items. All you have to do now is connect and you'll be ready to travel the additional 100 miles.

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Certified that this Report titled **"AUTOMATIC CHANGE OVER SWITCH BY USING ARDUINO"** is the bonafide work of **SANTHOSH K (20BEE4079), SATHISH T (20BEE4083), PRITHVIRAJ B (20BEE4318), SARANBABU B C (20BEE4320)**, who carried out the work during the academic year (2022-2023).

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ABSTRACT

This project presents the design and construction of a Automatic Change Over Switch. Power failure or outage in general does not promote development to public and private sector. The investors do not feel secure to come into a country with constant or frequent power failure. These limit the development of industries. In addition, there are processes that cannot be interrupted because of their importance, for instance surgery operation in hospitals, transfer of money between banks and lots more. Our project presents the design and construction of an automatics power changeover switch that switches power from public supply to generator once there is public supply outage and it does this automatically. This is achieved by the use of electronic control circuit, transistor, contactor, and relays to effect switching. The project is designed for power supply applications. It involves automatic changeover between the main power supply and an auxiliary power supply, such as a generator. The circuit of the project consists of logical control unit and relay switches. The design of the project takes into consideration practical or real-life situations, even though it is a prototypes design. Irrespective of that fact, a lot of precautions were put in place to make its performance acceptable. The basic operation of the project is to switch to a main source or an auxiliary source automatically. This operation connects the power supply from the generator to the load after a predetermined time interval. Switching is possible through the use of the relays and contactor.

CHAPTER 5

CONCLUSION

This project designed and constructed has high efficiency. The automatic changeover switch was tested after the construction it was in a perfect working condition. The project has really exposed us to lot of things concerning the design and construction of automatic changeover switch. The knowledge and techniques acquired while doing this project will assist us in the future to do automatic changeover switch of different ratings and wattage for personal and commercial purposes.

5.1 RECOMMENDATION

Considering the problem encountered, the knowledge and the training acquired during the course of this project, the recommendation can be made. This automatic changeover switch is reliable and easy to understand it operation. This system can be used for automatic changeover of power supply and auxiliary supply. This automatics changeover switch can be used in our home and offices. It can be used for effective switching of electricity supply.

5.2 APPLICATIONS

These switches are used for protecting telecommunication & data networks, industrial processes & critical installations like financial transaction centres & health care facilities. And these also used to transfer electrical power between two power sources like primary utility & secondary backup power source. These types of switches are also used in other electricity switching applications like utility to utility, the generator to generator & three-source systems. ATS is used in Hospitals, schools, medical buildings, malls, restaurants, malls, warehouses, factories, etc.

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A Minor Project Report on

SINGLE PHASE FIVE- LEVEL CASCADED H-BRIDGE INVERTER

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ABSTRACT

A multi-level inverter is one kind of effective and practical solution to the increasing power demand and reducing harmonics of ac waveforms. The multilevel inverter proposed in this work requires eight switches to achieve the five level output. By reducing switches and increasing levels will reduce filter costs, harmonic content, reducing switching losses and costs. In this work, two H-bridge inverters are used to obtain the output voltage level. The two H-bridge inverters are cascaded in series to get the desired Five level of output voltage. The validation of the circuit is done using MATLAB/SIMULINK platform. The output voltage waveform is obtained in the range of 400V.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

In this work, the working and operation of a cascaded multilevel inverter has been analyzed. Eight semiconducting switches are used to produce five-level at the output terminal of the inverter. The proposed inverter uses a multicarrier sine PWM technique to generate the required switching signals for the semiconducting devices. Apart from voltage analysis, the THD level of the inverter is also examined. Actually, it successfully lowers lower order harmonics. As a result, effective overall harmonic distortion reduction is made.

5.2 Future Scope

As a future scope, multilevel inverter can be analysed for different output levels by changing modulation index and switching frequency. Advanced PWM techniques can also incorporated to improve the efficiency of the inverter

5.3 Applications

- Medium voltage and high-power applications
- UPS
- High voltage DC transmission
- Variable Frequency Drives
- In pumps
- Conveyors

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A Minor Project Report on

POWER QUALITY IMPROVEMENT USING DYNAMIC VOLTAGE RESTORER

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ABSTRACT

Power Quality is an essential concern in the modern power system that can affect consumers and utility. The integration of renewable energy sources, smart grid systems and extensive use of power electronics equipment caused myriad problems in the modern electric power system. Current and voltage harmonics, voltage sag, and swell can damage the sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. Hence, in the modern age, with an increase in sensitive and expensive electronic equipment, power quality is essential for the power system's reliable and safe operation. Dynamic Voltage Restorer (DVR) is a potential Distribution Flexible AC Transmission System (D-FACTS) device widely adopted to surmount the problems of non-standard voltage, current, or frequency in the distribution grid. It injects voltages in the distribution line to maintain the voltage profile and assures constant load voltage. The simulations were conducted in MATLAB/Simulink to show the DVR-based proposed strategy's effectiveness to smooth the distorted voltage due to harmonics. The systems' response for load voltage is evaluated for with DVR. It has been noted that the proposed DVR based strategy has effectively managed the voltage distortion, and a smooth compensated load voltage was achieved. The load voltage THD percentage was found to be approximately 0.77 %.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

DVR is proposed as the most notable gadget to improve power quality and has shown to be a valuable and well-performing device. A simulation of a DVR with a power circuit is carried out using the MATLAB/ Simulink platform, with construction and modelling of the control circuit and power system with a sensitive load. The DVR is integrated into the test system and tested with and without the DVR. A programmable voltage source is used to provide a distorted voltage with harmonic content and harmonic insertion in the supply voltage. The proposed DVR-based control technique compensated for the distorted load voltage and maintained a superior constant and smooth voltage profile with very little harmonic content.

5.2 Future Scope

The use of soft computing-based control strategies, such as adaptive Neruo Fuzz controllers, to improve power quality is a promising future direction for this study.

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A Minor Project Report on

HEALTH MONITORING SYSTEM WITH MEDICINE BOX

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ABSTRACT

System health monitoring is a set of activities undertaken to maintain a system in operable condition and may be limited to an observation of current system states, with maintenance and repair being prompted by these observations. Many sensors are required to provide real-time, onboard structural integrity assessments for the integrated system health management (ISHM) system. This chapter reviews system healthmonitoring sensor technologies, builds a sensor optimization selection model to select the minimal most informative, cost-effective sensor subset, and develops an energy-efficient decentralized detection scheme based on the sensor selective framework.

CHAPTER 5

CONCLUSION AND FUTURESCOPE

5.1 CONCLUSION

Health monitoring system is one of the meaningful ways for keeping the full health record. However, the process of valuable data can be helpful to manage the process. In the perspective ,it is important to make the process and collection meaningful patient data between the visits. Hence , continuous change in hardware as well as connectivity technology is the major issued faced while using health monitoring system with medicine in the healthcare.

