



# **JB INSTITUTE OF ENGINEERING AND TECHNOLOGY**

(UGC Autonomous)

(Accredited by NAAC & NBA, Approved by AICTE & permanently affiliated to  
JNTUH)

## **GENEREX**

**QUATERLY NEWSLETTER**

**Volume 6**

**JUNE 2022**

**ISSUE 2**

**DEPARTMENT OF ELECTRICAL  
AND ELECTRONICS  
ENGINEERING**

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# GENEREX

QUARTERLY NEWSLETTER

Volume 6

JUNE 2022

ISSUE 2

DEPARTMENT OF ELECTRICAL  
AND ELECTRONICS ENGINEERING





**LATE SHRI J. BHASKAR RAO GARU**

**(B.COM, LLB)**

**FOUNDER CHAIRMAN**

**J.B. EDUCATIONAL SOCIETY**





**SMT. J VASUMATHI DEVI**  
**CHAIRPERSON**  
**J.B. EDUCATIONAL SOCIETY**



# About college



- As one of the top ten most preferred institutions in Telangana, JBIET continues to strive to impart technical (engineering) and professional education of very high standards.
- The aim of JBIET is to mould young learners into globally competitive professionals who are professionally deft, intellectually adept and socially responsible.
- The expert faculty at JBIET inculcate the best values and principles, ascribing to a modern curriculum; while the students imbibe pragmatic perception and a pro-active nature, which spurs them towards exploration and advanced inquiry, resulting in invaluable insights.
- The Placement record of JBIET over the years is proof of our right efforts in enabling the best in class engineering, technical and professional education to aspirants.



A close-up photograph of a wooden chessboard with a king piece in the center. The board has a checkered pattern of light and dark squares. The king piece is made of light-colored wood and has a tiered, cylindrical body with a small sphere on top. Other pieces, including a knight and a pawn, are visible in the background, slightly out of focus.

# JB IET VISION

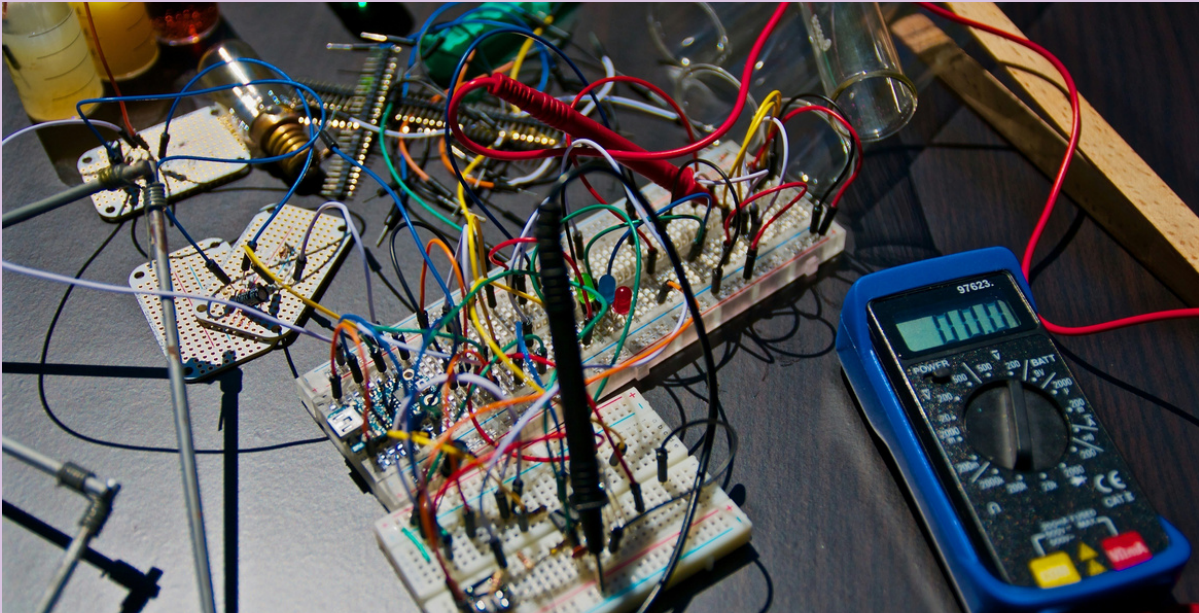
- To be a centre of excellence in engineering and management education, research and application of knowledge to benefit society with blend of ethical values and global perception.

