



# ***JB INSTITUTE OF ENGINEERING AND TECHNOLOGY***

(UGC Autonomous)



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

(Bhasker Nagar, Yenkepally, Moinabad Mandal, R.R Dist, Hyderabad-75)

# ***GENEREX***

**ANNUAL TECHNICAL MAGAZINE**

**JUNE 2021**

***DEPARTMENT OF ELECTRICAL AND  
ELECTRONICS ENGINEERING***

[www.jbiet.edu.in](http://www.jbiet.edu.in)







# GENEREX

ANNUAL TECHNICAL MAGAZINE

JUNE 2021

***DEPARTMENT OF  
ELECTRICAL AND  
ELECTRONICS ENGINEERING***



**LATE SHRI J.BHASKAR RAO GARU**

**B.Com, L.L.B**

**FOUNDER CHAIRPERSON**

**J.B. EDUCATIONAL SOCIETY**





**SMT J.VASUMATI DEVI GARU**  
**CHAIRPERSON**  
**J.B.EDUCATIONAL SOCIETY**

# ABOUT JBIET



- *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.*
- *JBIET aims to mold 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 valuable 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 chessboard with several pieces. A white king piece stands prominently in the center, surrounded by other pieces like pawns and a rook. The lighting is dramatic, highlighting the textures of the wood.

## *JBLET* **VISION**

*To be a center of excellence in engineering and management education, research, and application of knowledge; to benefit society by blending ethical values with globally relevant learning.*

A graphic of a target with concentric circles in shades of blue, orange, and yellow. A red arrow is shown hitting the bullseye in the center.

## *JBLET* **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 incepted in the academic year 1998–1999. In the long haul, with a vision of providing the finest postgraduate program, the department introduced the M.Tech. in Electrical Power Systems in the academic year 2004–2005. To add a jewel to the crown, the department inaugurated the I&EE students' chapter in 2017 and the I&I students' chapter in 2020 to promote 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 ways by promoting excellence in Electrical Engineering fulfilling its role in the era of the new millennium, and meeting the needs and demands of various industrial sectors. With the intent of instilling a research approach among students, the department is heedful in Research & Development projects. In its augmentation, the department is involved in collaborative research with industries. Coupled with its gradual proliferation, the department has signed MoUs with leading industries. The Department has established a Center 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 controls, Control Systems, Electrical Machines, Renewable Energy, etc. The curriculum is developed in such a way as to meet the industry requirements from time to time, also in synchronization with the AICTE model curriculum by covering emerging areas like Renewable Energy Systems, Embedded Systems, Electric Hybrid vehicles, 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 their overall potential in diversified aspects.**

*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.*

## *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 1997 under the aegis of the JB Group of Educational Institutions, Hyderabad. At present, JBIET is a UGC Autonomous Institution and is permanently affiliated with JNTU Hyderabad. The speedy development in the field of information & Technology has accelerated the demand for value-based education in the stream of Engineering, Technology and Management which is qualitative, progressive, and multidimensional in a competitive global environment. We provide quality education beyond the four walls of the classroom to cope with the corporate world. The aim of JBIET is not only to produce mere degree holders but also bright, talented men and women equipped with all-round personality development. 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 nation-building and create a peaceful environment for work, workers, and the workplace.*



# ***Cheif Executive Officer's Message***



**MAJ.GEN.DR S S DASAKA  
SM , VSM(RETD).**

*I welcome you all to the portals of the J.B. Institute of Engineering and Technology (JBLET), a great institution by all standards. Engineering continues to be a lucrative career for bright minds, as it is only through engineers that the inventions of science can reach the masses, for the overall development and welfare of society. JBLET has been one of the best engineering colleges in the two states of Telangana and Andhra Pradesh. It has been striving hard to not only maintain its standards but also to continuously improve them, to benefit the students in particular and the society at large. The college boasts of well-qualified and self-motivated faculty who have rich experience in academics, industry, and research. The curriculum is regularly revised to keep pace with the industry requirements so that the students pass out as industry-ready graduates. The institute has excellent infrastructure, laboratories, and workshops. The calm and quiet environment on the lush green campus, away from the hustle-bustle of the city, provides a tranquil environment, that so conducive to quality Teaching and learning. At JBLET, we are very focused on the same and ensure that all students are put through “Life Skills and Employability Skills Training” right from the first semester itself. The college not only inculcates a Creative and innovative spirit in the minds of our students but also actively encourages them through the Group’s JB Institute of Inventors Association of India (JBIIAI). This body provides intellectual support, logistics support, and financial support, right from ideation to commercialization. I would like to wish you all a studious, satisfying, and enjoyable journey in this institute. Remember what Swami Vivekananda said, “Arise, Awake and Stop not, till the goal is reached”. Looking forward to moving along with you in your beautiful journey ahead. Come, join us! Wishing you All the Best!*



# Principal's Message



**DR. NIRAJ UPADHYA**

***JBIET has its strength in its Faculty and infrastructure of Laboratories. We are constantly striving to transform the student's aspirations into reality. We enable this with dedication and commitment to imparting the right education and creating the most conducive environment for learning, research, innovation, and growth. Over the years, we have ensured many a dream has come true for both students and parents: with our keen focus on career-oriented education. We continue to strive towards our goals with purpose as Education is a never-ending mission in these increasingly competitive times.***

***At JBIET, our commitment to excellence shines through our dedicated faculty members and state-of-the-art laboratories. We take great pride in nurturing our students' dreams, turning aspirations into tangible achievements. Through a blend of quality education, research opportunities, and an innovative learning environment, we empower our students to reach their full potential. Our focus on career-oriented education has equipped countless students to succeed in their chosen fields, making us a beacon of hope for both students and parents alike. As we navigate the ever-evolving landscape of education, we remain steadfast in our mission to provide a nurturing space for growth, innovation, and success. Join us on this journey of lifelong learning and discovery at JBIET.***



# Head of Department's Message



**DR P. DURAIPANDY**  
**M.E , Ph.D**

*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 into 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 leave you perplexed. My sincere advice to all of you is that you need to be thoughtful, and creative and choose a very right path that may lead you to the right destination.*

*I am very sure that you will be successful there too, as you have been successful here. We truly, believe in you and your potential. Never stop learning and never stop winning! Learn from everyone, may it be great or 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 sight of self-respect, integrity, human values, and ethics. Render dedicated service to humanity and lived 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)

**PEO 1:** 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.

**PEO 2:** 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.

**PEO 3:** 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:** **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 public health and safety, and cultural, societal, and environmental considerations.
- PO 5:** **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 6:** **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 7:** **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 8:** **Environment and sustainability:** Understand the impact of professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO 9:** **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- PO 10:** **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO 11:** **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.



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**“ARISE, AWAKE AND STOP NOT  
UNTILL THE GOAL IS REACHED”....**

**---SWAMI VIVEKANADA**

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# FACULTY ARTICLES

## ENHANCE SAFETY AND SECURITY SYSTEM FOR CHILDREN IN SCHOOL CAMPUS BY USING WEARABLE SENSORS



**A. RAJITHA**  
**Assistant Professor**

The very precious assets of our nation are children. Unfortunately, crime against children has been increasing exponentially. The safety of school children can be maintained in a significant way with the support of advanced technology.

Several unfortunate incidents are continuously reported in the various media platforms about callous approaches by particular schools regarding the safety of school children during entry and exit from the schools.

These events have resulted in major concerns regarding the safety of school children. all over the world children are abused and killed sometimes by bad people those who do not in good attitude inside the school campus. To resolve and track such incidents an improved security system is required.



Hence in this project, an enhanced version of the security system for children is proposed by using 'Wearable Sensors'. In this proposed method two wearable sensor nodes 'Staff Node' and 'Student Node' are paired by using 'GSM' communication technology and Smart Watch technology is also used to transmit the necessary information to the security sensor or processing node to track the kidnapped children's location and whether the two different nodes are moved away from the school premises. If the node of the child is inactive for a longer period then it may be notified to the centre and they will inform the issue to the security officers near the place. The proposed method may satisfy the school management's need about the staff's behaviour with the students and the behaviour of students to avoid unfortunate incidents. In the proposed system there is implementation of RFID and sensor technology for children's safety and health condition monitoring. This implementation method will overcome the fear of parents in the safety zone also health issues during this pandemic COVID-19 situation.



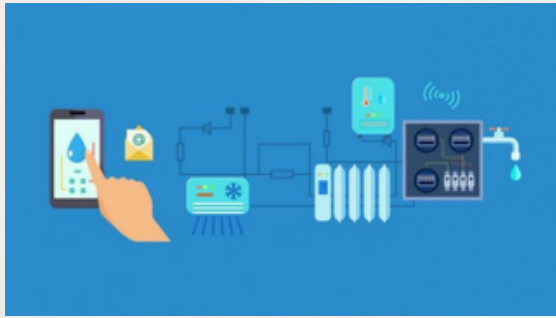
## WATER SAVING MANAGEMENT IN AGRICULTURE USING SMART IOT



**RAJESH T**  
**Associate Professor**

Despite the perception people may have regarding the agricultural process, the reality is that today's agriculture industry is data-centered, precise, and smarter than ever. The rapid emergence of Internet of Things (IoT) based technologies redesigned almost every industry including "smart agriculture" which moved the industry from statistical to quantitative approaches.