5.2 FUTURE SCOPE

According to the availability of sensors or development in biomedical trend more parameter can be sensed and monitored which will drastically improve the efficiency of the wireless monitoring system in biomedical field. A graphical LCD can be used to display a graph of rate of change of health parameters over time. The whole health monitoring system which we have framed can be integrated into a small compact unit as small as a cell phone or a wrist watch. This will help the patients to easily carry this device with them wherever they go. In addition with medical application we can use our system in industrial and agricultural application by using sensors like humidity sensors, fertility check sensors, etc.

5.3 APPLICATIONS

- The health monitoring system provides multiple options to change the traditional management of patients.
- Moreover, this solution reduces the cost of health care and helps the hospital to improve the treatment process, and provides a remote health monitoring system.

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A Minor Project Report on

SMART GLASSES FOR BLIND PEOPLE

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ABSTRACT

Persons who are blind and deaf frequently suffering when exercising the most basic things of daily life and that could put lives at risk while traveling, due to the lack of necessary equipment in our country that provides them with assistance to avoid the risk, so came the idea of this research in the design and manufacturing ultrasonic sensor which combines the properties of sound monition and that benefit the blind and vibrating alert feature, which benefit from the experience of deafness. Sensor can detect obstacles within the designed range (150 cm) to avoid the blind person through the issuance of distinctive sound or vibration can be issued by the sense of the deaf by putting his finger on the button at the top of the device vibrate when there is a risk.

CHAPTER 5

CONCLUSION AND FUTURESCOPE

5.1 CONCLUSION

The objective of this project is to design a product which is very much useful to those people who are visually impaired and those who often have to rely on others. This project is an innovation which helps the blind person to move around and go from one place to another with speed and confidence by knowing the nearby obstacles using the help of the wearable band which produces the ultrasonic waves which notify them with buzz sound and vibrations. It allows the user those who are visually impaired to walk freely by detecting the obstacles.

5.2 FUTURE SCOPE

- ✓ Arduino will be replaced by Raspberry Pi and camera module will be added which will perform image processing for detecting difference between humans and Obstacles.
- ✓ The obstacle or signal on road will be detected by camera module. The data will be sent to **Raspberry pi** which will command the motor to vibrate if an obstacle is detected. **Gps module** will guide them to reach their destination as well as to their homes.

5.3 APPLICATIONS

- ✓ This devices helps the blind people to easily feel the obstacles in front of them and can save them from accidents.

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A Minor Project Report on

LECTURE ALERTING SYSTEM USING ARDUINO

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ABSTRACT

The forgetness becomes more common to all the human beings. This can be easily overcome by using our modern technologies. The technologies are getting more developed day by day. One of the most developed and developing technologies in that list are IoT (internet of things). By using this IoT the cloud can be easily accessed and handled by the users. In most of the cases the lecture's forgot their handling classes in their busy schedule, to overcome this the project gives the better solution for the struggles handled by the lectures during their working hours. By using the Arduino, the timings are managed and the alert message will be given to the faculty's mobile phone through the IFTTT SMS server.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

By using this system the work pressure between the faculty and the teachers are handled. So, they do their work with more pleasure and gratitude. By using this smart method, they can be easily involved into the work what they are doing. There is no necessity to remember their time table because the system is going to alert the lectures before 10 minutes from the allotted time. It is very helpful for them to arrive at their classes on time and they can handle the classes in stress free environment. Due to this the time was managed and classes were handled on time.

5.2 Future Scope

In future the system was developed in many stages with more automation in it. Now the system is only connected for working in the periods next the system can be turn into an automation, like the time was stetted automatically while the system is switched on and add external futures like they were alerted with their next day periods on before the day with respective time for preparing for the classes. By this they can clearly prepare on the topics what they are teaching on next day classes. This is very helpful to be aware of their works.

5.3 Applications

It is used in colleges and schools for scheduling their periods on time. There is no necessity to remember their time table because the system is going to alert the lectures before 10 minutes from the allotted time.

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A Minor Project Report on

ARDUINO BASED FIRE FIGHTING ROBOT WITH CALL AND MESSAGE ALERT

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ABSTRACT

This advanced firefighting robotic system independently detects and extinguishes fire. In the age of technology, the world is slowly turning towards the automated system and self-travelling vehicles, fire fighters are constantly at a risk of losing their life. Even though there are many precautions taken for Fire accidents, these natural/man-made disasters do occur now and then. In the event of a fire breakout, to rescue people and to put out the fire we are forced to use human resources, which are not safe. With the advancement of technology especially in Robotics, it is very much possible to replace humans with robots for fighting the fire. This would improve the efficiency of firefighters and would prevent them from risking human lives Fire spreads rapidly if it is not controlled. In case of a gas, leakage there even may be an explosion. Therefore, in order to overcome this issue, safe guard live of our hero, our system comes to the rescue. Arduino Uno development board it consists of the ultra-sonic sensor mounted on a servomotor for obstacles detection and free path navigation powers this firefighting robotic system, it is also equipped with the fire sensor or flame sensor for detecting and approaching fire it also makes use of water tank and spray mechanism for extinguishing the fire. Water spraying nozzle is mounted on servomotor to cover maximum area. Water is pumped from the main water tank to the water nozzle with the help of a pump. This water pump needs driver circuit as it consumes a lot of current, much more than the controller provides.

CHAPTER 5
CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The system design as the control center, executes with the same design and sensors fire warning silent. Similar to the present condition robots for the fire, the proposed robot for the firefights. Special low-cost fire designed to follow remarkable monitoring sensors via the GSM module will more accurately warn the fire service, improving firefighting capability.

5.2 Future scope

The fire extinguishing system can combat fire accidents and minimize damage to both human lives and property without exposing fire fighters to additional risks. The proposed robot can automatically detect and extinguish fire before it spreads.

5.3 Application

Robotic firefighting systems are designed with certain tasks in mind. These include analyzing and locating fires, conducting search and rescue, monitoring hazardous variables and the primary task of fire control and suppression.

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A Minor Project Report on

ENERGY RECYCLING USING PIEZOELECTRIC FOOTSTEP POWER GENERATOR

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ABSTRACT

In recent times, the demand for energy has been increasing due to the depletion of conventional energy resources. Fossil fuel as a source of electrical energy has contributed to a severe environmental pollution problem. Therefore, an alternative method to produce electricity has to be put in place. Man has needed and used energy at an increasing rate for the sustenance and well-being since time immemorial. Due to this a lot of energy resources have been exhausted and wasted. Proposal for the utilization of waste energy of foot power with human locomotion is very much relevant and important for highly populated countries like India where the railway station, temples etc., are overcrowded all round the clock. When the flooring is engineered with piezo electric technology, the electrical energy produced by the pressure is captured by floor sensors and converted to an electrical charge by piezo transducers, then stored and used as a power source. And this power source has many applications as in agriculture, home application and street lighting and as energy source for sensors in remote locations. This project is all about generating electricity when people walk on the Floor. Think about the forces you exert which is wasted when a person walks. The idea is to convert the weight energy to electrical energy The Power generating floor intends to trans- late the kinetic energy to the electrical power.

