



# ELECTRAGE

## 2K21

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**BAPATLA ENGINEERING COLLEGE  
(AUTONOMOUS)**



## Vision of the Institute

To build centers of excellence, impart high quality education and instill high standards of ethics and professionalism through strategic efforts of our dedicated staff, which allows the college to effectively adapt to the ever-changing aspects of education.

To empower the faculty and students with the knowledge, skills and innovative thinking to facilitate discovery in numerous existing and yet to be discovered the fields of engineering, technology and inter-disciplinary endeavors.

## Mission of the Institute

To impart the quality education at par with global standards to the students from all over India and in particular those from the local and rural areas.

To maintain high standards so as to make them technologically competent and ethically strong individuals who shall be able to improve the quality of life and economy of our country.

## Vision of the Department

The Department of Electrical & Electronics Engineering will provide programs of the highest quality to produce globally competent technocrats who can address challenges of the millennium to achieve sustainable socio - economic development.

## Mission of the Department

M1.To provide quality teaching blended with practical skills.

M2.To prepare the students ethically strong and technologically competent in the field of Electrical and Electronics Engineering.

M3.To motivate the faculty and students in the direction of research and focus to fulfill social needs.



IT IS A MATTER OF PRIDE AND DELIGHT OF  
ENCLOSE A TREND CARRIED OUT BY “EEE  
ASSOCIATION” MAGAZINE

“““ELECTRAGE 2021”””

WE HAD A GREAT IMMENSE PLEASURE TOWARDS  
IT. WE ARE VERY  
MUCH ECSTATIC TO BRING OUT IT. LIKE EVERY  
YEAR WE HAVE TRIED  
OUR BEST PUBLISH THE ELITE ARTICLES  
SUBMITTED BY STUDENTS IN  
BOTH TECHNICAL AND LITERARY, AN ADDITION  
OF PHOTO AND ART  
GALLERY, HIGHLIGHTS OF TECHNICAL EVENTS  
ALSO INCLUDED AT THE  
END OF MAGAZINE. WE EMPHASIZED OUR  
INNOVATIVE TECHNICAL IDEAS THAT ARE  
PRACTICAL IN THEIR APPROACH. IT'S A  
COLLECTIVE WORK OF EEE ASSOCIATION.  
WE SINCERELY THANK OUR HOD, STAFF ADVISOR  
AND FACULTY,  
WHO SUPPORTED US IN MAKING THIS  
PRESTIGIOUS MAGAZINE.  
WE ARE ALSO THANKFUL TO STUDENTS WHO PAY  
THEIR CONTRIBUTION TOWARDS EVENTS  
WITHOUT WHOM THE MAGAZINE WOULD NOT  
HAVE BEEN POSSIBLE.  
WE HOPE THAT OUR ““ELECTRAGE 2021””  
SATISFIES ALL THE  
READERS AND DRIVES THEM INTO THE;  
“WORLD OF POWER AND IMAGINATION””

**EDITORIAL NOTE**



Dear EEE Students,

I am delighted to congratulate the students of eee for their enthusiasm towards their magazine "Electrage 2021". I think of education as the means of developing our greatest abilities, because in each of us there is a private hope and dream which , fulfilled, can be translated to benefit everyone and add greater strength to the natio. Critical thinking and critical literacy skills are the tools. Students need to develop into active, responsible participants in the global community.

I Believe this magazine will help you in pursuing your goals in a more effective and meaningful way for your success.

Sri. B. V. S. Rama Krishna  
Acting President





Dear EEE Students,

It gives me immense pleasure to pen a few words as prologue to in-house magazine "Electrage 2021" exclusively meant for churning out the latent writing talent which bears immense potentiality as part of our all personality development. I congratulate all the contributors and the editorial board for bringing out such a beautiful magazine. I appreciate the overwhelming response and enthusiastic participation of students in the college activities in the recent past all vouch for this. When all the constituents come together and work in union, the expected results are bound to keep doing good work.

Sri.M.Nageshwara Rao  
Secretary



It is a great pleasure to see the creative expressions of students who had contributed to ELECTRAGE 2021.

Nurturing creativity and inspiring innovation are two of the key elements of a successful education, and a college magazine is the perfect amalgamation of both. It harnesses the creative energies of the academic community, and distils the essence of their inspired imagination in the most brilliant way possible. Hence, I take this opportunity to congratulate all the students of Electrical and Electronics Engineering for bringing out this magazine, which itself is an achievement considering the effort and time required. May all our students soar high and bring glory to the World and their profession with the wings of education.

