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ELECTREE

MAGAZINE

Volume-5 Issue-1

ELECTRICAL & ELECTRONICS ENGINEERING

St. JOHNS COLLEGE OF ENGINEERING & TECHNOLOGY

Accredited by NAAC, Approved by AICTE, Recognized by UGC under 2(f) & 12(B), An ISO 9001:2015 Certified Institution and Affiliated to JNTUA, Anantapuramu

Estd: 2001

Yerrakota, YEMMIGANUR - 518360, Kurnool Dt., Andhra Pradesh.

Counseling Code: JONY

From the Management

Sri. A.V. RAMANA REDDY

It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Electrical and Electronics department of St. Johns College of Engineering & Technology has always been striving to keep itself ahead of the competition. The essential purpose of a magazine is to inform, engage, inspire and entertain a diverse readership including alumni, parents, students, faculty, staff and other friends of the college by telling powerful stories that present a compelling, timely and honest portrait of the college and its extended family. This magazine has made an earnest attempt in this direction and brought out certain aspects to the eyes of the public so that they may understand and know the EEE department even better.

Sri. K. PARVATH REDDY

Being part of a team dedicated to showcasing the talents of our students and staff is always a pleasure. The Electrical and Electronics Engineering (EEE) Department at St. Johns College of Engineering & Technology consistently strives to lead in excellence and innovation. Our magazine's core mission is to inform, engage, inspire, and entertain a broad audience, including alumni, parents, students, faculty, staff, and other friends of the college. We aim to share powerful stories that offer a compelling, timely, and honest depiction of the college and its vibrant community. This publication has made a sincere effort to highlight various facets of the EEE department, bringing them to the public's attention to enhance their understanding and appreciation of our department's achievements and initiatives.

Sri. K. RAMPULLA REDDY
DIRECTOR

Smt. K. ANASUYA
DIRECTOR

It's a privilege to be part of a team that works to highlight the talents of our students and staff. The Electrical and Electronics Engineering (EEE) Department at St. Johns College of Engineering & Technology continually strives to stay at the forefront of excellence. Our magazine is designed to inform, engage, inspire, and entertain a wide-ranging audience, including alumni, parents, students, faculty, staff, and other friends of the college. We aim to tell impactful stories that provide a compelling, timely, and authentic portrayal of the college and its extended community. This issue has sincerely endeavored to bring various aspects of the EEE department into the spotlight, helping the public gain a deeper understanding and appreciation of our department's endeavors and accomplishments. Through articles, interviews, and features, we aim to capture the spirit of innovation and dedication that defines our department. We believe that by sharing these stories, we can foster a stronger connection within our community. We hope you find this magazine both informative and inspiring as it reflects the hard work and creativity of our EEE department. Your support and feedback are invaluable to us, and we encourage you to share your thoughts. Together, we can continue to drive progress and celebrate the achievements of our remarkable community.

From the Principal

Dr. V. Veeranna

It is always a pleasure to be a part of a team which strives to bring out the talents of students and staff. Electrical and Electronics department of RVR&JC College of Engineering has always been striving to keep itself ahead of the competition. The essential purpose of a magazine is to inform, engage, inspire and entertain a diverse readership including alumni, parents, students, faculty, staff and other friends of the college by telling powerful stories that present a compelling, timely and honest portrait of the college and its extended family. This magazine has made an earnest attempt in this direction and brought out certain aspects to the eyes of the public so that they may understand and know the EEE department even better.

From the HOD of EEE

Dr. K. Chithambaraiah Setty

I am delighted to recognize the high quality and taste of the magazine produced by our EEE department. Heartfelt congratulations to the entire editorial team for their exemplary work. It has been a great pleasure to read the remarkable contributions made by our students.

This magazine serves as a platform to uncover the hidden literary talents of our students and to nurture leadership skills among them. It is encouraging to see the diverse range of topics covered and the creativity displayed in each piece. The dedication and hard work of the editorial team and contributors are truly commendable.