Keywords: Conventional energy, piezoelectric sensor, Pressure

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

The utilization of waste energy of foot power with human locomotion is very much relevant and important for highly populated countries like India and China where the roads, railway stations, bus stands, temples, etc. are all overcrowded and millions of people move around the clock. The energy of human locomotion can be converted to electrical energy with the help of promising technologies. In this project, we are generating electrical power as a non-conventional method by simply walking or running in the footstep. The non-conventional energy system is very essential at this time to our nation. Non-conventional energy using footsteps is converting mechanical energy into electrical energy.

5.2 Future Scope

The piezoelectric crystals have been starting better use with a positive result. In China and Japan, maximum public movement is observed in railway stations, airports, and shopping malls. Hence this place can be used for piezoelectric crystals for the generation of electric power. Apart from all the above places attempts are made to develop energy from our daily life by initialing piezoelectric in shoes thus in each step piezoelectric crystals can be compressed which can turn enough power to charge a cell phone mp3 player etc. Through this, we can generate electric power and use it for small electronic gadgets. The Utilization of the Waste Energy of foot power with human locomotion is very important and highly populated countries. In India, where the roads railway stations, temples, etc., are all over-crowded and millions of people move around the clock.

5.3 Application

To capture the typically wasted energy surrounding a system and transform. It uses a 12 Volt Battery Charging System. Arduino UNO is used in the footstep power generation system.

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A Minor Project Report on

GYROSCOPIC SENSOR BASED DRONE CONTROL

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ABSTRACT

Of all the control techniques, gyroscopic method of control is the latest mode of operation. Through the gyroscopic sensor, axial motion can be tracked, we can produce the similar control signal which makes the drone operate similar to the remote control method. As there is no large number of components used in the input control unit, the power it consume are also comparatively low in this mode of control. This project is discussed all about the design and construction mechanism of the prototype using Arduino and gyroscopic sensor. This Project aims at implementing a new mode of control operation to improve accuracy in control. The project is useful during the need of sensitive control is required. The system requires a RF radar module for the transmission of signal and the control received in the drone. Arduino Uno is used that generates transmission signals periodically to transmit through the transmitter module connected. The power supply for the control board is supplied with the external battery source.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

By this method of control the control of drone can be achieved with high accuracy. This system with Arduino is an essential method of component interfacing to make any project easily. It is a new method of control strategy in electronic device that consume very low power as the components used are limited and simple process.

5.2 Future Scope

- This method of control can adopted to control more number of electronic devices.
- The goals of this project were a purposely kept within what was believed to be attainable within the desired components. As such, many advance improvements can be made up of from the existing design for further developments.
- It is felt this design represents a functioning scale model which could be replicated for a much larger scale in various field of control in accurate level.

Applications

- The field or place where the high accurate level of control is required is applicable.
- This technique can be integrated to the next updated level of control technique.
- This method can be used for the entertainment purpose as the toy for the children to play.
- This mode of operation can be used in the place where the power is to be use in less amount.
- These can be used in home to power the appliances using solar power.
- These can be used in industries as more energy can be saved by using this method of control.

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A Minor Project Report on

AN ARDUINO BASED AUTOMATED CHARGING SYSTEM FOR ELECTRIC VEHICLE

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ABSTRACT

This program contains Arduino microcontroller, inductive coils, motor prototype module. Persistent weather conditions have led to the research and development of electric vehicles over the past decade. Rising global warming has created awareness among people to switch to electric vehicles. The waiting time required for charging stations while the battery is being charged will be reduced the amount of time that the discharge will be performed at the station. Although electric vehicles are an alternative, there is a need for improvements in their charging system to be the best mode of transportation. For this purpose, charging systems should be upgraded.

The proposed system uses wireless charging based on the Arduino microcontroller or a production method for charging electric vehicles. This program contains Arduino microcontroller, inductive coils, motor prototype module. Persistent weather conditions have led to the research and development of electric vehicles over the past decade. Rising global warming has created awareness among people to switch to electric vehicles This charging system can also be used in big cities.

Wireless charging performance is based on Electromagnetic Induction. The cable coils in the base unit act as the main coil and create a magnetic field as the current passes through it. This field sends a stream to the nearest coil without touching it. here we look at this nearby coil as a second turn and connect it to the car, wireless charging is available. The car can charge automatically if it is mounted on a battery-connected coil. This method is used to reduce air pollution and demand in petroleum products.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

- With the development of EV technology, charging infrastructure and grid integration areas, EV popularity is expected to grow significantly over the next decade.
- This paper elaborates on EVs wireless charging technology offers the potential for better power efficiency, lower environmental impacts, lower life cycle costs, and greater comfort and safety operating benefits.

5.2 Future Scope

- Based on policy guidelines and emerging technologies. This section should visualize the future of WEVC Today, the international EV list is growing exponentially. Under the trend of industrial prosperity, the two possible approaches to WEVC include how to ensure sustainable growth of EV ownership and how to allow full play of uncontrolled EV development.
- In addition, the emergence of new technologies, building materials and ideas can make WEVC even more competitive. Powerful electrical appliances can benefit from advanced features as well. First, apart from flux leakage, reversing losses are another major source of energy wastage in the WEVC system.

5.3 Applications

- Environmentally Friendly - The most compelling reason to drive an electric vehicle is to help the environment. When compared to gasoline-powered vehicles, they do not emit poisonous emissions that pollute the air.
- No Costs of Fuel or Gas - Because electric automobiles do not require fuel or gas to operate, consumers may avoid the escalating costs of these items. All you have to do now is connect and you'll be ready to travel the additional 100 miles.

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A Minor Project Report on

AUTOMATIC CHANGE OVER SWITCH BY USING ARDUINO

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ABSTRACT

This project presents the design and construction of a Automatic Change Over Switch. Power failure or outage in general does not promote development to public and private sector. The investors do not feel secure to come into a country with constant or frequent power failure. These limit the development of industries. In addition, there are processes that cannot be interrupted because of their importance, for instance surgery operation in hospitals, transfer of money between banks and lots more. Our project presents the design and construction of an automatics power changeover switch that switches power from public supply to generator once there is public supply outage and it does this automatically. This is achieved by the use of electronic control circuit, transistor, contactor, and relays to effect switching. The project is designed for power supply applications. It involves automatic changeover between the main power supply and an auxiliary power supply, such as a generator. The circuit of the project consists of logical control unit and relay switches. The design of the project takes into consideration practical or real-life situations, even though it is a prototypes design. Irrespective of that fact, a lot of precautions were put in place to make its performance acceptable. The basic operation of the project is to switch to a main source or an auxiliary source automatically. This operation connects the power supply from the generator to the load after a predetermined time interval. Switching is possible through the use of the relays and contactor.