Dr.V.Damodara Naidu  
Principal



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## Mission of the Department

1. To provide quality teaching blended with practical skills.
2. To prepare the students ethically strong and technologically competent in the field of Electrical and Electronics Engineering.
3. To motivate the faculty and students in the direction of research and focus to fulfill social needs.

## PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

### PEO1

Have a strong foundation in the principles of Basic Sciences, Mathematics and Engineering to solve real world problems encountered in modern electrical engineering and pursue higher studies/placement/research.

### PEO2

Have an integration of knowledge of various courses to design an innovative and cost effective product in the broader interests of the organization & society.

### PEO3

Have an ability to lead and work in their profession with multidisciplinary approach, cooperative attitude, effective communication and interpersonal skills by participating in team oriented and open-ended activities.

### PEO4

Have an ability to enhance in career development, adapt to changing professional and societal needs by engage in lifelong learning.



### *From the desk of the HOD.....*

It's my great pleasure to be a part of the EEE association and serve as a president. With great honour, I give this message to the association MAGAZINE of our department. We started this association since 2003 with a great attitude towards student growth. From this platform, our students have exhibited their multifaceted talents. Through this, our students participate in various technical events conducted by the country's premium institutions without any fear. I strongly believe our students are very strong in academic and non-academic activities and spiritual activities. I hope that the same can be maintained in the future also.

My primary focus would also be building closer ties between the EEE association and students. I hope to get more and more students involved in our association activities. I also hope that our student and faculty members will maintain the standard of our department wherever they go.

Through this association magazine, I appeal to all the alumni of our department to extend their support to the development of the department. I thank the editorial board members for bringing the message in a beautiful and informative manner. Finally, all the best for our EEE students in the future for getting a secure job or becoming an entrepreneur.

Prof. Dr. N. Rama Devi  
Head of the Department





I'm privileged to have been a part and parcel of students activities for years in our college and it is my pride to introduce on behalf of the EEE Association, ELECTRAGE 2021 It is very pleasant to see how the students are progressing year after year in technical as well as other realms. Besides, it is matter of extreme pleasure to see the amount of hard work put in by the student committee of ELECTRAGE 2021 to bring it our successfully in due time.

At the same time, I would like to extend my felicitations to the talented students who have shown consistent performance in academics and extra-curricular activities and brought laurels to the college. We aim to establish Bapatla Engineering College as a globally recognized college and embark on a journey towards excellence.

On this occasion, I congratulate the outgoing batches of students on successful completion of their course of study. I am confident wherever our students will be placed shall work passion, perfection and dedication.

I wish the best for the ELECTRAGE 2021 and also all my students in their journey ahead. God be with you all!!

Dr. M. S. Dinesh  
Staff Advisor

# PATRON

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Dr.V.Damodara Naidu

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Mr. M. Ganesh Babu Asst Prof