Such revolutionary changes are shaking the existing agriculture methods and creating new opportunities along a range of challenges. This article highlights the potential of wireless sensors and IoT in agriculture, as well as the challenges expected to be faced when integrating this technology with traditional farming practices. IoT devices and communication techniques associated with wireless sensors encountered in agriculture applications are analyzed in detail. What sensors are available for specific agriculture applications, like soil preparation, crop status, irrigation, and insect and pest detection are listed. How this technology helps the growers throughout the crop stages, from sowing to harvesting, packing, and transportation is explained. Furthermore, the use of unmanned aerial vehicles for crop surveillance and other favorable applications such as optimizing crop yield is considered in this article. State-of-the-art IoT-based architectures and platforms used in agriculture are also highlighted wherever suitable. Agriculture is the main source of food production in our country. In India, agriculture contributes 18% of the country's Gross Domestic Product (GDP) which employs more than half of the total population. .



The Indian government has stressed and highlighted the need for innovations to be in above mentioned criteria in agriculture, thus seeking an indication of technology exposure and innovative implementation practices to enhance productivity. The productivity in agriculture, food security, erratic conditions in climates, and soil conditions require new ideas and innovations. This largely depends on the irrigation system and current techniques in irrigation which help to achieve more productivity per drop of water. Automation in irrigation systems helps farmers manage their work much easier and helps to make decisions even in the absence of farmers. IoT, sensors, and smartphone tools are the technologies that help farmers to know the status of their land, the amount of water needed, the temperature of soil, humidity, weather conditions, and pH level. IoT is the term that was first coined by the Massachusetts Institute of Technology in the year 1999. Definitions focus on the technical aspects of IoT while the other is based on the applications and functionalities. A few definitions define IoT as "an extension of the current Internet to all objects that can communicate directly or indirectly with electronic equipment and connected to the Internet". Other defined as "a novel paradigm that is rapidly gaining ground in the scenario of modern wireless telecommunications. IoT is automating all the aspects of farming and agricultural methods to make the process more efficient and effective. This study aims to analyze recently developed IoT technologies in the agriculture and farming industries to present a summary of sensors, technologies, and sub-verticals such as water management and crop management



# SMART AUTONOMOUS REMOTE MONITORING SYSTEM FOR HORTICULTURE



**A SHIVA RAMAKRISHNA**  
**Assistant Professor**

Despite people's perceptions of the agricultural process, the reality is that today's agriculture industry is data-centered, precise, and smarter than ever. The rapid emergence of Internet-of-Things (IoT)-based technologies redesigned almost every industry, including "smart agriculture", which moved the industry from statistical to quantitative approaches. Such revolutionary changes are shaking the existing agriculture methods and creating new opportunities along a range of challenges.

This highlights the potential of wireless sensors and IoT in agriculture, as well as the challenges expected to be faced when integrating this technology with traditional farming practices. IoT devices and communication techniques associated with wireless sensors encountered in agriculture applications are analyzed in detail. Sensors are available for specific agriculture applications, like soil preparation, crop status, irrigation, and temperature. This technology helps the growers throughout the crop stages, from sowing to harvesting. State-of-the-art IoT-based architectures and platforms used in agriculture are also highlighted wherever suitable. Finally, based on this thorough review, the current and future trends of IoT in agriculture will be highlighted, along with potential research challenges.



# STUDENT ARTICLES

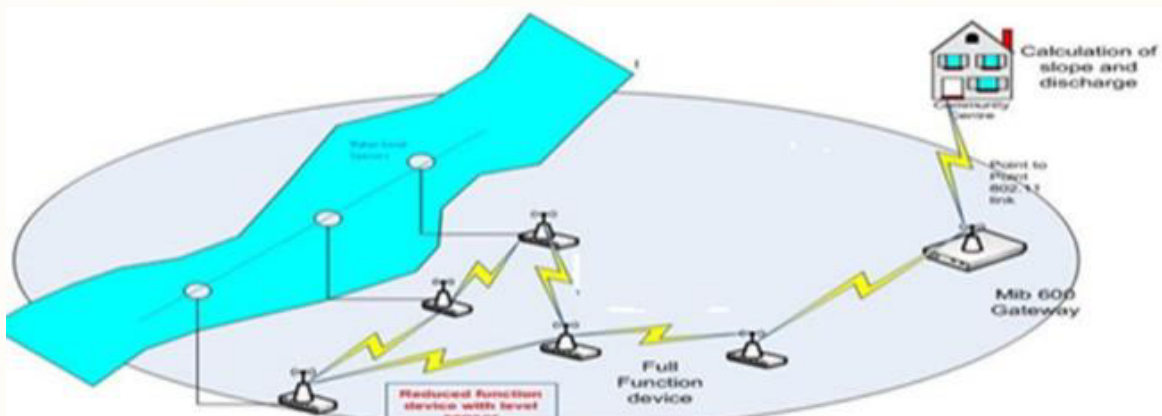
## FLOOD WARNING SYSTEM BASED ON IOT



**D. PRIYANKA**  
**17671A0245**

The flood detection system monitors and identifies the development of floods and then takes necessary actions like operating regulators and sending notifications to the control areas and inhabitants via IOT in various forms such as alarms and real-time monitoring on the internet.

The main objective of this project is to send an alert to riverside people, so they can be safely moved away from areas that might get affected, at the same time the surplus water can be used for irrigation as well as drinking water hence wastage of water can be reduced. The sensors sense the data of rivers or changes in water bodies due to climate changes store it in the cloud and use this as a reference for comparison when abnormal conditions arise. This system gives alerts in advance through the Internet.



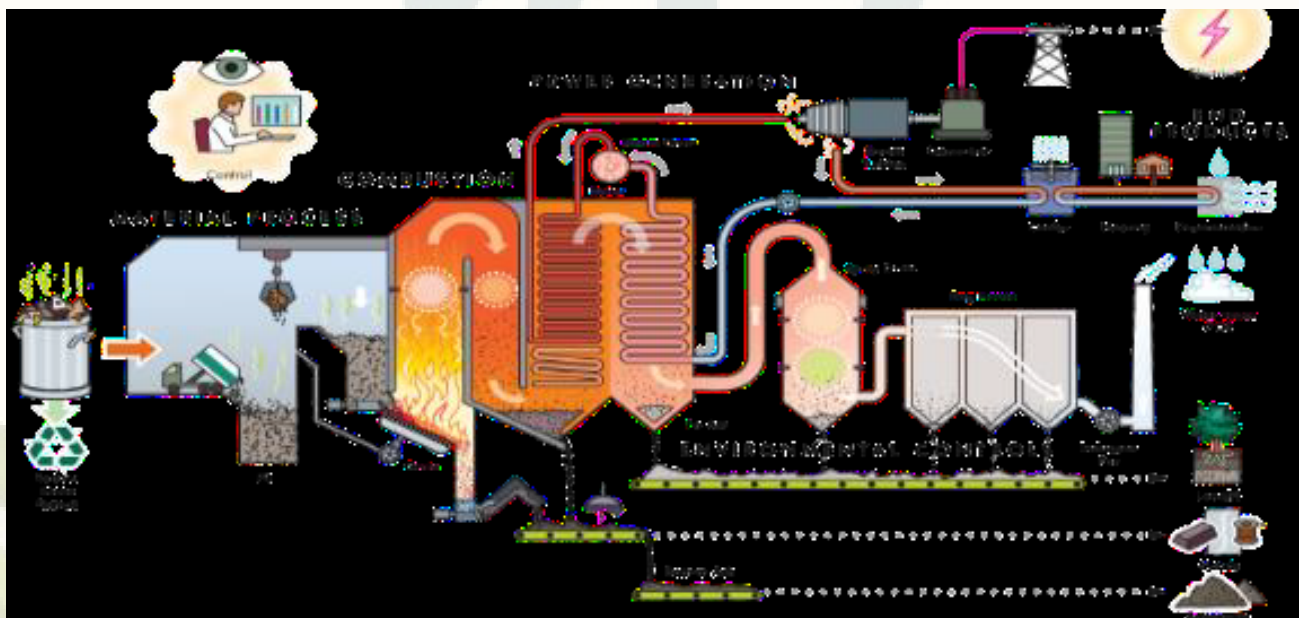
# POWER GENERATION USING NON-BIO DEGRADABLE WASTE



**T. AKSHYA KUMAR**  
**17671A0269**

Green energy harvesting aims to supply electricity to electric or electronic systems without a grid connection. The incineration process is done via a grate system that combusts the waste, which is not refined and is crude. Here we design to generate electrical energy from non-biodegradable waste by burning it.