CHAPTER 5

CONCLUSION

This project designed and constructed has high efficiency. The automatic changeover switch was tested after the construction it was in a perfect working condition. The project has really exposed us to lot of things concerning the design and construction of automatic changeover switch. The knowledge and techniques acquired while doing this project will assist us in the future to do automatic changeover switch of different ratings and wattage for personal and commercial purposes.

5.1 RECOMMENDATION

Considering the problem encountered, the knowledge and the training acquired during the course of this project, the recommendation can be made. This automatic changeover switch is reliable and easy to understand it operation. This system can be used for automatic changeover of power supply and auxiliary supply. This automatics changeover switch can be used in our home and offices. It can be used for effective switching of electricity supply.

5.2 APPLICATIONS

These switches are used for protecting telecommunication & data networks, industrial processes & critical installations like financial transaction centres & health care facilities. And these also used to transfer electrical power between two power sources like primary utility & secondary backup power source. These types of switches are also used in other electricity switching applications like utility to utility, the generator to generator & three-source systems. ATS is used in Hospitals, schools, medical buildings, malls, restaurants, malls, warehouses, factories, etc.

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A Minor Project Report on

SINGLE PHASE FIVE- LEVEL CASCADED H-BRIDGE INVERTER

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ABSTRACT

A multi-level inverter is one kind of effective and practical solution to the increasing power demand and reducing harmonics of ac waveforms. The multilevel inverter proposed in this work requires eight switches to achieve the five level output. By reducing switches and increasing levels will reduce filter costs, harmonic content, reducing switching losses and costs. In this work, two H-bridge inverters are used to obtain the output voltage level. The two H-bridge inverters are cascaded in series to get the desired Five level of output voltage. The validation of the circuit is done using MATLAB/SIMULINK platform. The output voltage waveform is obtained in the range of 400V.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

In this work, the working and operation of a cascaded multilevel inverter has been analyzed. Eight semiconducting switches are used to produce five-level at the output terminal of the inverter. The proposed inverter uses a multicarrier sine PWM technique to generate the required switching signals for the semiconducting devices. Apart from voltage analysis, the THD level of the inverter is also examined. Actually, it successfully lowers lower order harmonics. As a result, effective overall harmonic distortion reduction is made.

5.2 Future Scope

As a future scope, multilevel inverter can be analysed for different output levels by changing modulation index and switching frequency. Advanced PWM techniques can also incorporated to improve the efficiency of the inverter

5.3 Applications

- Medium voltage and high-power applications
- UPS
- High voltage DC transmission
- Variable Frequency Drives
- In pumps
- Conveyors

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A Minor Project Report on

POWER QUALITY IMPROVEMENT USING DYNAMIC VOLTAGE RESTORER

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TABLE OF CONTENTS

ABSTRACT

Power Quality is an essential concern in the modern power system that can affect consumers and utility. The integration of renewable energy sources, smart grid systems and extensive use of power electronics equipment caused myriad problems in the modern electric power system. Current and voltage harmonics, voltage sag, and swell can damage the sensitive equipment. These devices are susceptible to input voltage variations created by interference with other parts of the system. Hence, in the modern age, with an increase in sensitive and expensive electronic equipment, power quality is essential for the power system's reliable and safe operation. Dynamic Voltage Restorer (DVR) is a potential Distribution Flexible AC Transmission System (D-FACTS) device widely adopted to surmount the problems of non-standard voltage, current, or frequency in the distribution grid. It injects voltages in the distribution line to maintain the voltage profile and assures constant load voltage. The simulations were conducted in MATLAB/Simulink to show the DVR-based proposed strategy's effectiveness to smooth the distorted voltage due to harmonics. The systems' response for load voltage is evaluated for with DVR. It has been noted that the proposed DVR based strategy has effectively managed the voltage distortion, and a smooth compensated load voltage was achieved. The load voltage THD percentage was found to be approximately 0.77 %.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

DVR is proposed as the most notable gadget to improve power quality and has shown to be a valuable and well-performing device. A simulation of a DVR with a power circuit is carried out using the MATLAB/ Simulink platform, with construction and modelling of the control circuit and power system with a sensitive load. The DVR is integrated into the test system and tested with and without the DVR. A programmable voltage source is used to provide a distorted voltage with harmonic content and harmonic insertion in the supply voltage. The proposed DVR-based control technique compensated for the distorted load voltage and maintained a superior constant and smooth voltage profile with very little harmonic content.

5.2 Future Scope

The use of soft computing-based control strategies, such as adaptive Neruo Fuzz controllers, to improve power quality is a promising future direction for this study.

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A Minor Project Report on

SMART SHOPPING CART WITH AUTOMATED BILLING SYSTEM

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ABSTRACT

In many industries, electronic devices such as smart card readers, barcodes, and RFID scanners are used. Supermarkets need these kinds of gadgets. Currently, every person in the mall purchases the product and placed in the trolley. Upon purchase, the person will have to stand in a queue for billing. In the billing process, an employee scans each product's barcode and bills it to the final. This process can take a lot of time and it can be even worse on holidays, special offers or weekends. To overcome this, a smart way to shop in malls has been developed. Each product has an RFID tag instead of a barcode. The smart trolley features an RFID reader, LCD module. When a person places any product on the trolley, it is scanned and the product's cost, name, and expiration date are displayed. The total cost will be added to the final check out bill.

Keywords: Smart Shopping Cart, RFID Technology, automatic billing system, EM 18 RFID Reader

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

Smart shopping carts with automated billing systems using RFID technology have the potential to revolutionize the retail industry by improving the shopping experience for customers and increasing efficiency for retailers. A smart shopping cart supports the customers to scan their products by themselves and check out directly on the cart customers on longer need to wait in line at the manually cash counter. RFID technology allows for quick and efficient scanning of products, reducing the need for manual input and making the shopping experience more convenient for customers. It also eliminates the need for manual scanning and billing, reducing the workloads on store employees and minimizing errors in billing. This not only saves time but also enhances the overall shopping experience. As technology continues to advance, we can expect to see more widespread adoption of these systems in the retail industry.

6.2 Future scope

Development of this project can be done in many ways, where RFID tags can be replaced by RFID stickers which are small in size, low cost. Security can be improved by counting the number of items or placing weight sensors within the cart for tallying the weight and getting all the types of product names when cart is passed through a particular aisle using camera module. Multiple RFID tags can be read using a single RFID reader for more number of products which are added in the cart. The future scopes of smart shopping carts with automated billing systems using RFID technology are vast and promising.