## Literary Editor

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# CAMPUS RECRUITMENT

## 2k17 To 2k21

| S.NO | REG NO    | NAME OF THE STUDENT            | COMPANY           |
|------|-----------|--------------------------------|-------------------|
| 1    | Y17AEE497 | YAKKALI LALITHA                | ACCENTURE         |
| 2    | L18AEE505 | B ARUNA SREE                   | APTIVE COMPONENTS |
| 3    | L18AEE521 | J NIRUPAMA KEERTHI             | APTIVE COMPONENTS |
| 4    | Y17AEE406 | B RAMANI                       | APTIVE COMPONENTS |
| 5    | Y17AEE428 | GUMMA SAI SINDHU               | APTIVECOMPONENTS  |
| 6    | Y17AEE469 | PATCHA ANUSHA                  | APTIVE COMPONENTS |
| 7    | Y17AEE401 | ALAVALA DIVYA                  | Capgemini         |
| 8    | Y16AEE495 | S YASWANTH                     | Capgemini         |
| 9    | Y17AEE498 | YENUGUDHATI NANDA SAI          | Capgemini         |
| 10   | Y17AEE495 | VENGANAMPALLY VENKATA SRIKANTH | Capgemini         |
| 11   | Y17AEE445 | KOTHAVARI YAMINI               | HCL               |
| 12   | L18AEE556 | VELAGA DANA VENKATA SRIRAM     | HEXAWARE          |
| 13   | L18AEE557 | YEKKALA JEEVAN TEJA            | Infosys           |
| 14   | Y17AEE404 | ANNADATA THOSITHA VEDASILPA    | Infosys           |
| 15   | Y17AEE429 | GUNDA DEVENDRA SAI SUMANTH     | Infosys           |
| 16   | Y17AEE440 | KOKA RISHITA                   | Infosys           |
| 17   | Y17AEE445 | KOTHAVARI YAMINI               | Infosys           |
| 18   | Y17AEE450 | MEEGADA MANEENDRA REDDY        | Infosys           |
| 19   | Y17AEE491 | T CHANDINI                     | Infosys           |
| 20   | Y17AEE497 | YAKKALI LALITHA                | Infosys           |
| 21   | Y17AEE498 | YENUGUDATHI NANDA SAI          | Infosys           |
| 22   | L18AEE553 | TENALI AMAREESWAR              | Infosys           |
| 23   | Y17AEE416 | CHAPPA GANESH                  | Infosys           |
| 24   | L17AEE559 | NARRA SAI KRISHNA              | KIML              |
| 25   | L18AEE504 | BOYALLA KOUSHIK                | KIML              |
| 26   | L18AEE506 | CHEBROLU KARTHIK               | KIML              |
| 27   | L18AEE510 | DHANDASI ANAND BABU            | KIML              |
| 28   | L18AEE511 | DHARAVATHU NAGARAJU NAIK       | KIML              |
| 29   | L18AEE514 | GOTTAPU ESWARA RAO             | KIML              |
| 30   | L18AEE516 | GUIDELA GAGAN ARAVIND SAI      | KIML              |
| 31   | L18AEE518 | GNTURU GANESH BABU             | KIML              |
| 32   | L18AEE521 | ONNALAGADDA NIRUPAMA KEERTHI   | KIML              |
| 33   | L18AEE526 | KAPPIRI SATEESH                | KIML              |
| 34   | L18AEE527 | K GOPAL KRISHNA                | KIML              |
| 35   | L18AEE534 | MUDEDLA SANDEEP VENKATA KUMAR  | KIML              |
| 36   | L18AEE536 | NALLALA YONA                   | KIML              |
| 37   | L18AEE538 | PAKANATI DAIVA VARA PRASAD     | KIML              |

# CAMPUS RECRUITMENT

## 2k17 To 2k21

| S.NO | REG NO    | NAME OF THE STUDENT            | COMPANY |
|------|-----------|--------------------------------|---------|
| 38   | L18AEE539 | P CHAITANYA                    | KIML    |
| 39   | L18AEE540 | PATAN SHARUK KHAN              | KIML    |
| 40   | L18AEE541 | RAIPALLI SRIHARI               | KIML    |
| 41   | L18AEE543 | R SAMBA SIVA RAO               | KIML    |
| 42   | L18AEE544 | RAVULAPATI SAI KESAVA          | KIML    |
| 43   | L18AEE546 | SAHITHALA KANTHI VIKRAM DATTA  | KIML    |
| 44   | L18AEE548 | SANAKA JAYA SURYA              | KIML    |
| 45   | L18AEE549 | SHAIK NAGUR BABU               | KIML    |
| 46   | L18AEE554 | UNNAM VAMSI                    | KIML    |
| 47   | L18AEE556 | VELAGA DANA VENKATA SRIRAM     | KIML    |
| 48   | L18AEE557 | YAKKALA JEEVAN TEJA            | KIML    |
| 49   | L18AEE558 | YAVARNA VENKATARAMANA          | KIML    |
| 50   | L18AEE561 | YENUMULA SIVIAH                | KIML    |
| 51   | L18AEE562 | YEPURI UDAYA KIRAN             | KIML    |
| 52   | Y17AEE513 | VADDE RAJA MALLI DILEEP        | KIML    |
| 53   | Y17AEE423 | DODDA AKHIL KUMAR              | KIML    |
| 54   | Y17AEE441 | ISTHARLA VAMSIKRISHNA          | KIML    |
| 55   | Y17AEE488 | RAPOLALI AVINASH               | KIML    |
| 56   | Y17AEE505 | VALLU KOTESWARA RAO            | KIML    |
| 57   | Y17AEE404 | ANNADATA THOSHITHA VEDASILPA   | KIML    |
| 58   | Y17AEE406 | BATTULA RAMANI                 | KIML    |
| 59   | Y17AEE410 | BODDUCHERLA KRISHNA SRUTHI     | KIML    |
| 60   | Y17AEE430 | INAGANTI RAKESH BABU           | KIML    |
| 61   | Y17AEE439 | K YEDUKONDALU                  | KIML    |
| 62   | Y17AEE441 | KOLA STEEVENSON                | KIML    |
| 63   | Y17AEE448 | LINGABATHINA VEERA BRAHMAIAH   | KIML    |
| 64   | Y17AEE472 | P NAVEEN                       | KIML    |
| 65   | Y17AEE476 | B RAMA KRISHNA NAIK            | KIML    |
| 66   | Y17AEE479 | SABBAVARAPU UDAY KUMAR         | KIML    |
| 67   | Y17AEE482 | SAYYAD ANWAR                   | KIML    |
| 68   | Y17AEE484 | SHAIK KARISHMA                 | KIML    |
| 69   | Y17AEE485 | SHAIK KHAJAVALI                | KIML    |
| 70   | Y17AEE488 | SIRASANI TRIKOTESH             | KIML    |
| 71   | Y17AEE490 | S SAI KIRAN                    | KIML    |
| 72   | Y17AEE494 | VEMPATI KOTESWARA RAO          | KIML    |
| 73   | Y17AEE495 | VENGANAMPALLY VENKATA SRIKANTH | KIML    |
| 74   | Y17AEE496 | YADDANAPUDI SUMANTH            | KIML    |
| 75   | Y17AEE498 | YENUGUDHATI NANDA SAI          | KIML    |