So Here we design to generate electricity from Waste Materials And Store electricity in Battery. Incineration is used to reduce the effect of harmful environmental and health problems resulting from waste dumping into unsuitable landfills. This paper aims to use the incineration method to produce electrical energy from waste treatment. It is a new technology that destroys solid waste by controlled burning at high temperatures.





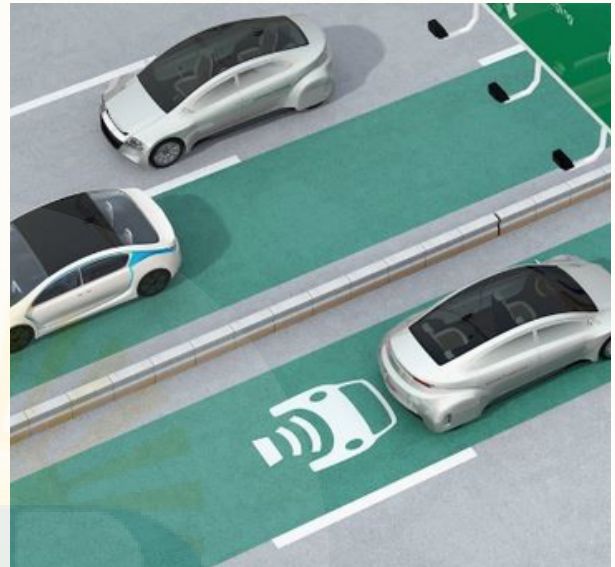
## WIRELESS CHARGING FOR ELECTRIC VEHICLES



**P. SAHAJA**  
**17671A0265**

In recent years with the rapid development of the electrical vehicle (EV) of new energy industry, higher requirements are put forward for convenience, safety and reliability of the charging of electric vehicles. Wireless power charging is done by inductive coupling. Inductive coupling can be done in both stationary and dynamic conditions. By reconfiguring the transformer and altering high frequency, energy is being transferred with low energy loss and fewer demands on the primary circuit.

Sufficient power for the battery can be transferred by the primary to the secondary without sufficient energy loss. Electric power is then transmitted to the chargeable battery which is electrically coupled to the secondary circuit through the air core transformer. In case of shuttle bus services, buses can be charged when it waits at bus station. It can also be implemented in rental taxi parking. Thus the battery in electric buses only needs enough charge to go to the next stop.

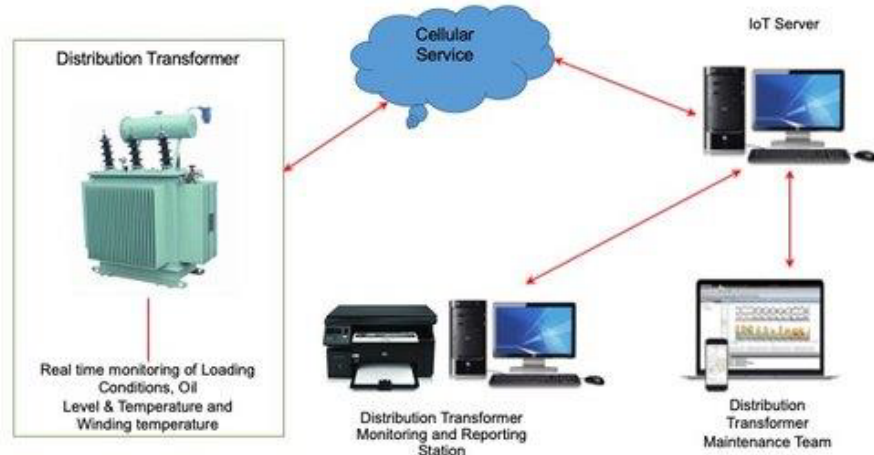


This decreases the battery size and promotes significant cost saving in electric vehicles. This technology enables efficient opportunities in charging stations, for predefined routes and planned stops reducing down the time of charging. The dynamic charging will promote the use of electric vehicles and reduce petroleum fuel consumption. Delays in traffic signals can now be provided with longer periods of charging and even when the electric vehicle is in movement. Bad weather conditions like rain and snow do not affect the charging capabilities of electric vehicles.

# WIRELESS TRANSFORMER MONITORING AND CONTROLLING SYSTEM



**N. AKHILESH**  
**17671A0261**



Transformers play an important role in the efficient transmission of electricity. Regular monitoring and maintenance can make it possible to detect new flaws before much damage has been done. Current systems can provide information about the state of a transformer, but they are either offline or very expensive to implement. This monitoring system is primarily health monitoring equipment that can acquire, process, analyze & communicates the critical parameters to the concerned official who is at a remote place with the help of Auto dialing unit. Not only the conventional technical data, such as current, voltage, etc., but also other critical information such as frequency, oil temperature, oil level etc of transformers is required by the operators to ensure reliable power delivery and to assist the day-to-day decision making activities. Thus, the system increases the reliability of distribution network.

## MITIGATION OF SOLAR PV GRID POWER LOSS USING QUASI -Z SOURCE INVERTER



**G. MAHATHI REDDY**  
**17671A0256**

Transformers play an important role in the efficient transmission of electricity. Regular monitoring and maintenance can make it possible to detect new flaws before much damage has been done. Current systems can provide information about the state of a transformer, but they are either offline or costly to implement.

This monitoring system is primarily health monitoring equipment that can acquire, process, analyze, & communicate the critical parameters to the concerned official at a remote place with the help of an auto-dialling unit.



Not only conventional technical data, such as current, voltage, etc. but also other critical information, such as frequency, oil temperature, oil level, etc., of transformers is required by the operators to ensure reliable power delivery and to assist the day-to-day decision-making activities. Thus, the system increases the reliability of the distribution network



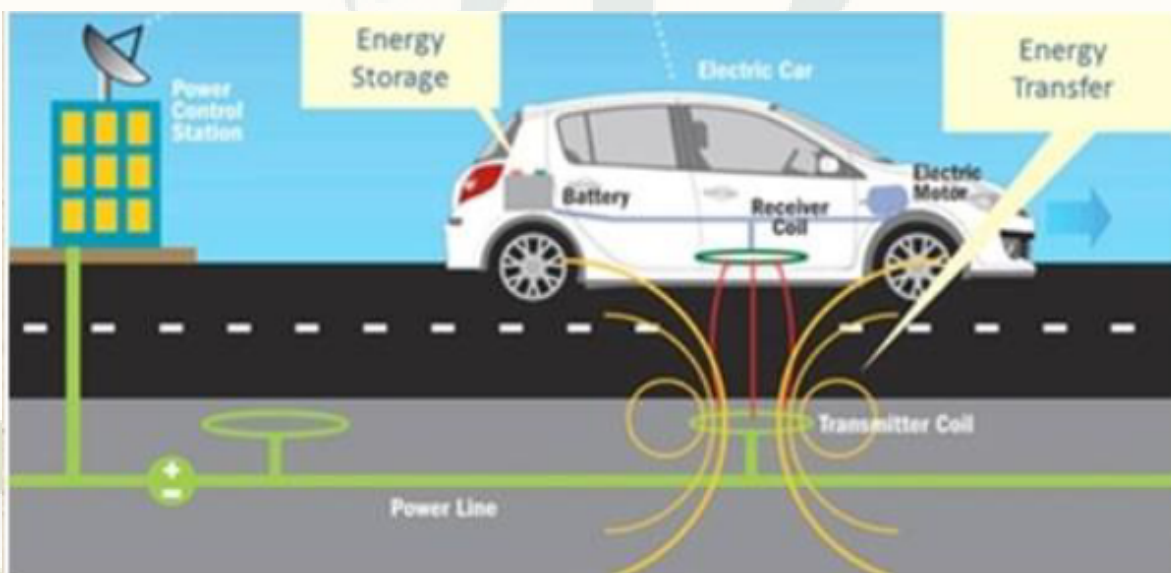
# WIRELESS POWER TRANSFER USING ELECTROMAGNETIC INDUCTION CHARGING FOR FUTURE HYBRID VEHICLE



**C L ANISHA**  
**17671A0207**

Due to barriers of low electricity density, high feel, heavy weight, etc., the development and software of battery-powered devices are dealing with remarkable technical challenges. As a singular pattern of energization, the wireless energy switch (WPT) offers a brand new way to the strength acquisition for electric-powered-driven devices, therefore assuaging the over-dependence on the battery.