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A Minor Project Report on

PHASE OUTAGE INTIMATION IN THREE PHASE SYSTEM

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ABSTRACT

The main idea of our project is to intimate the power conversion from three phase to single phase conversion which routinely happens in the agricultural areas our project function as a phase outage intimation system. There are some industries which was in agricultural areas to operate their machines in two phase supply, they are using inverter but especially in textile industry, they use compressor for cleaning purposes which will operate only in three phase supply, hence by intimating whether the supply was three phase or single phase through their android devices, it will help them to do their work efficiently. The Compressor's operating time was one to two hours only for a day and hence they (the textile industry persons) do not show interest in replacing inverters with the compressor by considering the cost. The main idea behind phase outage intimation in the textile industry is to detect and inform the concerned personnel or system about the power outage in any of the three phases (i.e., A, B, or C) of the electrical supply. This is important because the textile industry heavily relies on electrical power for various operations, and a sudden power outage can cause significant disruptions and financial losses. By using a phase outage intimation system, the textile industry can minimize the downtime caused by power outages and ensure the safety of its machinery and workers.

Key Words: Phase Outage Intimation System, Textile Industry, Compressor.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1

6.1 Conclusion

In conclusion, implementing a Phase outage intimation system in the textile industry can greatly improve production efficiency and minimize downtime. By using a real-time monitoring system, textile manufacturers can identify and address Phase outages promptly, preventing delays and reducing waste. Additionally, the system can provide valuable data for identifying patterns and trends in production issues, allowing for continuous improvement and optimization. Overall, a Phase outage intimation system is a valuable investment for any textile manufacturer looking to increase productivity and reduce costs.

6.2 Future Scope

The future scope of a Phase outage intimation system in the textile industry is vast and promising. As technology advances, the system can become more sophisticated and provide more accurate and detailed information about production issues. Here are some potential future developments and applications of the system:

Integration with Artificial Intelligence (AI) and Machine Learning (ML) algorithms to analyze production data and identify patterns and trends that could predict potential Phase outages before they occur.

Integration with Internet of Things (IoT) devices, such as sensors and smart machines, to create a smart factory that can detect and respond to production issues automatically.

Development of a mobile application that allows production managers to monitor production status remotely, receive real-time notifications of Phase outages, and act quickly.

Integration with a predictive maintenance system that can monitor equipment conditions and predict when maintenance is needed, reducing downtime caused by unexpected equipment failures.

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A Minor Project Report on

DESIGN AND EXPERIMENTAL IMPLEMENTATION OF SMART WHEEL CHAIR USING ESP32

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ABSTRACT

Smart Wheel Chair is mechanically controlled devices designed to have self-mobility with the help of the user command. The food culture of India is drastically changing day by day .Due to this many of our elder(more than 60) are affected by health issues and leads to the people who loses the legs & born with physical immobility .In order to solve this problem " The Wheel Chair " was introduced . Due to the development of technology, it has developed to Smart Wheel chair. It is mainly used for elder people in order to move by their own & monitor their health remotely. In this product it has many sensors such as ultrasonic, temperature, pulse sensors etc. By the help of these technology, the immobility & health monitoring is also achieved.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Conclusion

In conclusion, the smart wheel chair project aims to develop a wheelchair equipped with advanced technologies that can enhance the mobility and independence of people with disabilities. The integration of features such as sensor-based navigation, voice-activated controls, automatic adjustments, remote monitoring and control, power assist, and safety features can provide users with a more efficient, safe, and comfortable mode of transportation.

Furthermore, incorporating additional components such as temperature sensors can improve the functionality of the wheelchair and provide additional benefits, such as monitoring the user's comfort level and adjusting the power settings in different weather conditions.

7.2 Scope of the projects

- We'll be able to detect the brain cells using a sensor and the smart wheelchair will move in that path. The user does not have to do anything. Only a brain sensor will be attached to the user and the wheel chair will automatically move and it'll also detect obstacles and warn the user about it.
- Enhanced navigation and obstacle avoidance: Smart wheelchairs can be equipped with sensors, cameras, and machine learning algorithms to navigate indoor and outdoor environments more effectively and avoid obstacles.
- Overall, the future scope for smart wheelchairs is exciting and holds great promise for improving the quality of life for people with disabilities.

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A Minor Project Report on

PERFORMANCE ANALYSIS OF PV FED EV CHARGE CONTROLLER

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ABSTRACT

Battery Monitoring System is an electronic system that monitors rechargeable battery cells or packs with various parameters, such as battery voltage, current and State-of-Charge. This system can be used to avoid overcharging or over-discharging of batteries to increase its shelf life. However, on the market is very expensive and not suitable for low cost embedded systems. As the Arduino Uno is widely used for low cost microcontroller boards, easy programming environment. This system consists of current and voltage sensors, an Arduino Uno microcontroller and a liquid crystal display (LCD). In order to develop this system, there are three objectives to be achieved. The calculation is defined as the average current coming from the battery multiplied by the time it takes to reach a safe cutoff point of the battery. These two variables, average discharge current and duration, are directly proportional to each other. Using the average current and time multiplied together provides amp hour rating. An efficient and low cost way to measure these values is by using a microcontroller such as Arduino Nano. It is extensive that batteries are strictly assessed and diagnosed before having them rented or exchanged for their condition to be highly maintained. The measurement of the battery's State- of-Charge and State-of-Health is derived from its load voltage, no-load voltage, load current, and temperature during experimentation. The estimation of State-of-Charge, State-of-Health, Discharge Rate, and Remaining Useful Life are then derived by utilizing the concept of correlation and regression from the yielded real-time parameters recorded to the SD card module. If batteries have reached their limit by using internal resistance to evaluate the state of health (SOH). However, due to capacity independence from the internal resistance, it can bring about contradicting outcomes for the SOH of the battery. Batteries create electrical power by converting energy from chemical reactions into electrical energy. Additionally our project cut off the voltage at 80% and which improve the battery life and life circle.

CHAPTER 5
CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

A Lead acid batteries real-time monitoring system was proposed based on the on-board monitoring device with various Sensors connected to it, android smart phone with Bluetooth based Application displays Battery Parameter Values with and Without Load. It can collect and display the voltage, current, temperature parameters of batteries by a phone.

5.2 Future Scope

The above architecture can be integrated with mobile phones and hence an Android application can be built to view this data. Also using a GSM Modem, we can collect this raw data and sent as an SMS message to mobile phones. With the help of mobile phones, the data can be collected and viewed even from remote locations, where Internet connection is weak. This prototype can also be extended for multiple battery monitoring system.

5.3 Outcomes

Applications include cell phone towers, power substations, Internet infrastructure equipment, aviation ground support systems, tower communications and weather stations, plus Distributed Energy Resources.