A target with concentric red and white rings, mounted on a black tripod stand. The target is slightly out of focus, with the text overlaid on the left side. The background is dark and moody.

# JB IET MISSION

- To provide world class engineering education, encourage research and development.
- To evolve innovative applications of technology and develop entrepreneurship
- To mould the students into socially responsible and capable leaders

# ABOUT DEPARTMENT



The Department of Electrical and Electronics Engineering was established in the Academic Year 1998- 1999. In its long haul, with a vision of providing finest Post Graduate Program, the Department introduced M.Tech in Electrical Power Systems in the Academic Year 2004-2005. To add jewel in the crown, the Department inaugurated IEEE students' chapter in the Year 2017 and IEI students' Chapter in the Year 2020 for promoting research attitude among the young aspirants. In the quality check of NBA, the Department has been accredited under Tier -I. The department is unique in its own ways by promoting excellence in Electrical Engineering and fulfilling its role in the era of new millennium and meets the needs and demands of various industrial sectors. With the intent of instilling research approach among students, the department is heedful in Research & Development projects. In its augmentation, the department involves in collaborative research with industries. Coupled with its gradual proliferation, the department has signed MoUs with leading Industries. The Department has established Centre of Excellence in Renewable Energy Sources for carrying out advanced research. With determined hope and optimism, the department has dedicated and well qualified faculty members who manifested to be specialized in Power Systems, Power Electronics, Electrical Drives and Control, Control System, Electrical Machines, Renewable Energy, etc. The curriculum is developed in such a way to meet the industry requirements from time to time, also in synchronization with AICTE model curriculum by covering the emerging areas like Renewable Energy Systems, Embedded System, Electric Hybrid Vehicle, Industrial Automation and Control, Artificial Intelligence etc. Besides, the students are replenished with advanced courses for enhancing their technical skills and programming abilities to get acquainted with new trends in technology and develop overall potential of the students in diversified aspects.





# EEE DEPARTMENT VISION

- To be a Centre for State-of-the-art learning and research in the area of Electrical and Electronics Engineering, where the stakeholders could explore, experiment and exhibit their expertise with an industrial outlook.

# EEE DEPARTMENT MISSION

- To Equip the student with advanced learning skills in the field of Electrical and Electronics Engineering as well as the professional skills necessary to face the challenges of the future.
- To Engineer the student to engage in research activities leading to innovative applications of technology for the benefit of society.
- To Enable the student with the qualities of leadership and social responsibility.

# SECRETARY'S MESSAGE



**SHRI J V KRISHNA RAO**

**MBA HR-USA**

**SECRETARY, JBES**

“Education is the passport to the future, for tomorrow belongs to those who prepare for it today”. JB Institute of Engineering & Technology was established in the year 1997 under the umbrella of JB Group of Educational Institutions, Hyderabad. At present JBIET is a UGC Autonomous Institution and permanently affiliated to JNTU Hyderabad. The Speedy development in the field of Information & Technology has accelerated the demand for the value based education in the stream of Engineering, Technology and Management which is qualitative, progressive and multidimensional in competitive global environment. We provide quality education beyond the four walls of classroom to cope up with the corporate world. The aim of JBIET is not only to produce mere degree holders, but the bright, talented men and women equipped with all round development of personality. Our vision of the institute is to impart quality education with Life Skills in all core disciplines of knowledge by developing global leaders who are passionate, committed and confident to take initiative in the nation building and create a peaceful environment for WORK, WORKER AND WORKPLACE.