This article gives an overview of WPT strategies with emphasis on working mechanisms, technical challenges, metal materials, and classical programs. Focusing on WPT systems, this paper elaborates on cutting-edge principal studies topics and discusses approximately future improvement traits This novel energy transmission mechanism indicates considerable meanings on the pervasive software of renewable energies in our day-by-day existence, and then using a battery charger to operate in function has been finally charge level





# INTELLIGENT ROAD LIGHT FOR CONTROLLING ENERGY UTILIZATION



**CHIRRA BHAVANA**  
**17671A0210**

Street lights are among the most common infrastructure in cities & rural areas. The lighting sector accounts for about 20% of the total electricity consumption in India. Solar energy is the most direct, common, and clean energy on our planet we have already found until now.

Total solar energy absorbed by the Earth is about 3,850,000 exajoules (EJ) in one year, which is even twice as much as all the non-renewable resources on the Earth found and used by human beings, including coal, oil, natural gas, and uranium etc. The solar resources can be inexhaustible. When an energy crisis is a big threat and unscheduled power cuts are the order of the day, street lights can be seen burning during daytime in many parts of the city & rural areas. so the stand-alone street lamp is a fine solution to save energy and also the use of non – conventional energy sources. This highly efficient system configuration solves the lane lamp issues on both highway & pedestrian roads. the configuration has an intensity controller & pedestrian/Vehicle identifying systems to manage the street lights. By using this system energy consumption is also reduced because nowadays the manually operated street lights are not switched off even when the sunlight comes and also switched on earlier before sunset. In this project, no need for manual operation like ON time and OFF time settings. In the present project, solar street lights are taken into consideration and the above-discussed factors are rectified in them.



# DESIGN OF LOW VOLTAGE INDUCTION MOTOR PUMP FOR AGRICULTURE PURPOSE



**T. SHIVA KUMAR**  
**17671A0230**

Electrical energy is the backbone of our country. The demand for electrical power is. More recently the arrival of new power plants cannot result in producing electrical energy as per our country's requirement. Electrical motors, pumps, household appliances, and electronic appliances consuming high electrical power are the main reasons behind this. In some hill stations and some vast areas around our country, electrical voltage supplied by the Electricity Board is reduced by losses.

So, the consumer gets 160V- 180V in some hill stations and vast areas instead of getting 220V-240V. Here the electrical motor is used consuming more electrical energy and wastage not only through electricity but also money for the consumer. In this case, a 0.5HP motor is enough for pumping water for the consumer's requirement under normal single-phase voltage 220V-240V is not exist there. So the consumer will look for a higher HP motor than the required HP motor. So here is going to design a single phase 24 slot, 2 pole 0.5 HP (0.375kw) motor-pump which operates on 100V-180V as its rated voltage and the performance, efficiency, and all the electrical parameter values are the same as the motor operated on 220V-240V. For that only changing the winding design in the stator (No. of turns and SWG). The stampings are used in AL3, 55mm core length, Class B insulation, 23SWG for starting and running winding, and die-cast body.



# SMART RAINWATER HARVESTING SYSTEM



**B. CHANDANA REDDY**  
**17671A0242**

Scarcity of water has become a predominant problem all over the world. Water plays an important role in agriculture. With majority of the Indian population dependent on farming for their daily needs, it's important to find a solution for scarcity of water. This paper mainly focuses on rain water harvesting

The Federal Energy Management Program (FEMP) identified rainwater harvesting systems as an alternative water technology. This technology overview is intended to provide agencies with key information to deploy rainwater harvesting systems. This project presents a model that does smart rainwater harvesting using IoT. The model consists of a structure with segregation that separates the rain water collected into the two tanks. A rainfall detection sensor is mounted on the top of the structure to detect whether it's raining or not. A pH sensor then determines the pH value of the rainwater and if the pH of the water is greater than 5 then the pump motor 1 inside the main tank transfers the water to the tank A. If the pH of the water is less than 15 the pump motor 2 inside the main tank transfers the water to the tank B. The segregation is done so as to separate portable water. The water level sensor inside the tank A transfers the data in a timely manner to the cloud using IOT technology. GPS is implemented to track the location of the main tank





## **RFID BASED SOLAR CHARGER FOR ELECTRIC VEHICLE**



**A. HEMANTH**  
**18675A0201**

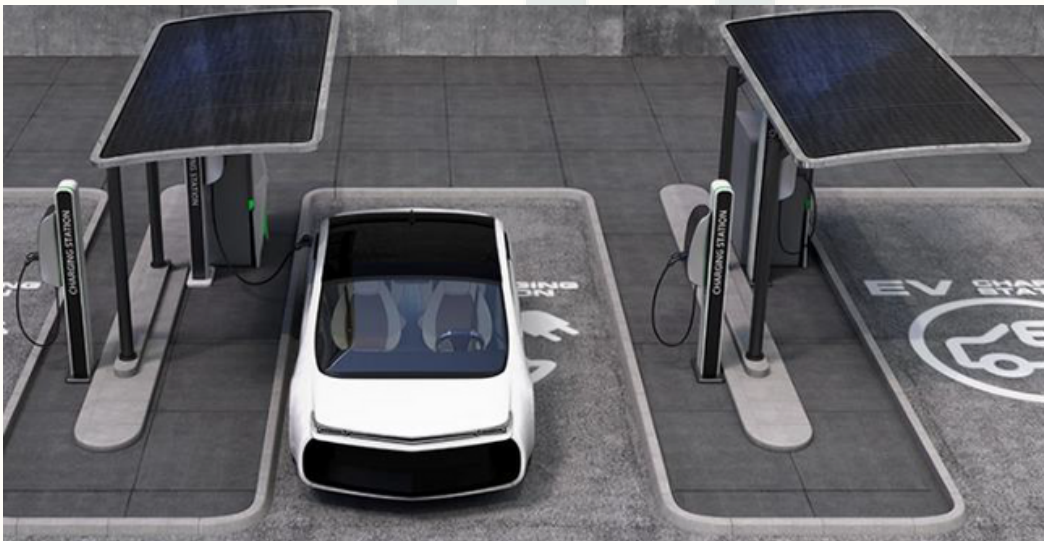
According to the Society of Manufacturers of Electric Vehicles (SMEV), 3,400 electric cars and 1.52 lakh electric two-wheelers were sold in India in the financial year (FY) 19-20. The total sales grew by 20% compared to the previous financial year. Electric vehicles are the future of the automobile industry. As the use of electric vehicles is increasing rapidly, the need for charging stations are also increasing. Existing charging facilities are Trickle charge, AC charge, and DC charge.

All electric cars that are currently on the market can be slow-charged using AC charging equipment. Fast charging methods are currently available at a high cost and also slow charging takes up to 8 hours for charging a EV. DC chargers also ensure a much more efficient. The goal is to lay out a method for efficient EV charging with a renewable strength supply. The development of previous charging stations has limitations such as high cost and is less compact in size. The available methods are less in count when compared to gasoline stations due to the complexity of the structure. As most of the available methods depend upon direct grid connection, constant and uninterrupted power supply is not acquired.

To surpass such limitations a layout for efficient EV charging with renewable strength supply is proposed. Solar power is utilized in this layout which gives a renewable and uninterrupted charging can be acquired. A GSM-based technology is also introduced which helps to make the system user friendly

In this work, the arrangement will help charge the electric vehicles with more efficiency and can also be user user-friendly system. In this prototype, a layout of an electric vehicle charging station connected to a solar panel is presented. The solar power derived from the solar panel is used as an uninterrupted clean renewable source of energy.

The proposed prototype will utilize solar power to charge the electric vehicles. The main aim of the prototype is to lay out a method that will be user-friendly to the consumers. The GSM technology is introduced in this prototype to make the prototype user-friendly. The complexity of the prototype is less when compared to the existing methods. This is done with the use of the Arduino controller.





# IEEE CLUB

IEEE SB aims to foster technical knowledge among students from all walks of life. "Does not matter what degree are they pursuing, all the students are eligible to join IEEE as a student members so long as they are pursuing a degree with 50% of the Full-time. It's a worldwide established technical society, not to mention it's the biggest of course" To have an IEEE student branch in an institution brings credit to the institution, since IEEE is the top most professional body in the world. Students of the first batch have taken the initiative in forming the IEEE students branch in the year 2001-2002, with 45 members. the students of the subsequent batches have taken the initiative in getting the branch recognized by IEEE in 2002-2003 and in increasing the membership. Provision is made for IEEE members to access the IEEE Digital library and weekly meetings of IEEE students Members Achievements include Debates, Group Discussions, Paper Presentations, Guest Lectures, etc.

IEEE has more than 375,000 members in more than 160 countries; 45 percent of whom are from outside the United States more than 80,000 student members 329 sections in ten geographic regions worldwide 1,860 chapters that unite local members with similar technical interests 1,789 student branches in 80 countries 483 student branch chapters at colleges and universities 390 affinity groups - IEEE Affinity Groups are non-technical sub-units of one or more Sections or a Council. The Affinity Group patent entities are Consultants' Network, Graduates of the Last Decade (GOLD), Women in Engineering (WIE), and Life Members (LM)

IEEE has a total of 45 societies and councils - 38 societies and 7 technical councils representing a wide range of technical interests has more than 2 million documents in the IEEE/IET Electronic Library has nearly 1,300 standards and projects under development publishes a total of 144 transactions, journals and magazines sponsors more than 900 conferences annually.