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A Minor Project Report on

AUTOMATED ROAD ACCIDENT DETECTION AND RESCUE SYSTEM

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ABSTRACT

The use of vehicles has doubled as a result of the population boom and so have the number of accidents. When a person drives his or her car, met with an accident, there is a chance that the individual may suffer from a serious injury or expire instantaneously and there is no one around him/her to help. Indeed, this framework is an answer for the issue. The system acts as an Accident Locator system that gathers and sends this vehicle information that met with an accident, and conveys it to the nearest control room, Primary Health Centers and also for the person preferred emergency Contacts. For this, the user vehicle is fixed a system along with GPS that forwards the information which includes the person Heart rates, location, date, and time. The objective of developing the system is to minimize the time to identify the location of the accident with the heart rate of the person to minimize the time to provide emergency services.

CHAPTER 5

CONCLUSION AND FUTURE SCOPE

5.1 Conclusion

- The proposed system is concerned with accident alerting and detection. The Arduino is the system's heart, assisting in the transfer of information to the various devices in the system.
- When an accident occurs, the vibration sensor activates, and the data is sent to the registered number. The location can be sent through a tracking system using GPS to cover the geographical coordinates of the area. A vibration sensor, which is a major module in the system, can detect an accident.
-

5.2 Future Scope

- The proposed system is concerned with the detection of accidents. However, this can be extended by providing victims with medication at the scene of the accident. By improving technology, we can also avoid accidents by providing alert systems that can stop the vehicle to avoid collisions.

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Department of Electrical and Electronics Engineering
M.Kumarasamy College of Engineering,
Karur.

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 21.04.2023.

M.KUMARASAMY COLLEGE OfENGINEERING

(Autonomous Institution, Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**DIGITAL AUDIO EFFECTS USING MATLAB SIMULINK**" is the bonafide work of DHANABAL R(20BEE4010), JEEVA M(20BEE4024), IMRAN S(20BEE4306), who carried out the work during the academic year (2022-2023).

SUPERVISOR

Mr.A.Udhaya kumar, M.E,
Assistant Professor,
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M.Kumarasamy College of Engineering,
Karur-639113.

HEAD OF THE DEPARTMENT

Dr.J.Uma, M.E., Ph.D.,
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M.Kumarasamy College of Engineering, Karur-639113.

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M. KUMARASAMY COLLEGE Of ENGINEERING

(Autonomous Institution , Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**THEATRE PIRACY REDUCTION**" is the bonafide work of **BALAKUMAR C[20BEE4005], KESAVAN K [20BEE4037], BARATHIRAJA B [20BEE40303],** who carried out the work during the academic year (2022-2023).

SUPERVISOR

Mrs.P.Sasirekha ME.,
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M.Kumarasamy College of Engineering,
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Dr.J. Uma ME.,Ph.D.
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M. Kumarasamy College of Engineering, Karur

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 24/04/2023.

M.KUMARASAMY COLLEGE OF ENGINEERING

(Autonomous Institution affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this report titled "**CIRCUIT BREAKER USING PASSWORD**" is the bonafide work of **DHARINISRI P S (20BEE4012), MADHURAMBIGA S (20BEE4045), MONIKA S (20BEE4050)**, who carried out the work during the academic year (2022-2023).

24/04/23

SUPERVISOR

Mr M Yuvaraj M.E.,
Assistant Professor,
Department of Electrical and Electronics Engineering,
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Karur-639113

24/5/23

HEAD OF THE DEPARTMENT

Dr J Uma M.E., Ph.D.,
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Department of Electrical and Electronics Engineering,
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Karur-639113

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 24.04.2023.

M.KUMARASAMY COLLEGE Of ENGINEERING

(Autonomous Institution, Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**IOT BASED UNDERGROUND CABLE FAULT DETECTION USING ARDUINO**" is the bonafide work of **DHARSHINI.R [20BEE4013], KATHIRAVAN.KS [20BEE4030], KIRUTHIKA.P [20BEE4039]** who carried out the work during the academic year (2022-2023).

26/4/23

SUPERVISOR

Mr.AL.Chockalingam M.Tech.,
Assistant Professor
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26/4/23

HEAD OF THE DEPARTMENT

Dr.J.Uma M.E.,Ph.D.,
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M.Kumarasamy College of Engineering,
Karur.

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 21.04.2023.

M.KUMARASAMY COLLEGE OF ENGINEERING

(Autonomous Institution , Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**CRYPTOGRAPHIC STEGANOGRAPHY WITH QR**" is the bonafide work of **HIRITHIK ROSHAN.S [20BEE4022] , MUTHUKUMAR.K [20BEE4051] , KIRUBAKARAN.S [20BEE4314]** who carried out the work during the academic year (2022-2023).

SUPERVISOR

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HEAD OF THE DEPARTMENT

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M.Kumarasamy Collage of Engineering,

Karur.

Submitted for Minor Project IV (18EEP301L) viva-voce Examination held on 21.04.2023

M.KUMARASAMY COLLEGE Of ENGINEERING

(Autonomous Institution , Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**IOT BASED GARBAGE MONITORING SYSTEM**" is the bonafide work of **DINESH KUMAR.V [20BEE4016], KISHOR.S [20BEE4040], KARTHICK.V [20BEE4309]** who carried out the work during the academic year (2022-2023).

SUPERVISOR

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HEAD OF THE DEPARTMENT

Dr.J.Uma M.E., Ph.D.,
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M.Kumarasamy College of Engineering, Karur

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 21.04.23.

M.KUMARASAMY COLLEGE OfENGINEERING

(Autonomous Institution , Affiliated to Anna University, Chennai)

BONAFIDE CERTIFICATE

Certified that this Report titled "**ALCOHOL DETECTION HELMET USING ARDUINO**" is the bonafide work of **DHANUSH.B(20BEE4011), KANNAN.M(20BEE4026), LINGESHVAR.M(20BEE4043), KARTHIKEYAN.T(20BEE4311)** who carried out the work during the academic year (2022-2023).

SUPERVISOR

Mr. M. Yuvaraj
Assistant Professor
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M.Kumarasamy College of Engineering, Karur

HEAD OF THE DEPARTMENT

Dr.J.Uma
Professor and Head
Department of Electrical and Electronics Engineering
M.Kumarasamy College of Engineering, Karur

Submitted for Minor Project IV (18EEP302L) viva-voce Examination held on 26.04.2023.

Criterion 1: Curricular Aspects

1.3 Curriculum Enrichment

1.3.4.1: Number of students undertaking field projects / internships / student projects

Programme Name: B.E Electrical and Electronics Engineering.

Industrial Visit Proof

KERALA ELECTRICAL & ALLIED ENGINEERING CO. LTD.
(A GOVERNMENT OF KERALA UNDERTAKING)
MAMALA P.O., KOCHI - 682 305
An ISO 9001-2015 Certified Company

Phone : 0484-2787705 / 07 / 08 / 11
Fax : 91-0484-2787702
E-mail : mamala@kel.co.in
CIN : U31200KL 1964 SGC002062
Website : www.kel.co.in

MPA/61/3332/22 **26th September, 2022**

The Principal,
M.Kumarasamy College of Engineering,
Thalavapalayam,
Karur,
Tamil Nadu.