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2k17 To 2k21

| S.NO | REG NO     | NAME OF THE STUDENT           | COMPANY       |
|------|------------|-------------------------------|---------------|
| 78   | Li8AEE504  | BOYALLA KOUSHIK               | NOKIA SEIMENS |
| 79   | Li8AEE506  | CHEBROLU KARTHIK              | NOKIA SEIMENS |
| 80   | Li8AEE510  | DHANDASI ANAND BABU           | NOKIA SEIMENS |
| 81   | Li8AEE511  | DHARAVATHU NAGARAJU NAIK      | NOKIA SEIMENS |
| 82   | Li8AEE513  | GADDALA RAJIV KALYAN KUMAR    | NOKIA SEIMENS |
| 83   | Li8AEE514  | GOTTAPU ESWARA RAO            | NOKIA SEIMENS |
| 84   | Li8AEE5117 | GUMMA NAGA RAJU               | NOKIA SEIMENS |
| 85   | Li8AEE522  | JUPALLI CHINNA KESAVULU       | NOKIA SEIMENS |
| 86   | Li8AEE528  | KUKKALA HARI KRISHNA          | NOKIA SEIMENS |
| 87   | Li8AEE529  | MADHAVARAPU BALA GANAPATHI    | NOKIA SEIMENS |
| 88   | Li8AEE533  | MUDAVATH PEDARANGANAIAK       | NOKIA SEIMENS |
| 89   | Li8AEE534  | MUDEDLA SANDEEPVENKATAKUMAR   | NOKIA SEIMENS |
| 90   | Li8AEE538  | PAKANATI DAIVA VARA PRASAD    | NOKIA SEIMENS |
| 91   | Li8AEE539  | PAPANA CHAITHANYA             | NOKIA SEIMENS |
| 92   | Li8AEE540  | PATAN SHARUK KHAN             | NOKIA SEIMENS |
| 93   | Li8AEE546  | SAHITHALA KANTHI VIKRAM DATTA | NOKIA SEIMENS |
| 94   | Li8AEE549  | SHAIK NAGUR BABU              | NOKIA SEIMENS |
| 95   | Li8AEE550  | SUREDDY JYOTHIKIRAN           | NOKIA SEIMENS |
| 96   | Li8AEE554  | UNNAM VAMSI                   | NOKIA SEIMENS |
| 97   | Li8AEE555  | VEERAVALLI NAREN              | NOKIA SEIMENS |
| 98   | Li8AEE557  | YAKKALA JEEVAN TEJA           | NOKIA SEIMENS |
| 99   | Li8AEE560  | YEMINADI ALIVELU MANGAMMA     | NOKIA SEIMENS |
| 100  | Y15AEE513  | VADDE RAJA MALLI DILEEP       | NOKIA SEIMENS |
| 101  | Y16AEE441  | ISTHARLA VAMSIKRISHNA         | NOKIA SEIMENS |
| 102  | Y16AEE484  | POTHURAJU PAVAN KALYAN        | NOKIA SEIMENS |
| 103  | Y17AEE401  | ALAVALA DIVYA                 | NOKIA SEIMENS |
| 104  | Y17AEE405  | BANDI SATHYAVARDHAN           | NOKIA SEIMENS |
| 105  | Y17AEE414  | CHAMARTHI VENKATESH           | NOKIA SEIMENS |
| 106  | Y17AEE421  | GADA SURYA NARAYANA           | NOKIA SEIMENS |
| 107  | Y17AEE429  | GUNDA DEVENDRA SAI SUMANTH    | NOKIA SEIMENS |
| 108  | Y17AEE430  | INAGANTI RAKESH BABU          | NOKIA SEIMENS |