## **The Following is the list Elected as Office Bearers**

Student Branch Counselor	Mr.Upendra Rao Gudimalla
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Vice Chairman	MAHEEDHAR MAILA
Secretary	KAVETI SAIKUMAR
Treasurer	GOTTIPARTHI NITHIN
Executive Committee Members	NEELAP SAIKIRAN
Web Master	SRIHARI BABU



# WORKSHOP ON “ERADICATING PANDEMIC EFFECTS WITH THE EFFECT OF 5Q”



**Late Sri J. Bhaskar Rao**  
Founder, JB Group

**JB INSTITUTE OF ENGINEERING & TECHNOLOGY**  
(Accredited by NAAC, Approved by AICTE & Permanently Affiliated to JNTUHY)

**IEEE**  
SB, JBIET, HYD

**A Three Days Online National Workshop on**  
**Eradicating Pandemic Effects with the help of 5Q**

**23rd July-25th July, 2020**  
**Everyday Session: 10:30 AM-12:30 PM & 2:00 PM - 4:00 PM**

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	Dr. S. Sudhakara Reddy, Principal, JBIET Dr. Niraj Upadhyaya, Dean, R&D, JBIET		



**Eminent Speakers of 3 days National workshop on "Eradicating Pandemic Effects with the help of 5Q"**

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**Prof. P.A.L.N.S Kalyani**

**Mr. Sai Kumar Tara**



## LATEST WIRELESS AND COMPUTING TECHNOLOGIES



# WORKSHOP ON EMERGING TECHNOLOGIES ON 5G COMMUNICATION OBSERVING WORLD TELECOMMUNICATIONS DAY

Recording...

Team Clique Dr. Hemanta Sharma Nemish Sreeja Patel B Tharun kumar Shikhar

## Mobile Broadband

Is broadband a network delivering high speed connectivity?

A communication network by itself cannot bring the required benefits

Broadband is better defined as an ecosystem comprising of

- ✓ Network
- ✓ Services and
- ✓ Users

Network

Users

Services

Recording...

Team Clique Praveen Kumar Prasad Sreeja Patel KARRE SATHWIL... sandhya

## International Morse Code

15

1. The length of a dot is one unit.
2. A dash is three units.
3. The space between parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

A	• —	U	• • —
B	• — • •	V	• • — •
C	— • — •	W	• — • —
D	• — • —	X	• — • — •
E	• —	Y	• — • — •
F	• • — •	Z	• — • — •
G	• — • —		
H	• • — •		
I	• •		
J	• — • — •		
K	• — • —		
L	• — • — •		
M	— • —		
N	• — • —		
O	— • —		
P	• — • — •		
Q	• — • — •		
R	• — • —		
S	• • —		
T	• —		

1	• — • — •
2	• • — • —
3	• • — • —
4	• • — • —
5	• • — • —
6	• • — • —
7	• • — • —
8	• • — • —
9	• • — • —
0	• • — • —



# PROGRAMS ORGANISED

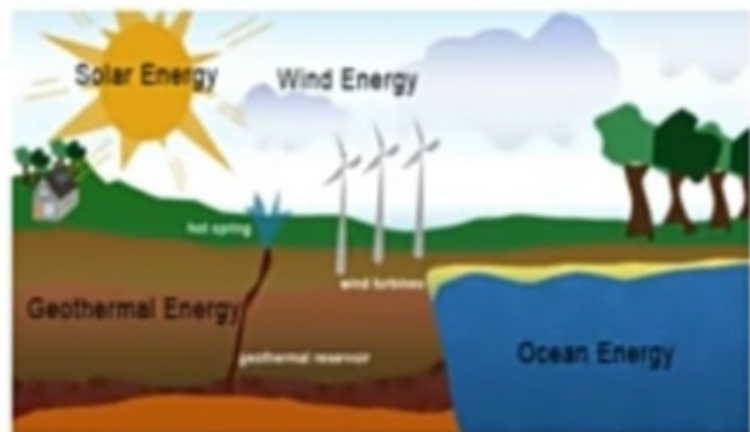
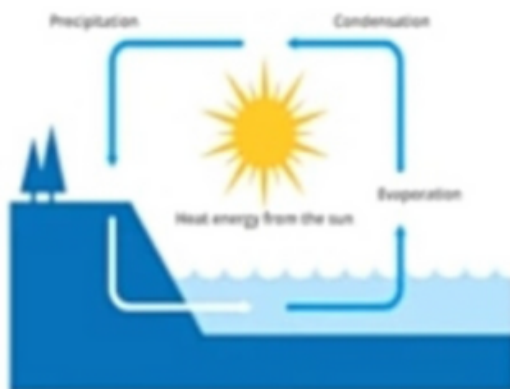
**“ EXPERT LECTURE ON "INDUSTRIAL DRIVES & CONTROL" ”**



# WEBINAR ON “RENEWABLE ENERGY USING MATLAB”

## What is a Renewable Energy Source ?

- Renewable energy source include such a natural source which can be replaced by natural ecological cycles. That is, they renew thus never gets deplete.
- Tidal, wave, geothermal, wind and solar energies are counted as renewable energy sources.



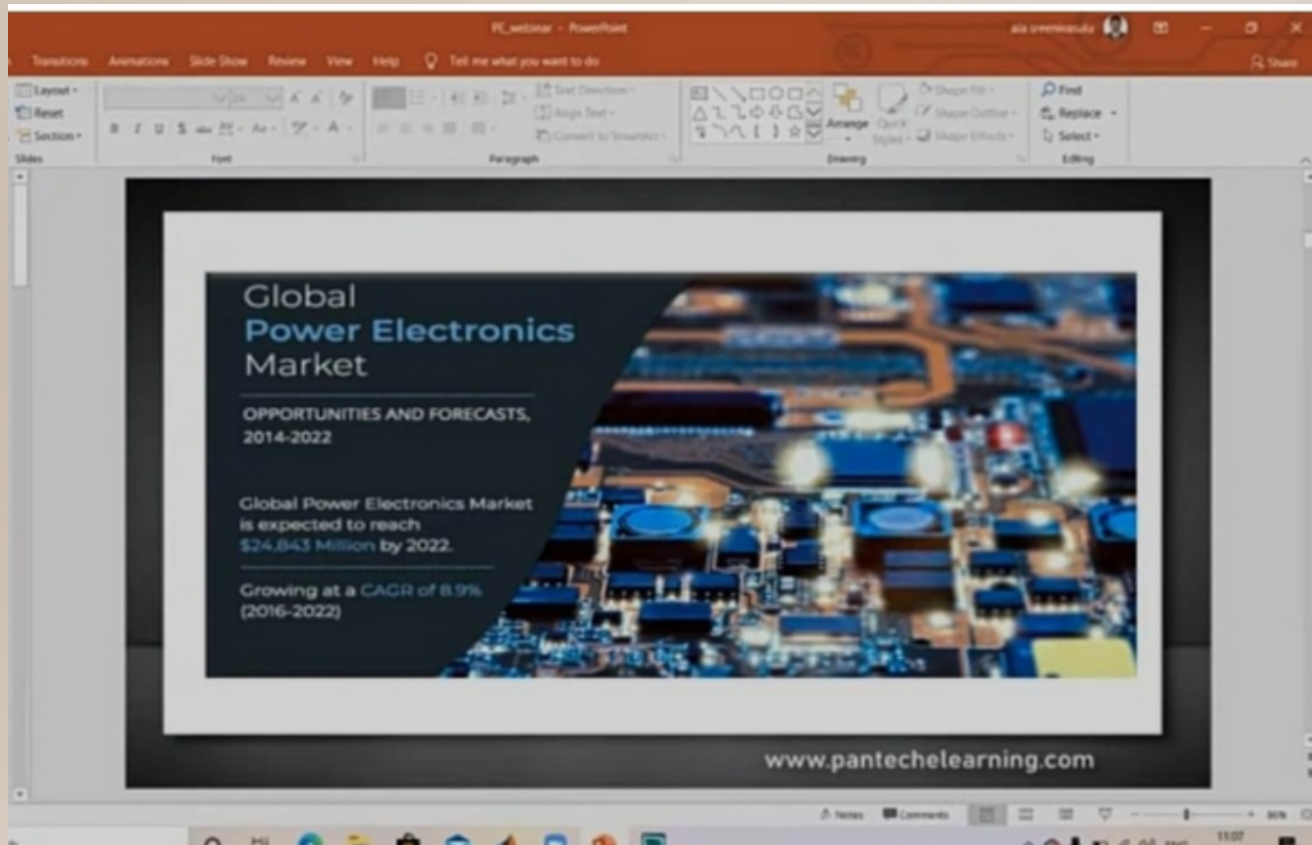
## Mppt

- **MPPT** or **Maximum Power Point Tracking** is algorithm that included in charge controllers used for extracting maximum available power from PV module under certain conditions