Respected Sir,

Sub: **Permission for Industrial Visit – Reg.**

Ref: Your E-mail Dated 26.09.2022.

With reference to the above permission is granted for 90 Nos. (Boys) & 6 faculty members of your college to visit our Factory at Mamala, Kochi on 07.10.2022 from 10.00 am to 11.30 am.

You are requested to remit Rs.2,000/- towards visiting fee and GST @ 18% extra (Rs.360/-).

The students may be directed to observe the rules of the Company regarding safety and conduct inside the factory premises. Photography / Videography is strictly prohibited.

Thanking you,

Yours faithfully,
For KERALA ELECTRICAL & ALLIED ENGG.CO.LTD,

DY.GENERAL MANAGER (P&A)

Corporate Office
7th Floor, Housing Board Office Complex, Panampilly Nagar, Kochi - 682 036, India
EPABX : 0484-2310012 / 13 / 14, 2318960 / 61, Fax : (0484) 2310015
E-mail : info@kel.co.in Website : www.kel.co.in

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INDUSTRIAL VISIT - 2022

KERALA ELECTRICALS & ALLIED ENGINEERING CO.LTD (KEL)

We, the III-year boys of the department of electrical and electronics have decided to go for an industrial visit. We have planned to visit a company named KERALA ELECTRICALS & ALLIED ENGINEERING CO.LTD(KEL), Cochin. We have sent a mail to the respective company on 24.09.2022 requesting the approval for our industrial visit. Further we have received the mail of acceptance from the company and the industrial visit was approved on 07.10.2022 and we have visited on that desired date.

About Company:

Kerala Electrical & Allied Engineering Co. Ltd., also known as **KEL**, is one among the largest productive public sector undertaking, fully owned company by the Government of Kerala.

Established in 1964 in the State of Kerala, India, the Kerala Electrical & Allied Engineering Co.Ltd. (KEL) is a multifaceted company fully owned by the State government. Through it's four production facilities, located in various districts of the State, this ISO 9001:2000 complaint company provides basic engineering services / products besides executing projects of national significance for high profile clients like the various defence establishments.

The company manufactures and markets products like general purpose brushless alternators, brushless alternators for lighting and air-conditioning of rail coaches, medium power and distribution transformers as well as structural steel fabrications.

The product categories for defence applications include high frequency alternators, frequency convertors, special alternators and power packs for missile projects. The power packs designed and supplied by the company for missile projects like Falcon, Prithvi, Trishul and Akash have been pioneering efforts. The company has also supplied special alternators to the Army (Military Power Cars) and Air Force (Radar Applications).

The company's all-India marketing network with regional offices in all metro cities cater to major institutional clients like the State Electricity Boards, Indian Railways and various defence establishments besides the general market clients.

DIVISIONS:

KEL owns five divisions located in four districts of Kerala;

- Train Lighting Alternator Division Kundara Unit in Kollam District.
- Transformer Division Mamala Unit and,
- Structural Division Mamala Unit in Ernakulam District.
- LT Switchgear Division Olavakkod Unit in Palakkad District.
- Cast Resin Transformer Division

Edarikode Unit in Malappuram District.

Train Lighting Alternator Division

This unit is in Kundara, Kollam district and is the first unit of KEL started in the year 1964, based on technical know-how acquired from EVR of France, for the purpose of manufacturing brushless alternators.

Transformer Division

The division established in 1969 at Mamala, about 15 km from Kochi. This unit was initiated with technical assistance from Bharat Heavy Electricals to manufacture distribution transformers. Now it is one of the major players in the transformer industry. This unit is one of the first transformer industry in Kerala to obtain BIS certification for distribution transformers and first few in India to get ISO 9001 certification.

Structural Division

The Structural Engineering Division of KEL Mamala Unit, specializes in the design, fabrication and commissioning of hydraulic gates and hoists and their regulatory utilities used in dams for power and irrigation projects. The expert areas of the KEL Structural Division located at the Malama unit in Ernakulam district are the design, fabrication and commissioning of hydraulic gates, hoists and their regulatory utilities for power generation / irrigation needs.

LT Switchgear Division

The Switchgear division located in Olavakkod in Palakkad district started operational in 1977 with technical knowledge adopted from UNELEC, a French company. This unit manufactures isolators / changeovers, switch fuses, fuse units / cutouts, distribution fuse boards / panels and castings used for industrial, commercial and domestic applications through their LT Switchgear Division.

Cast Resin Transformer Division

In 2010 semi-automated manufacturing and testing facility was established at Edarikode in Malappuram District for manufacture Dry type transformers. KEL's Edarikkod unit was commercially operational since January 2010 and had already sold more than 2,400 units of 100-kVA distribution transformers worth Rs 24 crore to KSEB.

From the industrial visit, we have come to know about the Power Transformer Plant and its production. There, we have observed core manufacturing section, winding assembling section, two types of oven (vacuum and electrical), etc., which all are used in manufacturing of the transformer. In core manufacturing section, we have learnt the type of core and the materials used and then in winding section, we have acquired a knowledge on the types of windings which were used in the transformers. Besides, we have gained a lot about the plant. As we are from Electrical and Electronics Engineering Department, the visit is very useful for our studies as well as in projects. Moreover, it is a core-based company so, it will also help us during our placements. At the end of the day, we gained a lot and had a wonderful visit.

SIGNATURE OF STUDENT
IV COORDINATOR

SIGNATURE OF STAFF
IV COORDINATOR

SIGNATURE OF HOD

Dr. C.KUMAR, M.E., Ph.D.
Professor & Head,
Department Of Electrical And Electronics Engineering,
M.Kumarasamy College Of Engineering,

M.KUMARASAMY
COLLEGE OF ENGINEERING
NAAC Accredited Autonomous Institution
Approved by AICTE & Affiliated to Anna University
ISO 9001:2015 & ISO 14001:2015 Certified Institution
Thalavapalayam, Karur - 639 113.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2022-23

2021-25 BATCH

Date of Visit : 07.10.2022

Place of Visit: Kerala Electricals & Allied Engineering Co. Ltd., (KEL), Kerala.

INDUSTRIAL VISIT REPORT

We, the II-year boys of the Department of Electrical and Electronics have decided to go for an industrial visit. We have planned to visit a company named KERALA ELECTRICALS & ALLIED ENGINEERING CO.LTD(KEL), Cochin. We have sent a mail to the respective company on 24.09.2022 requesting the approval for our industrial visit. Further we have received the mail of acceptance from the company and the industrial visit was approved on 07.10.2022 and we have visited on that desired date.

We reached the company by 9.30 am and the professional working in the industry welcomed us. They gave a brief introduction about the production and process of the industry. As we went to transformer manufacture company, they shown the different areas of production. We saw production, winding, and assembling sessions. They also mentioned that their company produce step up transformer. They explained the process which happens in those sessions. And finally, the assembled transformer is kept in heat and vacuum oven respectively to remove the moisture and dust from that transformer.