# CAMPUS RECRUITMENT

## 2k17 To 2k21

| S.NO | REG NO      | NAME OF THE STUDENT           | COMPANY                   |
|------|-------------|-------------------------------|---------------------------|
| 109  | Y17AEE441   | KOLA STEEVENSON               | NOKIA SEIMENS             |
| 110  | Y17AEE445   | KOTHAVARI YAMINI              | NOKIA SEIMENS             |
| 111  | Y17AEE41050 | MEEGADA MANEENDRA REDDY       | NOKIA SEIMENS             |
| 112  | Y17AEE453   | MUSIDIPALLI AKHIL             | NOKIA SEIMENS             |
| 113  | Y17AEE460   | NUNE MANOJ                    | NOKIA SEIMENS             |
| 114  | Y17AEE462   | ONTERU RAJASHEKAR             | NOKIA SEIMENS             |
| 115  | Y17AEE476   | B RAMA KRISHNA NAIK           | NOKIA SEIMENS             |
| 116  | Y17AEE479   | SABBAVARAPU UDAY KUMAR        | NOKIA SEIMENS             |
| 117  | Y17AEE482   | SAYYAD ANWAR                  | NOKIA SEIMENS             |
| 118  | Y17AEE488   | SIRASANI TRIKOTESH            | NOKIA SEIMENS             |
| 119  | Y17AEE495   | VENGANAMPALLY VENKATASRIKANTH | NOKIA SEIMENS             |
| 120  | Y17AEE496   | YADDANAPUDI SUMANTH           | NOKIA SEIMENS             |
| 121  | Y17AEE498   | YENUGUDHATI NANDA SAI         | NOKIA SEIMENS             |
| 122  | Y17AEE482   | ANWAR SAYAD                   | Smart Rotamach            |
| 123  | L18AEE514   | GOTTAPU ESWARA RAO            | Smart Rotamach            |
| 124  | Y17AEE454   | NAGA SARAN TUNGALA            | TCS                       |
| 125  | Y17AEE469   | PATCHA ANUSHA                 | TCS                       |
| 126  | Y17AEE414   | CHAMARTHI VENKATESH           | TCS                       |
| 127  | L18AEE554   | UNNAM VAMSI                   | TCS                       |
| 128  | Y17AEE403   | ANKAM REDDY SIVA              | TCS                       |
| 129  | Y17AEE415   | CHANDRA MOULI CHAPPA          | TCS                       |
| 130  | Y17AEE402   | ALURI NAVEEN                  | TCS                       |
| 131  | L18AEE561   | YENUMULA SIVAIAH              | TCS                       |
| 132  | L18AEE527   | KOTA GOPAL KRISHNA            | TCS                       |
| 133  | Y17AEE419   | DUDDU MEGHAMALA               | TCS                       |
| 134  | Y17AEE488   | SIRASANI TRIKOTESH            | valued epistemics pvt.ltd |
| 135  | L18AEE534   | M SANDEEP VENKATA KUMAR       | VERZEO                    |
| 136  | L18AEE556   | V D V SRI RAM                 | VERZEO                    |
| 137  | L18AEE557   | Y JEEVAN TEJA                 | VERZEO                    |
| 138  | Y17AEE401   | A DIVYA                       | VERZEO                    |
| 139  | Y17AEE404   | ANNADATA THOSHITA VEDA SILPA  | VERZEO                    |
| 140  | Y17AEE406   | B RAMANI                      | VERZEO                    |





- > First Prize at Vignan Nirula Institute of Technology
- > First Prize at Chalapathi Institute Of Tecnology
- > Second prize at RVR&JC college of engineering
- > Third Prize at Bectagon 2K20 by BEC.
- > second Prize at VVIT Youth fest

*These are some of Achievements in the Project EXPO conducted by different colleges.*

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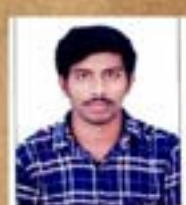
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A project Report  
**HYBRID TWO-WHEELER SOLAR ELECTRIC MOTORCYCLE**