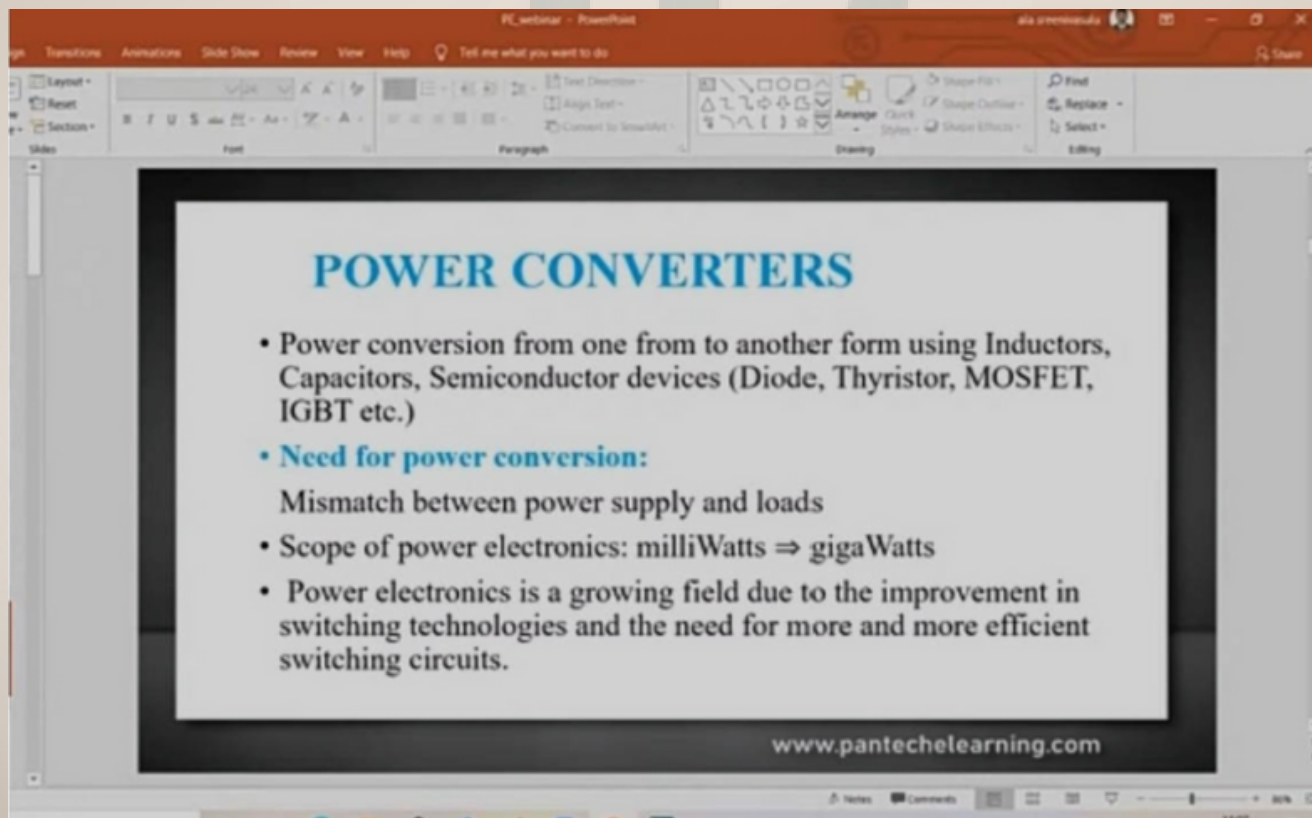
# WEBINAR ON “LATEST TRENDS IN POWER ELECTRONICS USING MATLAB”



The screenshot shows a PowerPoint slide titled "Global Power Electronics Market". The slide features a background image of a circuit board. The text on the slide includes:

- Global Power Electronics Market**
- OPPORTUNITIES AND FORECASTS, 2014-2022**
- Global Power Electronics Market is expected to reach \$24.843 Million by 2022.
- Growing at a CAGR of 8.9% (2016-2022)

The website [www.pantechelearning.com](http://www.pantechelearning.com) is displayed at the bottom of the slide.



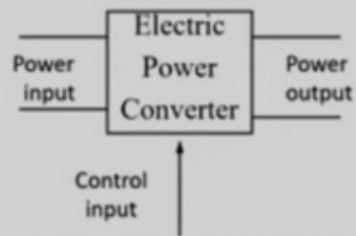
The screenshot shows a PowerPoint slide titled "POWER CONVERTERS". The slide contains the following text:

## POWER CONVERTERS

- Power conversion from one form to another form using Inductors, Capacitors, Semiconductor devices (Diode, Thyristor, MOSFET, IGBT etc.)
- **Need for power conversion:**  
Mismatch between power supply and loads
- Scope of power electronics: milliWatts  $\Rightarrow$  gigaWatts
- Power electronics is a growing field due to the improvement in switching technologies and the need for more and more efficient switching circuits.

The website [www.pantechelearning.com](http://www.pantechelearning.com) is displayed at the bottom of the slide.

## CONVERSION OF POWER

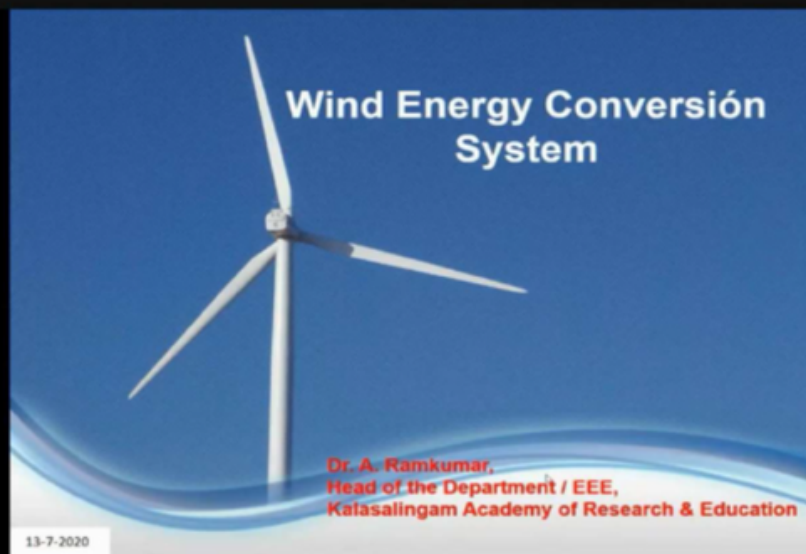


Other names for electric power converter:

- Power converter
- Converter
- Switching converter
- Power electronic circuit
- Power electronic converter

Two types of electric power	Changeable properties in conversion
DC(Direct Current)	Magnitude
AC (Alternating Current)	Frequency, magnitude, number of phases

## SOFTWARE TOOLS FOR ELECTRIC POWER SYSTEM ANALYSIS -STEPSA 2021





# INDUSTRIAL VISITS



## VISIT TO SRISALAM PROJECT



## **SRISAILAM DAM VISIT REPORT**

### **SRISAILAM DAM AND POWER HOUSE**

#### **SUBMITTED TO:**

#### **ELECTRICAL ENGINEERING DEPARTMENT**

#### **J B INSTITUTE OF ENGINEERING AND TECHNOLOGY**

Power generation at the dam Every portion of the report is explained in detail with relevant pictures wherever necessary.

I thank TSGENCO for allowing us to make a visit to the project for the final-year students.

### **SRISAILAM DAM AND POWERHOUSE**

#### **HISTORY**

It is a holy town and Mandal, situated in the Nallamala Hills of Kurnool district, Telangana, India. It is on the banks of River Krishna, about 212 km south of Hyderabad. Bhramaramba Mallikarjunaswamy Temple dedicated to Lord Mallikarjuna Swamy(a form of Shiva)and Devi Bhramaramba (a form of Parvathi) is located here and it is one of the 12 Jyotirlinga temples dedicated to Lord Shiva. Srisailam Dam, located about 212 km from Hyderabad and 132 km from Nandyal, is a multipurpose dam built across River Krishna and caters to the irrigation and power needs of the state.

The Srisailam Dam is an important Dam project in the state of Telangana across the Krishna River at Srisailam in the Kurnool district. The Srisailam Dam is one of the 12 largest hydroelectric projects in the country. The dam is built in a deep gorge in the Nallamala hills, which is 300 m or 980 feet above sea level. The Srisailam Dam is 512 m or 1,680 feet long,240.79 m or 790.0 feet high, and features 12 radial crest gates.