ABOUT THE DEPARTMENT:

The Electrical & Electronics Engineering Department was established in the year 2001 with an intake of 60. The Department has qualified, dedicated, experienced and trained faculty with deep sense of commitment towards the Students and Institution .the Department of Electrical & Electronics Engineering is dedicated to the current needs of industry with the flexibility to tune its programmes according to different requirements. Application of new technology in various fields is one of the main focuses in the activities of the department. Develop skilled engineers to meet industry needs and hence develop responsible citizens for our country and society.

The use of electricity is fundamental to modern life and without a secure supply, society in its current form would collapse. Consequently, the importance of efficient and sustainable generation, secure distribution, and intelligent user devices cannot be overstated. This will be a lifetime challenge facing the next generation as traditional sources of energy will run out and new ways of generating, distributing and using electricity must be sought. Electrical and Electronic Engineers have a vital role in addressing this challenge.

Infrastructure facilities include well equipped laboratories such as Electrical Machines laboratory, Power Systems and simulation Laboratory, Circuits and Networks laboratory, Control Systems laboratory, Electrical Measurements laboratory, Power Electronics Laboratory, Electrical workshop and Departmental Library.

Our vision:

To become a front-runner, the department of Electrical and Electronics Engineering brings out competent engineers, innovators, researchers with human and ethical values, thereby contributing value to the knowledge-based economy and society.

Our Mission:

- To educate and train engineers who are highly skilled, innovative, and committed to ethical values.
- To encourage research and innovation, fostering a culture of curiosity and creativity among our students.
- To produce graduates who make a positive impact on the knowledge-based economy and society as a whole by using their knowledge and values to solve real-world problems.

Program Outcomes:

Engineering Graduates will be able to:

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions:** 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 informed 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 multidisciplinary 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 multidisciplinary 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) of EEE Department:

PSO1: Able to utilize the knowledge of high voltage engineering in collaboration with power systems in innovative, dynamic and challenging environment, for the research based team work.

PSO2: Able to explore the scientific theories, ideas, methodologies and the new cutting edge technologies in renewable energy engineering, and use this erudition in their professional development and gain sufficient competence to solve the current and future energy problems universally.

PSO3: Able to provide socially acceptable technical solutions to complex electrical engineering problems with the application of modern and appropriate techniques for sustainable development.

Program Educational Objectives

- **PEO1:** To Excel in professional career and/or higher education by acquiring knowledge in mathematics and Basic Sciences, Basic Electrical Sciences, Power Systems, Power Electronics and Electrical Drives

- **PEO2:** To identify the problems in society and design electrical systems appropriate to its solutions using soft controllers that are technically sound, economically feasible and socially acceptable.

- **PEO3:** To Exhibit professionalism, ethical attitude, communication skills, team work in their profession and adapt to current trends in technology by engaging in continuous professional development.

Toppers (2019-23 Batch):

Congratulations!