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## ABSTRACT

Different electric motors are studied and compared to see the benefits of each motor and the one that is more suitable to be used in the electric vehicle (EV) applications. There are five main electric motor types, DC, induction, permanent magnet synchronous, switched reluctance and brushless DC motors are studied. Although the induction motors technology is more mature than others, for the EV applications the brushless DC and permanent magnet motors are more suitable than others. The use of these motors will result in less pollution, less fuel consumption and higher power to volume ratio. The reducing prices of the permanent magnet materials and the trend of increasing efficiency in the permanent magnet and brushless DC motors make them more and more attractive for the EV applications. An Electric Vehicle is a vehicle controlled by an electric motor and is run utilizing the power put away in the batteries. Electric Vehicle was fabricated soon after the first DC power motor was introduced and consequently has longer history than a great many people figure out. Pertaining to the growing innovation in Electric Vehicle system, turned out to be critical to get a far-reaching comprehension of the criteria connected in determination of electric motors. That the use of electric motor has been varied from manufacture to manufacture. An expanding biological mindfulness and the lack of non-renewable energy source assets are solid motivations to grow progressively effective vehicles, with lower fuel utilization however without lessening driving solace indicate references by Thanh Anh Huynh et Al, 2018. Hence, various types of electric motors are currently utilized depending upon the power requirement.

The battery management system (BMS), what are different parts of it, several methods used in this project report addresses the several battery management systems and their advantages & disadvantages. Among all the conventional methods, how the solar- powered balancing method is most efficient is justified. This method is based on three modes: Solar-balancing mode, in this mode, the solar panel balance the battery cells directly. This mode can be used in sunny weather condition and when the vehicle is in running, the discharge rate of the battery is high. The cells with the lowest SOC which is detected by the control unit can be charged by a solar panel. The second mode is Storage balancing mode, this mode is used in rainy or cloudy weather conditions or during the night when the solar panels are not able to generate sufficient



# **Modeling and Simulation of a Micro-grid connected Solar PV System**

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## **1.ABSTRACT**

The growing energy demand in developing nations has triggered the issue of energy security. This has made essential to utilize the untapped potential of renewable resources.

Grid connected PV systems have become the best alternatives in renewable energy at large scale. Performance analysis of these grid connected plants could help in designing, operating and maintenance of new grid connected systems.

In 2012, the Ministry of Electricity and Renewable Energy (MERE); began promoting the system of 'Feed-in Tariff' in billing. The introduced system allows the user to generate electricity through solar panels mounted on the roofs of residential buildings and governmental organizations and tied to the grid.

To benefit from MERE's approach, the National Water Research Center (NWRC) (Qanatir, Egypt) set up a pilot rooftop 91 kW PV system. All the generated electricity is fed into the 220 V, 50 Hz low voltage grid serving NWRC premises.

In this manuscript a MATLAB Simulink model is constructed mimicking a detailed representation of the system tied either to the local low voltage grid or to the national high voltage grid. The aim of such modeling effort is to provide early evaluation of the system performance.

The economical savings of both scenarios are compared based on the new billing system. Results show that the current system saves 100 thousand L.E./year, while tying the system to the national grid will save 235.8 thousand L.E./year



# **Brushless DC Motor Fed By Six Step Inverter**

A Project Report  
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## ABSTRACT

Permanent Magnet Brushless DC motors have a very wide area of applications due to their higher efficiency and easy control strategies. For controlling the BLDC motors. We use three phase bridge converters. In BLDC motors only two-phases are supplied and the third phase is kept off in which two phases are to be supplied is determined on the basis of the position of the rotor. Based on the position of the rotor, switching devices in the inverter are commutated for every  $60^\circ$ . Rotor position sensors are used to sense the position of the rotor at every instant of time.

In this paper speed control of three phase BLDC motor by six switching inverter. It is an effective try on reducing cost. A speed regulator is used to control the DC bus voltage. The inverter gates signals are produced by decoding the Hall effect signals of the motor. The three-phase output of the inverter are applied to the PMSM block's stator windings. In order to verify the proposed topology the Brushless DC motor fed by six step Inverter is to be simulated.



# **IOT BASED BILL MONITORING OF SMART ENERGY METER**

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## **ABSTRACT**

We see a person standing in front of our house from electricity board, whose duty is to read the energy meter and handover the bills to the owner of that house every month. This is nothing but meter reading. According to that reading we have to pay the bills. The main drawback of this system is that person has to go area by area and he has to read the meter of every house and handover the bills. Many times errors like extra bill amount , or notification from electric board even though the bills are paid are common errors. To overcome this drawback we have come up with an idea which will eliminate the third party between the consumer and service provider, even the errors will be overcome.