## PROJECT CONSTRUCTION

The Srisailem project began in 1960, initially as a power project, across the Krishna, near Srisailem in Telangana. After several delays, the main dam was finally completed twenty years later in 1981. In the meantime, the project was converted into a multipurpose facility with a generating capacity of 770 MW by its second stage which was expected to be completed in 1987. The dam is to provide water for an estimated 2,000 km<sup>2</sup> (770 sq mi) with its catchment area of 206,040 km<sup>2</sup> (79,552 sq mi) and water spread of 1,595 km<sup>2</sup> (616 sq mi). Under the right branch canal, 790 km<sup>2</sup> (310 sq mi) in the Kurnool and Kadapa districts will have assured irrigation. From the initial modest estimate of Rs.384.7 million for a power project the total cost of the multipurpose project was estimated to cross Rs.10 billion in its enlarged form. The 143 m (469 ft) high and 512 m (1,680 ft) wide dam alone cost Rs.4.04 billion together with the installation of four generating sets of 110 MW each. The right branch canal is estimated to cost Rs.4.49 billion and the initial investment of Rs.1.4 billion has been provided by the World Bank. The projected cost-benefit ratio of the project has been worked out at 1:1.91 at 10% interest on capital outlay. On 2 October 2009, Srisailem Dam experienced a record inflow which threatened the dam. Due to the construction of the Srisailem Hydro Electric Project across river Krishna, nearly 102 villages in Kurnool and Mahboobnagar districts along the banks of the rivers Krishna, Tungabhadra, Bhavanasi and their tributaries were submerged. The Srisailem Dam is a dam constructed across the Krishna River at Srisailem in the Kurnool district in the state of Telangana in India and is the 2nd largest capacity hydroelectric project in the country. The dam was constructed in a deep gorge in the Nallamala Hills, 300 m (980 ft) above sea level. It is 512 m (1,680 ft) long, 240.79 m (790.0 ft) high, and has 12 radial crest gates. It has a huge reservoir of 800 km<sup>2</sup> (310sq mi). The left bank hydroelectric power station generates 6 × 150 MW of power and the right bank generates 7 × 110MW of power. the dam is also surrounded by thick forests and beautiful scenery.



## SRISAILAM LEFT BANK POWER STATION

### Salient Features Of Hydroelectric Project

1. Location : Srisailam Dam West, Kurnool/MBNR Dist. A.P.
2. Category: Underground Hydel Power House, Pumped Storage
3. Capacity :  $6 \times 150 \text{ MW} = 900 \text{ MW}$
4. Designed capacity :  $6 \times 153 \text{ MW} = 918 \text{ MW}$
5. River: KRISHNA
6. Dam: Srisailam Dam, across Krishna River in Nandi Kotkur.
7. No. of Units: SIX
8. Design Energy ( in Mu ): 1200 MU

#### II. Hydrology:

1. Catchment Area : 2,03,597 Sq. K.M (79,530 Sq. Miles)
2. Max. flood discharge: 30,316 Cumecs
3. Live Storage: 247.79 TMC Ft.
4. Gross Storage: 308.06 TMC Ft.
5. Dead Storage: 60.3 TMC Ft. (2122 MCM) at 805 Ft.
6. Generation per TMC: 5.5 MU
7. Design Head: 91 M (Turbine Mode)
8. Max. gross head: 375 Ft. (114.3 M) Turbine Mode
9. Design Net Head: 82.8 M (153 MW)
10. Net Head Max/Min: 107.1 M (176 MW) / 65.3 M (106 MW) (Turbine Mode)
11. Full Reservoir level (FRL): 885 Ft. (269.75 M)
12. Min. Draw Down Level (MDDL): 805 Ft. (245.37 M)
13. Tail Race water level for a) Max. Discharge: 590 Ft. b) Min. Discharge: 535 Ft.
14. Design Disch. through Machine: 7484 Cusecs (211.9 Cumecs)

## 2. GENERATOR - MOTOR:

- a) Type: Synchronous Generator, Semi Umbrella
- b) Make: M/s. Mitsubishi Electric Corporation (MELCO), Japan
- c) Rated Voltage: 13.8 KV
- d) Rated Output: 150 MW/ 190 MVA (Generating Mode) 175 MW
- e) Current: 8,500 A
- f) Speed: 136.4 RPM
- g) Power Factor: 0.9 Lagging (GM) 0.95 Leading (MM)

## 3. GENERATOR TRANSFORMER :

- a) Make: M/s. TELK, Kerala
- b) Capacity: 190 MVA, 3 . Phase
- c) Voltage Ratio: 13.8 KV/ 400 KV

## 4. TRANSMISSION LINE :

- a) No. of Feeders: 5 Nos., 400 KV
- b) Name of the Feeders: Vijayawada I & II (2 Nos. )Hyderabad I & II (2 Nos.)Kurnool. I (1 No.)

## 5. 400 KV GAS INSULATED SWITCHGEAR :

- a) No. of Feeders: 5 Nos.
- b) No. of generator Transformers: 6 Nos.
- c) No. of Station Transformers: 2 Nos.
- d) Bus coupler: 1 No



## **SRISAILAM LEFT BANK POWER STATION PROJECT :**



Top view of generator units at Srisaillam power plant

### **HYDROELECTRICAL POWER HOW IT WORK**

Hydroelectric and coal-fired power plants similarly produce electricity. In both cases, a power source is used to turn a propeller-like piece called a turbine, which then turns a metal shaft into an electric generator, which is the motor that produces electricity. A coal-fired power plant uses steam to turn the turbine blades; whereas a hydroelectric plant uses falling water to turn the turbine. The results are the same. The theory is to build a dam on a large river that has a large drop in elevation (there are not many hydroelectric plants in Kansas or Florida). The dam stores lots of water behind it in the reservoir. Near the bottom of the dam wall, there is the water intake. Gravity causes it to fall through the penstock inside the dam. At the end of the penstock, there is a turbine propeller, which is turned by the moving water. The shaft from the turbine goes up into the generator, which produces the power.

Power lines are connected to the generator that carries electricity to your home and mine. The water continues past the propeller through the tail races into the river past the dam. By the way, it is not a good idea to be playing in the water right below a dam when water is released. As to how this generator works, the Corps of Engineers explains it this way: "A hydraulic turbine converts the energy of flowing water into mechanical energy. A hydroelectric generator converts this mechanical energy into electricity. The operation of a generator is based on the principles discovered by Faraday. He found that when a magnet is moved past a conductor, it causes electricity to flow. In a large generator, electromagnets are made by circulating direct current through loops of wire wound around stacks of magnetic steel laminations. These are called field poles and are mounted on the perimeter of the rotor. The rotor is attached to the turbine shaft and rotates at a fixed speed. When the rotor turns, it causes the field poles (the electromagnets) to move past the conductors mounted in the stator. This, in turn, causes electricity to flow and a voltage to develop at the generator output terminals."

#### **CONCLUSION :**

It was seen that the Srisailem power plant operates with 6 turbines each producing 150MW producing a total of 900MW. The power thus generated is fed to bus bars in the generating station. This power from bus bars is stepped up using a step-up transformer. The power from the secondary transformer is fed to transmission line conductors at high voltage and supplied to substations situated at Hyderabad, Kurnool, etc.





## VISIT TO GAYATHRI PUMP HOUSE



# **GAYATRI PUMP HOUSE ,KALESHWARAM VISIT REPORT**

GAYATRI PUMP HOUSE,  
KALESHWARAM PROJECT  
SUBMITTED TO:  
ELECTRICAL ENGINEERING DEPARTMENT  
J B INSTITUTE OF ENGINEERING AND TECHNOLOGY

The lift irrigation system at the pump house is explained in detail with the relevant pictures.

I thank TELANGANA STATE GOVT. IRRIGATION DEPT. for allowing us to make a visit to the project for the final-year students.

## **GAYATRI PUMP HOUSE ,KALESHWARAM:**

Gayatri Pump house is the largest irrigation pumping station in the world. This four-floor pump house is built below the earth's surface at 178 meters Reverse Surface Level. It has seven machines established, each with a capacity of 139 MW, totaling 973 MW. The pump house has four surge pools that store the water for pumping. Building such a mammoth pump house deep in the belly of the earth was not an easy task, but the MEIL, with its engineering prowess, completed it in less than 42 months.

The height of the main surge pool is 325 meters, almost one-third the length of the Polavaram Spillway. Daily at least two TMC ft of water is being pumped. The engineering teams designed and executed this mammoth project with innovative techniques. The pump house has all the latest ultra-modern technology.





## A SIGNIFICANT COMPONENT OF THE KALESHWARAM:

The Gayatri pump house is located near Lakshmipur village in the Karimnagar district of Telangana. It is crucial for the gigantic Kaleshwaram Lift Irrigation Project as it diverts the River Godavari waters back into the reservoir of its tributary Mid Manair from the Sripadasagar Yellampalli project.