To The TOPPERS of Batch 2019-23 B. Tech EEE

J. MONIKA

Regd.No: 19G31A0210

Percentage: 85.80%

N.RAJESWARI

Regd.No: 19G31A0218

Percentage: 81.89%

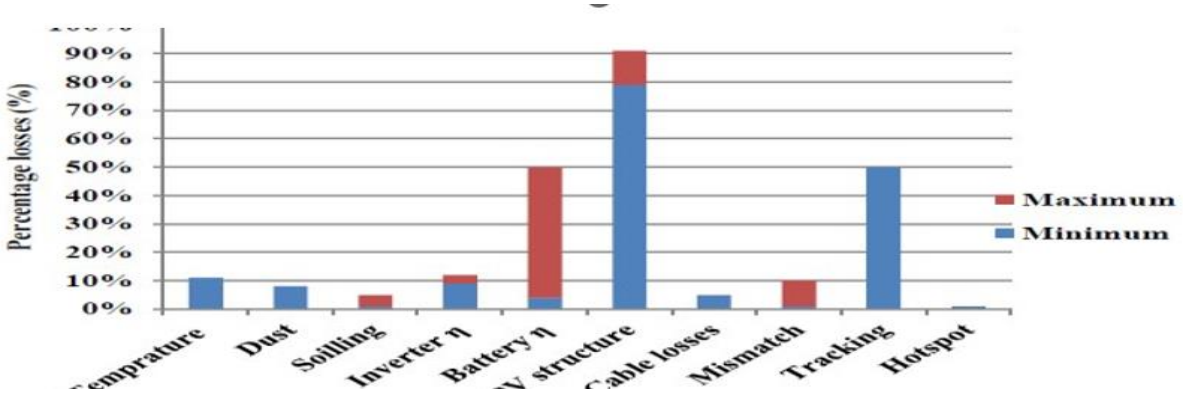
G. SANDYA RANI

Regd.No: 19G31A0206

Percentage: 79.97%

Solar Energy: The Key to Sustainable

Solar energy is a renewable and sustainable energy source derived from the sun's radiation. Solar or photovoltaic (PV) energy is the most popular renewable resource for power generation due to several advantages such as dependability, low-cost maintenance, and zero harmful emissions. PV cells, which have a non-linear current–voltage (I–V) relationship and a Maximum Power Point (MPP) on the power–voltage (P–V) characteristic curve, are used to generate electricity from solar energy. Because the output power of a PV system is directly proportional to the quantity of solar irradiation and the ambient temperature, the system's efficiency is extremely limited. While generating electrical energy, many meteorological factors are affecting the performance of the PV array panels. These factors lead to losses in the production of electrical energy. Losses can occur due to meteorological factors as well as the design of solar PV panels. Shade, material quality, component incompatibilities, and inverter losses are examples. Partial shading can have an impact on the efficiency of PV modules (PS). Clouds, buildings, snow, and trees may all cause partial shadowing. The (P–V) and (I–V) properties of PV modules are directly affected by PS conditions . Changes in solar irradiance on the module result in power losses in the system, lowering efficiency. PV modules made of polycrystalline and Copper Indium Gallium Selenide (CIGS) are tested in to see how PV modules influence power losses. Below figure shows percentage losses of some major factors affecting PV performance.



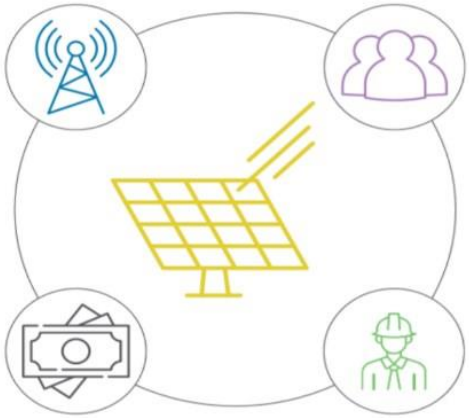
BARRIERS: In general, issues coming from different scenarios, geographical contexts, and levels of development influence renewable energy sources to various levels. Existing impediments at several levels (technological, economic, legislative, regulatory, and socio-political) could stymie the deployment of solar PV capacity during the next three decades as illustrated in Fig. Immediate mitigation of these barriers, through a variety of support policies and operational strategies, is critical to boosting future deployment of PV systems.

SOLUTIONS: The solutions and policies that must be implemented in the future to tackle the PV industry's barriers is illustrated in Fig. An overview of some of the most important factors to be considered while accelerating the deployment of solar PV capacity are

- Set long-term, well-defined and stable solar PV power targets to attract investment.
- Provide long-term stability of policy instruments.
- Adopt a systemic approach, drawing together innovations in enabling technologies, market design, business models and system operation.
- Improve existing infrastructure along with building a high-voltage grid, or super grid to transport electricity to another region and avoid renewable energy curtailment.
- Implement installer certification and licensing/ training programmes to assure the quality of solar PV installations.

TECHNOLOGICAL BARRIERS

- Grid-connection and integration challenges
- Grid-flexibility challenges
- Lack of capacity/skilled labour
- Architectural and space barriers



POLICY BARRIERS

- Complex/outdated regulatory framework
- Lack of long-term and stable policy targets and well-coordinated policy mix
- Lack of quality control measures
- Concerns about technology maturity and performance

MARKET AND ECONOMIC BARRIERS

- Long payback periods
- Carbon emissions and local air pollutants are not priced or fully priced
- Low wholesale power prices in countrieswith low levels of irradiation

REGULATORY, POLITICAL AND SOCIAL BARRIERS

- Lack of consumer information onperformance, costs competitivenessand economics of solar PV
- Lack of relevant standards an quality control measures
- Lack of skilled professionals and experience.