# CHEIF EXECUTIVE OFFICER'S MESSAGE



**MAJ GEN Dr S S DASAKA**  
**SM, VSM (Retd)**

At J.B. Institute of Engineering and Technology (JBIET), we are dedicated to maintaining our position as a leading engineering college in Telangana and Andhra Pradesh. Our faculty, comprised of experienced academics, industry experts, and researchers, are committed to delivering high-quality education that prepares our students for successful careers in their chosen fields. Our curriculum is regularly updated to align with industry requirements, ensuring that our graduates are industry-ready. We recognize the importance of co-curricular and extra-curricular activities in overall student development, and we provide Life Skills and Employability Skills Training from the first semester onward. Our campus, situated in a peaceful environment, provides an ideal atmosphere for learning. As part of the JB Educational Group of Institutions, we offer a range of undergraduate and postgraduate programs in Architecture, Pharmacy, Law, Medicine, and Dentistry. Our interdisciplinary approach fosters a creative and innovative spirit among our students through the JB Institute of Inventors Association of India (JBIIAI), which provides intellectual, logistical, and financial support from ideation to commercialization. Our goal is to turn our students into job providers rather than job seekers. We will guide you throughout your studies at the institute to help you become knowledgeable graduates/postgraduates. We look forward to your bright success alongside your parents/guardians as we move forward together. Remember Swami Vivekananda's words: "Arise, Awake, and Stop not till the goal is reached." We are excited to embark on this beautiful journey with you. Come join us! Wishing you all the best!

# PRINCIPAL'S MESSAGE



**DR. P.C. KRISHNAMACHARY**

Welcome to the vibrant world of JB Institute of Engineering and Technology, Hyderabad. I on behalf of all the faculties and staff, congratulate you for choosing JBIET to reach the life goal. This Institute established in the year 1998 under the aegis of JB Group of Educational Institution's JBGEI is the brain child of our visionary leader and founder chairman Late Sri. J. Bhaskar Rao Garu. In Consonance with the needs of time and to cope up with the dynamic changes in the era of technology dominant world.

At JBIET we the team are continuously working on to fulfill the local, regional, national and global aspirations of the youth of Telangana and Andhra in particular and India at large for providing the world class technical education to benefit all the sections of the society. In the current context of rapidly changing Socio-Economic Scenario, Demographic Dividend of India playing a major role in performing unexpected results. We go beyond the normal education system at our campus. The overall holistic development of the budding professional / technocrats of JBIETians with value addition education systems with Employability and Life Skills, Techno Sessions, Cultural Fest, Technical Fest, QUIZ, Guest Lectures, Industry Institute Interactions and the most important is the curriculum design in consult with Industry and university is extending full support to empower our institution.

Our Institute is committed to maintain an academically rich and professionally competent environment by encouraging the enterprising skills of our students. Our institute has consistently produced excellent results and its alumni are making their mark in distinguished organizations in India and overseas. We are constantly making efforts to ensure that our students showcase their academic talent with high moral values and make responsible citizens of the society and humanity. I am confident that we as an Institute will grow and contribute positively and actively in transforming the society.



# HEAD OF DEPARTMENT'S MESSAGE



**DR P. DURAIPANDY**

It gives me immense pride in saying that we are highly proud of your achievements and accomplishments that you have established over these years. The dedication you showed throughout your graduate life is unimaginable. The great walk in to your career and life as a whole begins now. In this era of nerve racking global competition, the choices you have are too many and will definitely leave you perplexed. My sincere advice to all of you is that you need to be thoughtful, creative and choose a very right path that may lead you to a right destination. I am very sure that you would be successful there too, as you have been successful here. We truly believe in you and your potentials. Never stop learning and never stop winning! Learn from each and every one, may it be the great or the mediocre. Be prepared in such a manner that no matter, how forceful or critical the challenges are; always encounter those with full strength and vigor. I would like to appeal to my dear students to project you as good ambassadors of our college and never let self-centered motives malign the honesty and ethics you have acquired here over the years. It is your time to earn your name, make your career and make your Parents and Mentors proud. I am sure your poised character will earn your accolades. Always keep up the dedication and sincerity and hold your head high –without losing the sight of self-respect, integrity, human values and ethics. Render dedicated service to humanity and live a happy and peaceful life.

May the Almighty always guide you on your path and bless you. Wish you all the very best in life.

Stay connected!