Usually, the flow of the river under gravity is downstream. The KLIP, with its multiple pumping stations, lifts the water from the River Godavari water to great heights. The water from the Sripadasagar Yellampalli project will reach the Gayathri pumping station surge pool deep inside the earth. From here, water is pumped to the Mid Manair reservoir through the Sriramsagar flood canal.

Seven machines are established in this pump house, each with a capacity of 139 MW, totaling 973 MW. No other pump house in the world has pumping machines of this capacity. A pumping machine combines a pump and a motor meant for pumping water. The machines pump the water to a static height of 118 meters. The power consumed by this pump house is much higher than the power generated in the Srisailem or Nagarjunasagar hydropower stations. Even in the world's largest irrigation project, the upcoming Polavaram in Andhra Pradesh, the power generated would be 960 MW.

Five machines are set up in the Gayatri pumping station and two in the adjacent pumping station. The company constructed service bays, pump bays, transformer bays, and a control room in the Gayatri. Lift irrigation projects like that in Colorado in the USA, and the tremendous artificial river in Libya, known to be the largest in the world so far, have been smaller than the KLIP.

The MEIL excavated 2.30 crore cubic meters of soil to construct the Gayatri pump house. This soil can cover an area of 84,754 square feet.



## LINKS & IRRIGATED COMMAND AREA/AYACUT (ACRES)

Link-I: From Medigadda Barrage on Godavari River to Sripada Yellampalli Project (30,000 acres)

Link-II: From Sripada Yellampalli Project to Mid Manair Dam

Link-III: From Mid Manair Dam to Upper Manair Reservoir (86,150 acres)

Link-IV: From upper Manair Dam to Konda Pochamma Reservoir (595,754 acres)

Link-V: From Anicut to Chityala (243,500 acres)

Link-VI: From Sri Komaravelli Mallanna Sagar to Singur Dam (280,296 acres)

Link-VII: From SRSP Foreshore to Nizam Sagar Canals and Dilawarpur and Hangarga village for Nirmal and Mudhole Constituency (590,000 acres)

Link-I: From Medigadda Barrage on Godavari River to Sripada Yellampalli Project

Water will be reverse pumped from the confluence point of the Godavari and Pranahita Rivers to the Sripada Yellampalli Project with the help of 3 barrages (Medigadda, Annaram, and Sundilla) and 3 lifts.

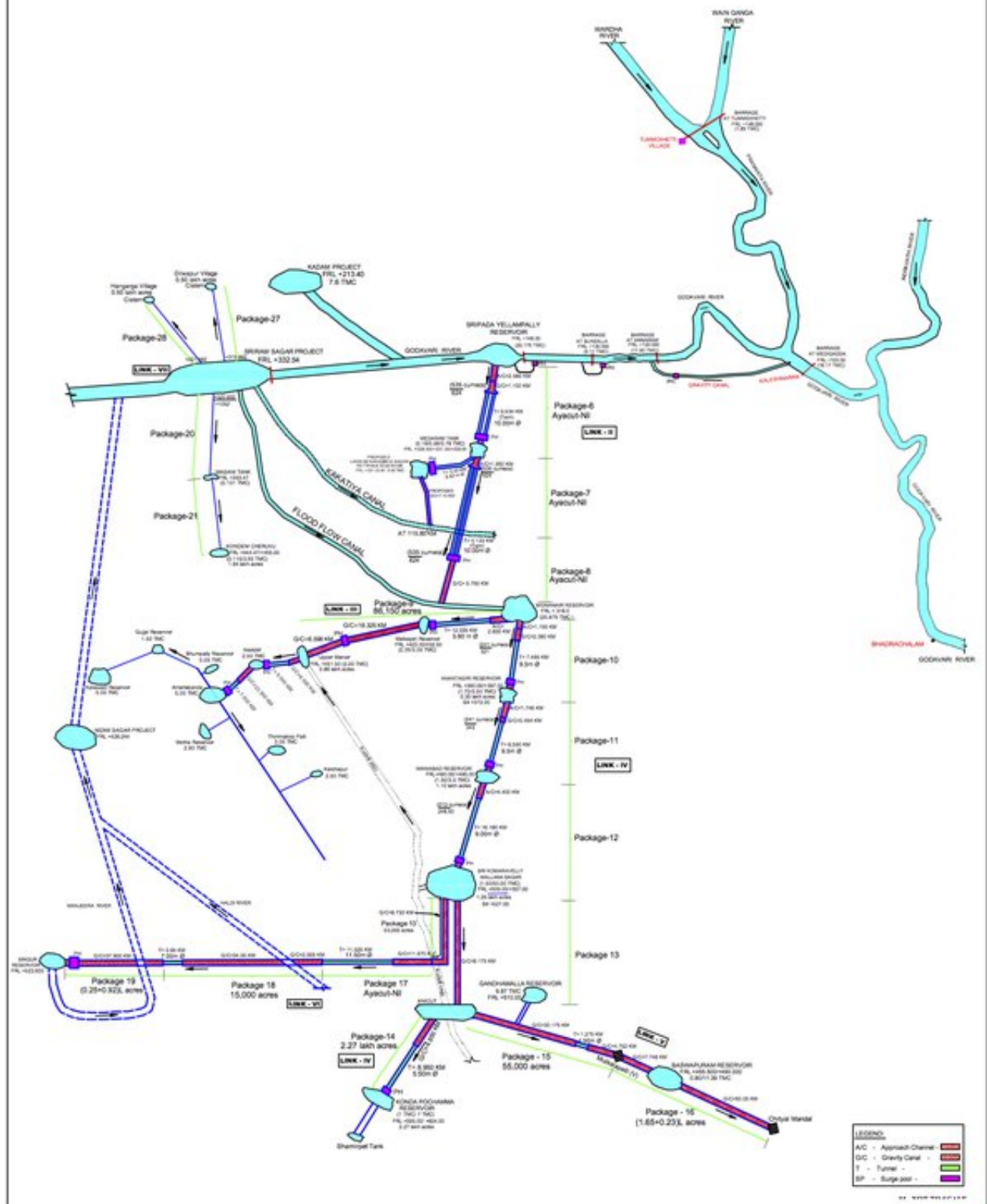
Link-II: From Sripada Yellampalli Project to Mid Manair Dam

A new balancing reservoir is also being proposed in the outskirts of Hyderabad of 20–30 TMC to store water. The water will be supplied to this balancing reservoir at the same link.

Link-V: From Anicut to Chityala

From Anicut, a series of gravity canals and a small tunnel of 1.2 km are planned to transfer water to Gandamalla Reservoir and Baswapuram Reservoir. Thereafter, gravity canals are planned towards Chityal Mandal and its villages.

# LINE DIAGRAM OF KALESHWARAM PROJECT





#### Link-VI: From Sri Komaravelli Mallanna Sagar to Singur Dam

From Sri Komaravelli Mallanna Sagar, another sequence of gravity canals, tunnels, and lifts are used to transfer water to Singur Dam. Apart from that, if need be, water can be transferred to the Nizam Sagar Project and from there, to SRSP.

#### Link-VII: From SRSP Foreshore to Nizam Sagar Canals and Dilwarpur and Hangarga village for Nirmal and Mudhole Constituency

From the foreshore waters of SRSP, water will be transferred to reservoirs at Hangarga and Dilwapur villages. Apart from this, existing reservoirs like Masani Tank and Kondem Cheruvu will also be linked. Canals under Nizam Sagar will also be irrigated.

# NAME TO FAME

Dear Graduates,

Warmest congratulations on achieving this incredible milestone of securing placements! Your dedication, hard work, and perseverance have truly paid off, and we couldn't be prouder of every one of you.

This achievement is a testament to your skills, knowledge, and the exceptional qualities you bring to the table. As you embark on this new chapter of your professional journey, may you continue to excel and make a lasting impact.

Remember, this is just the beginning of a promising career filled with opportunities. Your success not only brings joy to you but also inspires others around you.

Wishing you all the best as you step into the professional world. May you find fulfillment, growth, and immense success in your chosen paths.

Once again, congratulations, and may your future be as bright as your accomplishments!

Best Regards,



*Congratulations*



**CHIRRA BHAVANA**  
**17671A0210**



*Congratulations*



**YESUKONDA**  
**18675A0216**



*Congratulations*



**K. RAJU**  
**18675A0209**



*Congratulations*



**C. MAHENDER**  
**18675A0226**





*Congratulations*



**HYUNDAI**

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**17671A0236**

*Congratulations*



**HYUNDAI**

**AKSHAY**  
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*Congratulations*



**GOUD**  
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**M. MANASA**  
**17671A0258**



*Congratulations*



**YASHASVI**  
**17671A0226**

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**JB**  
**JUNE 2021**



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