Fun with Electrical

➢ Why did the electrician go to school?

- Because he wanted to be current with the times!

➢ Why was the circuit always so bright?

- Because it had a lot of wattage!

➢ Why did the electrician break up with his girlfriend?

- Because he couldn't resist her sparks!

➢ Why did the capacitor break up with the resistor?

- Because they couldn't find common ground!

❖ **Ohm's Law Excuses:** "Sorry, I can't come out tonight, I'm too ohm-resistive." Ohm's Law can provide great excuses for staying in!

❖ **Electricity Puns:** Electricians have a shockingly good sense of humor. They're always current with their puns!

❖ **Electricity and Love:** Electricians make great partners because they know all about sparks and how to keep the relationship grounded.

❖ **Static Electricity:** The feeling you get when you rub a balloon on your head is hair-larious!

❖ **Circuit Board Art:** Electrical engineers have a shocking sense of creativity. They turn circuit boards into works of art, making connections that really

resonate!

- **Resistance to Change:** Why did the capacitor refuse to change? Because it was too charged with resistance!

- **Parallel Parking:** Parallel parking is easy for electric cars. They're always positive they can fit in!

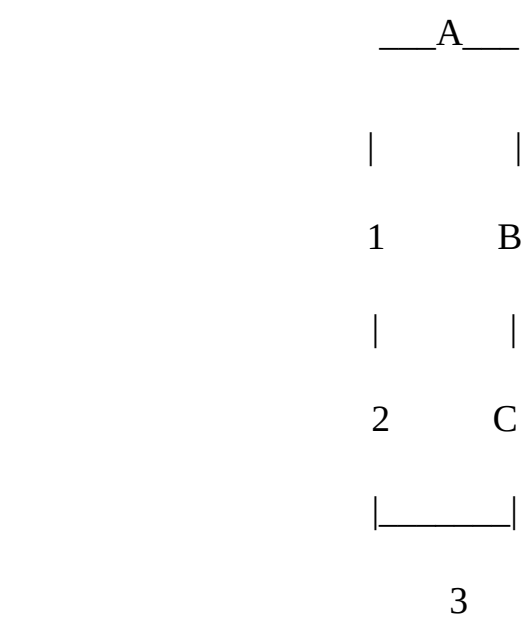
- **Circuit Breaker Dance:** The circuit breaker's favorite dance move? The "trip" and fall!

- **Watt a Shock:** Did you hear about the electrician who became a comedian? He had everyone in stitches with his shocking jokes!

- **Light Bulb Moments:** Why did the light bulb go to school? Because it wanted to be brighter!

Puzzle:

You are given a circuit with three light bulbs (A, B, and C) and three switches (1, 2, and 3), as shown below:



Each switch corresponds to one light bulb, but you cannot see which switch controls which light bulb. You are allowed to flip the switches in any order, but you can only go into the room with the circuit once. How can you determine which switch controls which light bulb?

To solve this puzzle, you can follow these steps:

- Flip switch 1 and leave it on for a few minutes.
- After a few minutes, turn switch 1 off and flip switch 2.
- Immediately enter the room with the circuit.
- Here's what will happen:
- If bulb A is lit, it means switch 1 controls bulb A.
- If bulb A is off and bulb B is lit, it means switch 2 controls bulb B.
- If both bulb A and bulb B are off, and bulb C is lit, it means switch 3 controls bulb C.