## **PROGRAM EDUCATIONAL OBJECTIVES (PEOS):-**

<b>PEO1:</b>	To Create an excellent academic learning environment by providing awareness on lifelong learning, apply the technical knowledge in the field of Electrical and Electronics Engineering to pursue higher studies or in their professional career.
<b>PEO2:</b>	To demonstrate technical knowledge to analyze, design, develop, optimize, and implement complex electrical systems. Also gain multidisciplinary knowledge through projects and industrial training, providing a sustainable competitive edge in R&D and meeting industrial needs in the field of Electrical and Electronics Engineering.
<b>PEO3:</b>	To possess professional and ethical attitudes with effective communication skills, entrepreneurial thinking and an ability to relate engineering issues to the broader social context. Also develop requisite skills to excel in their chosen profession with an awareness of contemporary issues and the need for life -long learning.

## **PROGRAM OUTCOMES (POS:-)**

PO 1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex electrical and electronics engineering problems.

PO 2: Problem Analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and electrical sciences.



**PO 3: 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.

**PO 4: 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.

**PO 5: 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.

**PO 6: 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 electrical and electronics engineering practice.

**PO 7: 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.

**PO 8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO 9: Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO 10: 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.

# EDITORIAL BOARD



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**Cheif Editor**



**A. SHIVARAMAKRISHNA**

**Associate Editor**



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**Chintha Karthik Goud**

Student Coordinator





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# FACULTY ARTICLES



# AERIAL ROBOTICS



**Mr. SANAM RATHNA KUMAR**  
**Assistant Professor**

The first digitally operated and programmable robot was invented by George Devol in 1954 and was ultimately called the Unimate. This later laid the foundations of the modern robotics industry. Robotics integrates many fields that deal with specific aspects of robotics.

For example, within mechanical engineering, the term robotics refers to the construction of the physical structures of a robots, while in computer science, robotics focuses on the study of robotic software. in its, including electrical, control, software, information, electronic, — telecommunication, computer, mechatronic, materials, and biomedical engineering. The goal of robotics is to design machines that can help and assist humans.



# AERIAL ROBOTICS

The field of robotics develops machines that can automate tasks and do various jobs that a human might not be able to do. Robots can be used in many situations for many purposes, but today many are used in dangerous environments (including inspection of radioactive materials, bomb detection deactivation), manufacturing processes, or where humans cannot survive (e.g., in space, underwater, in high heat, and clean up and containment of hazardous materials and radiation). Robots can take any form, but some are made to resemble humans in appearance. This is claimed to help in the acceptance of robots in certain replicative behaviors that are usually performed by people. Such robots attempt to replicate walking, lifting, speech, cognition, or any other tasks mainly performed by a human.



# WEARABLE TECHNOLOGY TRENDS



**Mr. CH.SHRAVAN KUMAR REDDY**  
**Assistant Professor**

For the past two decades, wearable technology trends have evolved significantly. Smart wearable devices are now equipped with sensors and are often connected to the Internet and the cloud. That wasn't always the case, as the first Bluetooth headset was sold in the year 2000, bringing a lot of excitement.

In 2022, device usage is projected to grow to 1.1 billion users. Many of these devices will use 5G as their protocol of choice. According to Allied Market Research, the smartwatches segment is predicted to rise at the highest pace, with a CAGR of 19.9%. The health & sports segment led the wearable technology trends with over 39 % market share in 2015, and this is expected to continue during the forecast period (2015-2022). During the projected span, however, the entertainment market is expected to expand at the fastest rate of 35.7%. In addition to health, sports, and entertainment, wearable technology has one even more important function: saving lives. Tim Cook presented a couple of videos he'd got from Apple Watch users at a recent Apple gathering.



# WEARABLE TECHNOLOGY TRENDS

These consumers praised the Apple Watch for detecting their health issues and encouraging them to see a doctor, which was crucial to saving their lives.

Both Fitbit and Huami make watches with built-in thermometers that can monitor the increase in body temperature that also occurs as people get sick with viruses.

In addition to informing someone that they should consider keeping away from other individuals for a few days, the aggregated data gathered from these devices can aid epidemiologists in tracking the spread of a virus across communities and, in the future, may aid in the containment of outbreaks before they become global pandemics.



# Student Articles





# SMART TRASH RECEPTACLE MONITORING AND ALERTING MANAGEMENT SYSTEM



**Nagamalla Harish**  
**20675A0204**

In the present scenario, we see the garbage bins being overloaded and the garbage spills out resulting in pollution. The detection, monitoring, and management of waste is one of the primary problems of the present era.