About Company:

Kerala Electrical & Allied Engineering Co. Ltd., also known as **KEL**, is one among the largest productive public sector undertaking, fully owned company by the Government of Kerala.

Established in 1964 in the State of Kerala, India, the Kerala Electrical & Allied Engineering Corporation Ltd. (KEL) is a multifaceted company fully owned by the State government. Through its four production facilities, located in various districts of the State, this ISO 9001:2000 complaint company provides basic engineering services products besides executing projects of national significance for high profile clients like the various defense establishments.

The company manufactures and markets products like general purpose brushless alternators, brushless alternators for lighting and air-conditioning of rail coaches, medium power and distribution transformers as well as structural steel fabrications.

The product categories for defense applications include high frequency alternators, frequency convertors, special alternators and power packs for missile projects. The power packs designed and supplied by the company for missile projects like Falcon, Prithvi, Trishul and Akash have been pioneering efforts. The company has also supplied special alternators to the Army (Military Power Cars) and Air Force (Radar Applications).

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- LT Switchgear Division Olavakkod Unit in Palakkad District.
- Cast Resin Transformer Division
- Edarikode Unit in Malappuram District.

Train Lighting Alternator Division

This unit is in Kundara, Kollam district and is the first unit of KEL started in the year 1964, based on technical know-how acquired from EVR of France, for the purpose of manufacturing brushless alternators.

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The division established in 1969 at Mamala, about 15 km from Kochi. This unit was initiated with technical assistance from Bharat Heavy Electricals to manufacture distribution transformers. Now it is one of the major players in the transformer industry. This unit is one of the first transformer industry in Kerala to obtain BIS certification for distribution transformers and first few in India to get ISO 9001 certification.

Structural Division

The Structural Engineering Division of KEL Mamala Unit, specializes in the design, fabrication and commissioning of hydraulic gates and hoists and their regulatory utilities used in dams for power and irrigation projects. The expert areas of the KEL Structural Division located at the Malama unit in Ernakulam district are the design, fabrication and commissioning of hydraulic gates, hoists and their regulatory utilities for power generation / irrigation needs.

LT Switchgear Division

The Switchgear division located in Olavakkod in Palakkad district started operational in 1977 with technical knowledge adopted from UNELEC, a French company. This unit manufactures isolators / changeovers, switch fuses, fuse units / cutouts, distribution fuse boards / panels and castings used for industrial, commercial and domestic applications through their LT Switchgear Division.

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1) K.B

2)

Student Industrial Visit Coordinator

Faculty Industrial Visit Coordinator

HoD-EEE

19/10/22

Dr. C KUMAR, M.E., Ph.D.
Professor & Head,
Department Of Electrical And Electronics Engineering,
M.Kumarasamy College Of Engineering,
Karur - 639 113.

KEL

KERALA ELECTRICAL & ALLIED ENGINEERING CO. LTD.

(A GOVERNMENT OF KERALA UNDERTAKING)
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Fax : 91-0484-2787702
E-mail : mamala@kel.co.in
CIN : U31200KL 1964 SGC002062
Website : www.kel.co.in

MPA/61/3332/22 **26th September, 2022**

The Principal,
M.Kumarasamy College of Engineering,
Thalavapalayam,
Karur,
Tamil Nadu.

Respected Sir,

Sub: **Permission for Industrial Visit – Reg.**

Ref: Your E-mail Dated 26.09.2022.

With reference to the above permission is granted for 35 Nos. (Girls) & 6 faculty members of your college to visit our Factory at Mamala, Kochi on 08.10.2022 from 10.00 am to 11.30 am.

You are requested to remit Rs.1,000/- towards visiting fee and GST @ 18% extra (Rs.180/-).

The students may be directed to observe the rules of the Company regarding safety and conduct inside the factory premises. Photography / Videography is strictly prohibited.

Visit should be completed by 12.00 noon being Saturday is half working day.

Thanking you,

Yours faithfully,
For KERALA ELECTRICAL & ALLIED ENGG.CO.LTD,

DY.GENERAL MANAGER (P&A)

Corporate Office
7th Floor, Housing Board Office Complex, Panampilly Nagar, Kochi - 682 036, India
EPABX : 0484-2310012 / 13 / 14, 2318960 / 61, Fax : (0484) 2310015
E-mail : info@kel.co.in Website : www.kel.co.in

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INDUSTRIAL VISIT - 2022

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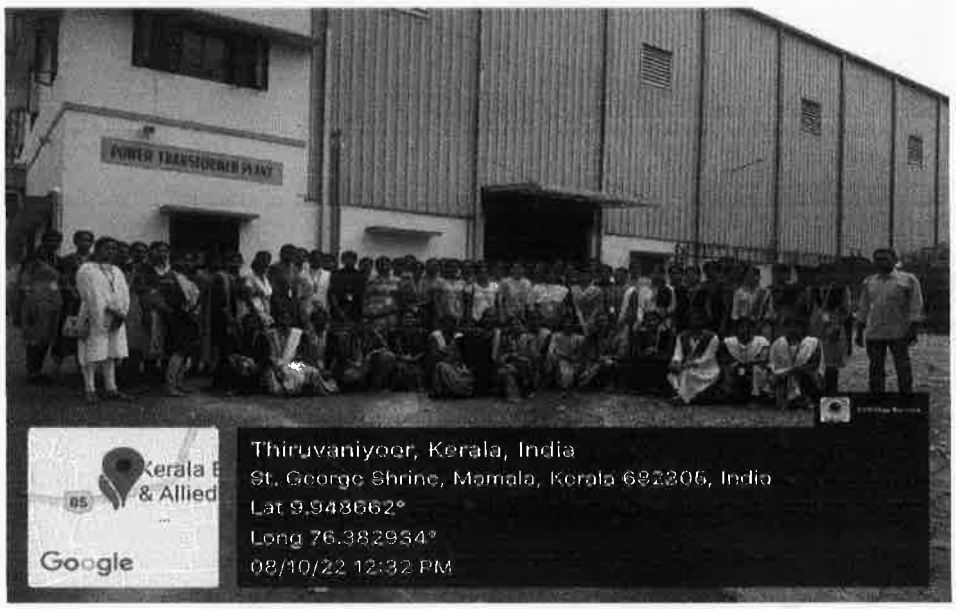

P. Abiraya
P. Shalini

SIGNATURE OF STUDENT
IV COORDINATOR

SIGNATURE OF STAFF
IV COORDINATOR

SIGNATURE OF HOD

Dr. C.KUMAR, M.E., Ph.D.
Professor & Head,
Department Of Electrical And Electronics Engineering,
M.Kumarasamy College Of Engineering,
Karur - 639 113.