ELECTRICITY QUOTES

"Enthusiasm is the electricity of life. How do you get it? You act enthusiastic until you make it a habit." — Gordon Parks

"I had enough electricity in my booty to jump-start the whole of New York City." — Colum McCann,

"I am somewhat exhausted; I wonder how a battery feels when it pours electricity into a non-conductor?" — Arthur Conan Doyle

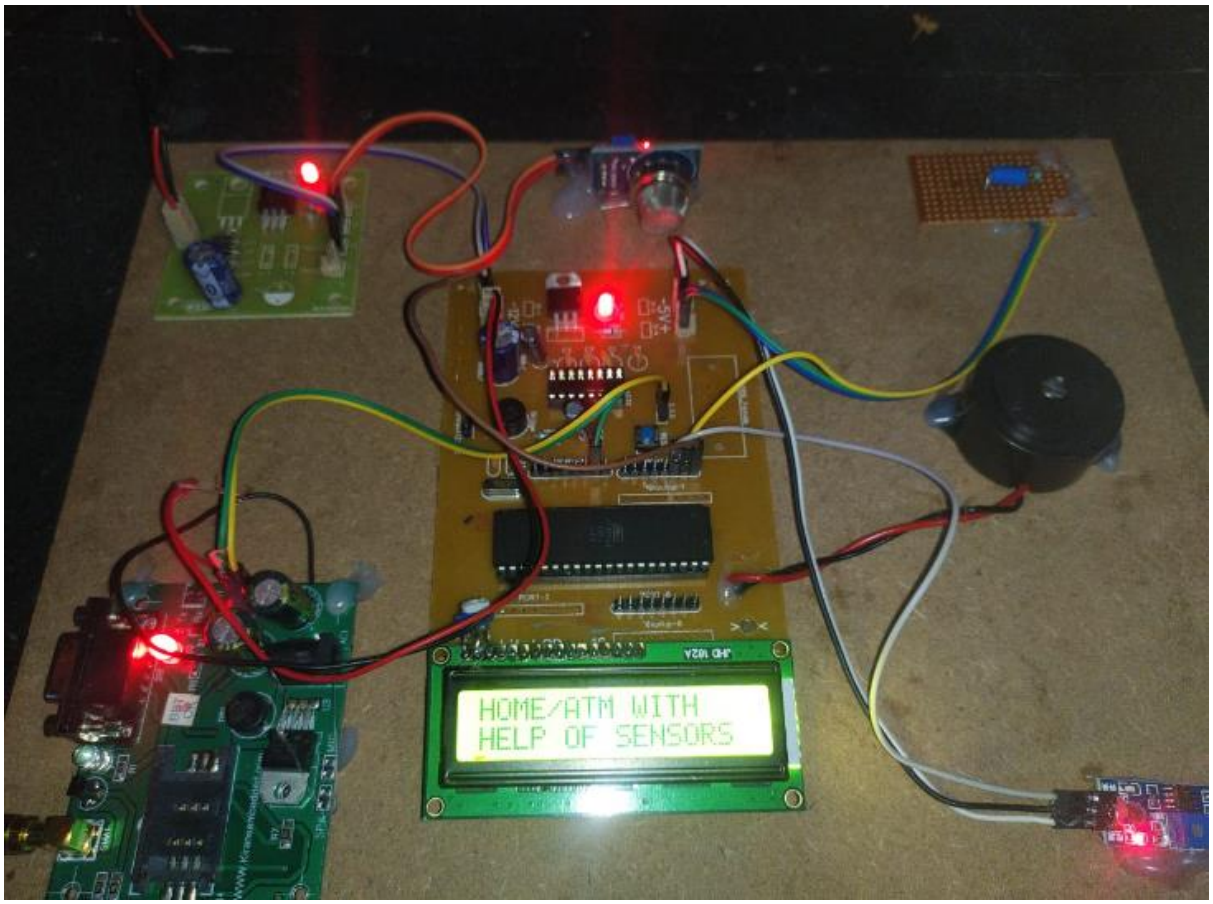
ACTIVITIES:

FRESHERS PARTY

FAREWELL PARTY

AWARENESS CAMPAIGN

PROJECTS:



SMART HOME SECURITY

LIVING BEINGS DETECTING ROBOT AT WAR FIELDS

SOLAR TREE

Industrial Visits

Srisailam Right Bank Power House
(7x110 mw), SRISAILAM

Kurnool Ultra Mega Solar Park,
ORVAKAL

Magazine Review Committee

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