The traditional way of monitoring the waste in waste bins is a complex, cumbersome process that takes more human effort, time, and cost and is not compatible with present-day technologies in any way. Hence our problem statement is to design a system based on a microcontroller using a GSM module for collecting garbage from a particular area whose garbage bins are overflowing with prior concern. This system monitors the garbage bins and informs about the level of garbage collected in the garbage bins via a text message.



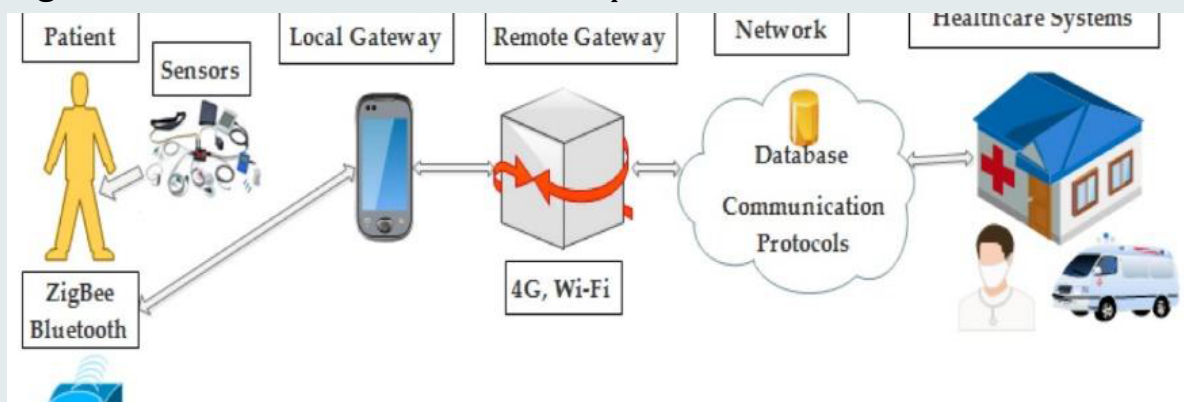
# FINGERPRINT BASED MEDICAL INFORMATION SYSTEM AND ONLINE FIRST AID RECOMMENDER FOR EMERGENCY USING IOT



**Kasam Kavya**  
**19671A0221**

The fingerprint Based Medical System introduces an efficient way to store patient's clinical records. It is used to determine the patient's past health record quickly and easily by using fingerprint recognition technology. The medical information system will enable a reliable electronic medical record system stored in the database.

To provide security to the information many MQTT algorithms are introduced. The sensitive medical information is protected by using IoT techniques and thus sending the information message to the doctor like blood group, BP value, glucose level, and cardiac pulmonary. This system replaces the conventional paper-based medical records with electronic medical record systems. This system also takes the current health details of the patients like temperature, respiratory rate, and heartbeat rate. By considering the past and present medical data of the emergency people, this system helps the doctors to decide the type of first aid to be given in emergencies like accident occurrence place or ambulance.





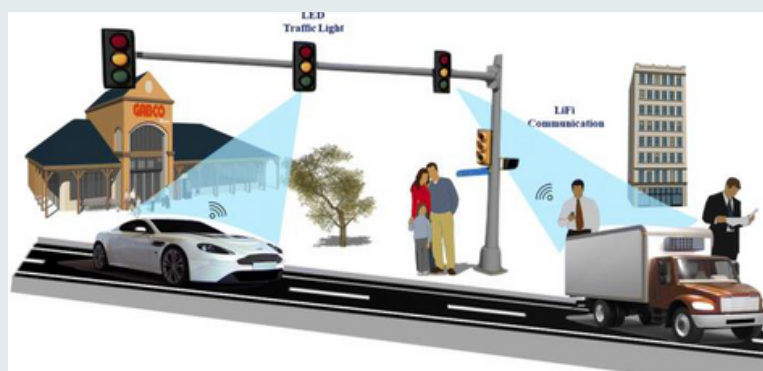
# VEHICLE MONITORING BASED ON LI-FI TECHNOLOGY



**BASAVA RAJU**  
**20671A0201**

Nowadays, traffic accident detection is becoming one of the interesting fields due to its tremendous application in intelligent transportation systems.