In this project the idea of smart energy meter using IoT,Arduino have been introduced. In this method we are using Arduino atmega328 because it is energy efficient i.e. it consume less power, it is fastest and has two UARTS. Energy meters which is already installed at our houses are not replaced, but a small modification on the already installed meters can change the existing meters into smart meters. The use of GSM module provides a feature of notification through SMS. One can easily access the meter working through web page that we designed. Current reading with cost can be seen on cloud. Automatic ON & OFF of meter is possible. Threshold value setting and sending of notification is the additional task that we are performing.



A Project of the Report Entitled

# **Two-Stage Grid-Connected Inverter for PV Systems**

Submitted in the partial fulfillment of the requirements for  
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In

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(Approved A.I.C.T.E. Accredited by NBA, Certified by ISO 9001-2000)  
(2021)



## **ABSTRACT**

In this study, a two-stage grid-connected inverter is proposed for photovoltaic (PV) systems. The proposed system consist of a single-ended primary-inductor converter (SEPIC) converter which tracks the maximum power point of the PV system and a three-phase voltage source inverter (VSI) with LCL filter to export the PV supplied energy to the grid. The incremental conductance (IC) method with novel variable step algorithm is used as maximum power point tracking algorithm. Thus, tracking speed and accuracy is improved. A sliding-mode control (SMC) strategy is used to control the inverter stage. Obtained simulation results show that proposed system tracks the maximum power point of the PV system and injects sinusoidal currents to the grid.



# **DETECTION OF TRANSMISSION LINE FAULTS IN THE PRESENCE OF STATCOM USING WAVELETS**

A Project Report

Submitted in the partial fulfillment of the requirements for  
the award of the degree of

**Bachelor of Technology**  
In  
Electrical & Electronics Engineering  
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May, 2021

## **ABSTRACT**

In this paper, wavelet transform technique is applied to detect fault in the transmission line with flexible alternating current transmission (FACTS) device. Presence of FACTS device changes the system impedance and hence makes it difficult to detect faults on the line which may result into maloperation of relay. Three phase currents are monitored at both ends of the transmission line using global positioning system synchronizing clock. Wavelet transforms, which is very fast and sensitive to high frequency signal is used to extract transients in these line currents for fault detection. Fault index is calculated based on the sum of local and remote end detail coefficients and compared with threshold value to detect the fault.

Proposed technique is tested for various faults and fault inception angles with and without static synchronous compensator (STATCOM) device. Simulation results are presented showing the selection of proper threshold value for fault detection.



# **COMPARATIVE PERFORMANCE ANALYSIS OF BOOST CONVERTER AND LUO CONVERTER FOR ELECTRIC VEHICLE CHARGING**

A Project Report Submitted in the partial fulfilment of the requirements to  
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**Bachelor of Technology**

in

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## **ABSTRACT**

This Report provides overview of recent work of electric vehicle charging in the region. The paper describes the development of electric vehicle charging system using the Boost converter and Luo Converter and compare the performance for both converters. This report provides the comparison of both converters in the EV charging system in order to increase the efficiency of the charging system. The comparison of both converters provides the efficient strategy for the electric vehicle charging system.



# **Fault Detection and Analysis of three-phase induction motors using MATLAB Simulink model**

A Project Report  
Submitted in the partial fulfilment of the requirements for  
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**Bachelor of Technology**  
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## ABSTRACT

Computer simulation of electrical motor operation is especially helpful for gaining an insight into their dynamic behavior and electro-mechanical interaction. An acceptable model permits motor faults to be simulated and therefore the amendment in corresponding parameters to be expected while not physical experimentation. This planned approach presents each a theoretical and experimental analysis of uneven stator coil winding and rotor faults in induction machines. A three-phase induction motor was simulated and operated below traditional healthy operation, with section to section winding fault, section to ground winding fault and short circuit winding fault and with voltage imbalances between phases of offer. The results illustrate sensible agreement between each simulated and experimental results.

For analysis of fault condition typical methodology of quick Fourier transform area unit initial use and take a look at for various winding fault conditions. Then fuzzy logic controller supported fuzzy rule base style for analysis of stator coil winding faults. From each the conditions it clear that the FFT analysis solely calibrate total harmonics distortion (THD) of faulted voltage and current signal of 3 section induction motor input facet (stator side). Whereas fuzzy logic controller directly analyzed the sort of the fault on induction motor stator coil winding.

Motor model and fault analysis system style in MATLAB 2015 Simulink computer code. Victimization this computer code, motor parameter analysis, fault cases analyzed.