The main causes behind these road accidents are the lack of unskilled drivers, consuming alcohol while driving, speeding, and sleeping while driving. Plenty of solutions have been applied to prevent these road accidents. But most of them failed to prevent this. In this work, we present an advanced accident detection using LIFI technology. This work provides an intelligent system for accident prevention and detection for human life safety. That prevention part has various sensors like an eye blink sensor, an alcohol sensor, and an ultrasonic sensor. If the sensor detects whether the rider consumes alcohol or the distance between two vehicles is low then it sends that information to another vehicle that is going in front of it. So that they can be alert. And if the driver is sleeping while driving means then the eye blink sensor detects it and gives an alert to the driver.







# **PROGRAMS ORGANIZED**



# *Industrial Lecture on* **FUTURE TRENDS IN ELECTRICAL ENGINEERING**

Mr. Md. Akber Ansari, Chief Consultant at Electromation Technologies and Mr. Md. Fahad, Training Head at Electromation together have delivered the Lecture.

The course content delivered in the Industrial Lecture is as follows:

The importance Electrical Engineering and its trends & scope is discussed in this session.

The Speaker of the session Md. Akber Ansari presented the keynote address on “Future Trends in Electrical Engineering”. He discussed about what are the Opportunities available for an Electrical Engineer after Graduation. He also discussed about the Companies which provide Job Opportunities for Electrical Engineers. The Speaker of the session Md. Fahad presented the Operation of PLC Kit.

This Industrial Lecture is arranged with the motive of sharing the knowledge of Mr. Md. Akber Ansari, who has a long years of experience in Electrical domain. The overall organization and deliverance of the Industrial Lecture was helpful and satisfied the participants.

The objective of the Industrial Lecture was achieved. The overall session benefited  
70 Students.



# INDUSTRIAL VISIT TO NRSC-ISRO





An overview of the Visit is as follows: National Remote Sensing Centre (NRSC) at Hyderabad is responsible for remote sensing satellite data acquisition and processing, data dissemination, aerial remote sensing and decision support for disaster management. NRSC has a data reception station at Shadnagar near Hyderabad for acquiring data from Indian remote sensing satellites as well as others. NRSC Ground station at Shadnagar acquires Earth Observation data from Indian remote-sensing satellites as well as from different foreign satellites. NRSC is also engaged in executing remote sensing application projects in collaboration with the users.

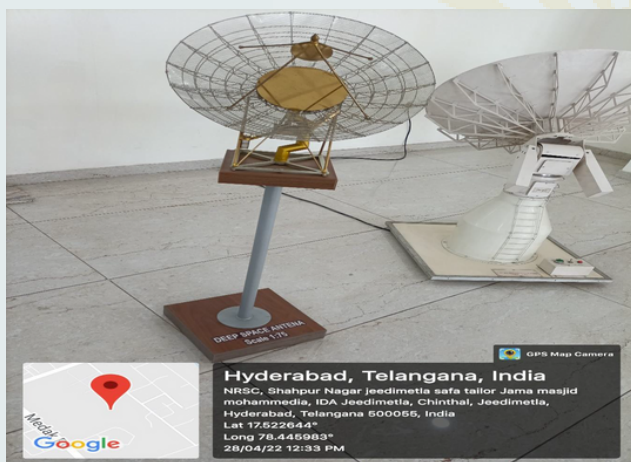
The Aerial Services and Digital Mapping (ASDM) Area provides end-to-end Aerial Remote Sensing services and value-added solutions for various large scale applications like aerial photography and digital mapping, infrastructure planning, scanner surveys, aeromagnetic surveys, large scale base map, topographic and cadastral level mapping, etc. Some of the Satellites launched by India are: □ Astro sat □ Ocean sat □ Polar Satellite Launch Vehicle (PSLV) □ Rohini Satellite □ Aryabhata Satellite □ Satellite Launch Vehicle

- Augmented satellite launch vehicle (ASLV)
- Mangalyaan
- chandrayaan

It includes detailed videos of physical design and launching of satellites like Geosynchronous Satellite lunch Vehicle (GSLV) and exhibition of satellite models that further enhance students knowledge towards future projects. The overall visit was helpful and satisfied the participants



## Industrial Visit To National Remote Sensing Centre (NRSC) Jeedimetla, 2022







# NAME TO FAME



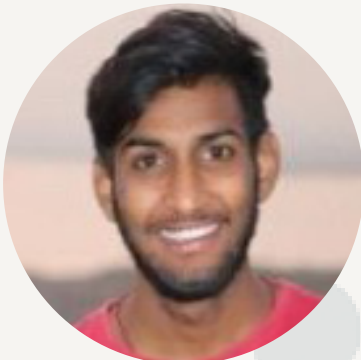
# *Congratulations!*



**S MAHESH**  
**18671A0237**



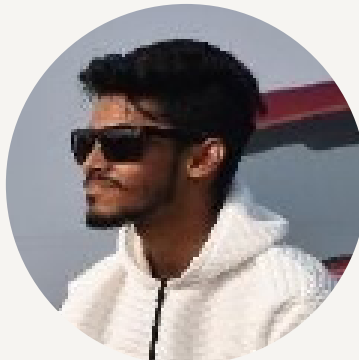
**CHANDRAGIRI SRIJA**  
**19675A0205**



**AKIREDDY SAI KIRAN**  
**19675A0244**



**NAVYA BHUSHANAGARI**  
**18671A0247**



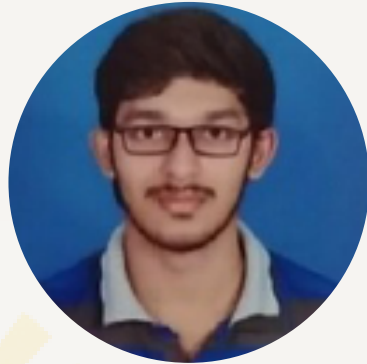
**MD ABDUL M ASRARI**  
**19675A0230**



# *Congratulations!*

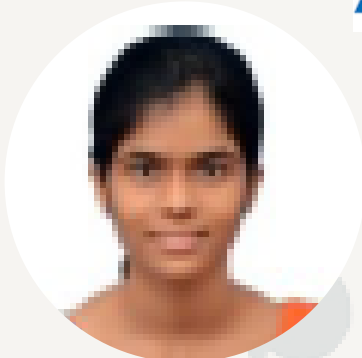


**RAPOLU SUPRAJA**  
**18671A0274**



**S SANDEEP RAJA**  
**18671A0278**

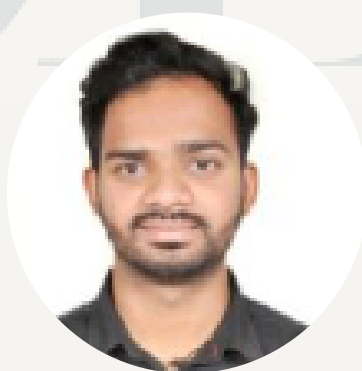
**HCL**



**DODDA DEEPTHI REDDY**  
**18671A0211**



**B. HRUSHIKESH**  
**19675A0202**



**SUGANDHAM SRUJAN**  
**19675A0203**

# *Congratulations!*



**KALWAVISHWAROOP**  
**19675A0235**



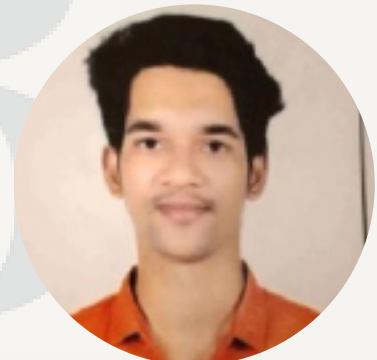
**BINGI ANIL KUMAR**  
**19675A0204**



**BEEMANAPELLI AKHILA**  
**19675A0208**



**L SHABAREESH**  
**18671A0261**



**N SAI VENUS**  
**19675A0223**

# Capgemini



# *Congratulations!*



**K V MAHESH CHANDRA MOHAN**  
**19675A0240**



**BEEMANAPELLI AKHILA**  
**19675A0208**

**TATA**  
**CONSULTANCY**  
**SERVICES**



# *Congratulations!*



**D.SURYA VAMSHI**  
**19675A0216**



**KOMPALLYSAIKEERTHANA**  
**18671A0260**







# ANNUAL TECHNICAL MAGAZINE



JUNE 2022



## J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY UGC AUTONOMOUS

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