A Final Project Report on

**SIMULATION OF PATIENT MODEL WITH KIDNEY  
CHRONICAL DISEASE AND BLOOD DIALYSIS OBSERVATION  
OF PATIENT**

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

**Bachelor of Technology**

In

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## **ABSTRACT**

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), also known as coronavirus disease (COVID-19) is a major pandemic challenging health care systems around the world. The optimal management of COVID-19 infected patients is still unclear, although the consensus is moving towards the need of a biphasic approach. During the first phase of the disease (from onset of the symptoms up to 7-10days) viral-induced effects are prominent with the opportunity to institute antiviral therapy. In the second inflammatory phase of the disease, immunosuppressive strategies (for example with glucocorticoids or anti-cytokines drugs) may be considered. This latter stage is characterized by the development of progressive lung involvement with increasing oxygen requirements and occasionally signs of the haemophagocytic syndrome. The management of the disease in patients with kidney disease is even more challenging, especially in those who are immunosuppressed or with severe comorbidities. Here we present the therapeutic approach employed in Brescia (Italy) for managing kidney transplant and hemodialysis patients with COVID-19. Furthermore, we provide some clinical and physiopathological background, as well as preliminary outcome data of our cohort, in order to better clarify the pathogenesis of the disease and clinical management.

This paper makes an attempt to develop clinical simulation model of chronic interaction and to design an optimal controller to regulate the Blood level in kidney chronic patients. For enhancing the quality of life of the patient, an automated blood dialysis system based on Linear Quadratic Gaussian (LQG) control algorithm is suggested, and to justify its efficacy a comparative analysis with conventional Proportional-Integral-Derivative (PID) control tuned using the Ziegler–Nichols method and optimal  $H_\infty$  control based on solutions of Riccati equations is presented. For designing of the controller, a ninth-order linearised state-space model of the blood interaction process of an chronic diseased patient has been used. The controller performances are assessed in terms of ability to track a normoglycaemic set point of 81 mg/dL (4.5 mmol/L) in the presence of Gaussian and stochastic noise.



# **STUDY OF DOUBLY-FED INDUCTION GENERATOR (DFIG) BASED WIND TURBINE IN SIMULATION**

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The Award of the Degree of

**BACHELOR OF TECHNOLOGY**

IN

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(Approved by A.I.C.T.E., Accredited by NBA, certified by ISO 9001:2000)

**May (2020-2021)**

## ABSTRACT

This paper presents the power outputs control and DC-link voltage regulation of the Doubly Fed Induction Generator (DFIG) for the variable speed Wind Energy Conversion System (WECS). The DFIG control structure consists of the two four quadrant IGBT PWM converters are connected in AC-DC-AC in order to control the power outputs of the DFIG.

The dynamic behaviour of DFIG is modelled in the Stator Flux Orientation (SFO) related to the Rotor Side Converter (RSC) and Grid Side Converter (GSC) control strategies. The RSC controls the power flow (the active and reactive power) from the stator of the DFIG to the grid by controlling the rotor currents of the DFIG. The GSC ensures the regulation of the DC-link voltage to the desired value by controlling the grid currents. In this paper, is realized with a conventional PI controller based on SFO vector control, which gives the super-synchronous operation of the DFIG. This control strategy not only improves the efficiency but also maintains almost unity power factor to the grid. The proposed control scheme is simulated and investigated for variations in wind speed and under small disturbance. The effectiveness of the proposed method is verified by developing the simulation model of 1.5 MW in MATLAB-SIMULINK-2014b.



# **PHYSICS INFORMED NEURAL NETWORKS FOR POWER SYSTEM**

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## ABSTRACT

This work presents interestingly, as far as anyone is concerned, a structure for physics-informed neural networks in power system applications. Misusing the fundamental actual laws overseeing power systems and enlivened by ongoing improvements in the field of machine learning, this paper proposes a neural organization preparing strategy that can utilize the wide scope of numerical models portraying power system conduct, both in steady-state and in dynamics. Physics-informed neural networks require considerably less preparing information and can bring about less complex neural organization structures, while accomplishing high exactness. This work opens a scope of chances in power systems, having the option to decide dynamic states, for example, rotor angles and frequency, and uncertain boundaries like inertia and damping for a portion of the computational time needed by conventional methods. This paper centers on presenting the structure and features its potential utilizing a single-machine infinite bus system as a controlling model. Physics-informed neural networks are appeared to precisely decide rotor angle and frequency up to multiple times quicker than conventional methods.

Keywords —deep learning, neural organization, power system dynamics, power flow, system inertia



**ONE GRID ONE NATION**

