

ELECTRICA

**VOL 12 ISSUE 1
JANUARY 2024**



DEPARTMENT OF ELECTRICAL ENGINEERING

Aryan Institute of Engineering and Technology

Arya Vihar Colony, Bhubaneswar, Barakuda, Odisha 752050

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ABOUT THE INSTITUTE

Established in the year 2009, Aryan Institute of Engineering and Technology (AIET) is one of the premier engineering colleges in the self-financing category of engineering education in eastern India. It is situated at temple city Bhubaneswar, Odisha and is a constituent member of Aryan Educational Trust. The institute is approved by the All India Council for Technical Education (AICTE) under the Ministry of Human Resource Development, Government of India; recognized by the Government of Odisha; and affiliated with Biju Patnaik University of Technology (BPUT), Rourkela, Odisha.

AIET aims to create disciplined and trained young citizens in the field of engineering and technology for holistic and national growth. The college is committed towards enabling secure employment for its students at the end of their four-year engineering degree course. (The NAAC accreditation in the year 2018 vouches for the college's determination and dedication for a sustainable learning environment). The academic fraternity of AIET is a unique blend of faculty with industry and academic experience. This group of facilitators work with a purpose of importing quality education in the field of technical education to the aspiring students. Affordable fee structure along with approachable location in the smart city of Bhubaneswar makes it a preferred destination for aspiring students and parents.

AIET serves as a deep of knowledge for students pursuing program ranging from diploma to B.Tech courses equipped with an excellent infrastructure for academics, co-curricular and extracurricular activities. AIET secured its compliance certificate for ISO 9001:2015 QMS standards from the prestigious INNOVATIVE SYSTEMCERT PVT. LTD Accredited by EGAC, a member of International Accreditation Forum, Ghaziabad, Up, India

VISION AND MISSION OF THE INSTITUTE

Vision

- To become a leading engineering institution of the state by impacting quality technical education at affordable costs to create skilled and motivated engineers to serve the technological requirements of society in different ways.

Mission

AIET will strive continuously to

- To impart contemporary technical education and skills to students of different socio-economic background.
- To equip students with analytical learning and real life problem solving.
- To make learning a continuous endeavour compatible with market needs.
- To promote the spirit of leadership, entrepreneurship, innovation and ethics

ABOUT THE DEPARTMENT

The Department of Electrical Engineering was established in the year 2009. It aims at producing qualified engineers in the areas of electrical machine, power electronics, control system, power system, and instrumentation. The field of Electrical and Electronics is advancing at a very rapid pace. Power electronics has taken the centre stage in every area be it power systems, control systems, power quality, etc. The department is well equipped with a group of highly qualified and dynamic teachers. It boasts of laboratory facility to be one of the best in the state. The students are encouraged and motivated to take up challenging projects. Summer training, industrial visit and projects are carefully planned for the students to remain updated with the technology trend. Seminars and short courses are regularly organized to update the students with the latest in the education and industry trends.

Vision

- To be a leader in the field of electrical engineering education and training by creating graduates who are globally competent, successful in their chosen fields of endeavour, engaged in innovative research and entrepreneurship, and deeply committed to social advancement.

Mission

- To impart the fundamentals of electrical engineering so that students may develop new products and solutions to solve issues in the real world.
- To enable students to pursue a prosperous career in the cognitive electrical engineering professions and to become ethical technologists.
- Through continuous improvement of faculty and lab facilities, to strive for excellence in academics and research works by developing a rich electrical engineering based research centre for industrial growth of the nation.

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Chairperson's Message



Dr. Madhumita Parida
Chairperson
AIET, Bhubaneswar

Today's technical world is expanding at the speed of thought and has opened numerous options of excellence. Perfection and quality in educational field enhances one's ability to formulate new ideas & look beyond the obvious which is necessary to succeed in today's technical era. I am gratified to know that the Department of Electrical Engineering is bringing out the first issue of their technical magazine "ELECTRICA" of this academic year (2023-2024). This magazine is providing great space for the faculty and students to pen down their innovative ideas, imagination and perceptions to show case their creativity. So, I take the opportunity to congratulate the Department of EE and its editorial team to successful release of this issue.

Director's Message



Mrs. Sasmita Parida
Director
AIET, Bhubaneswar

It is a noble task on the part of the Department of Electrical Engineering to once again make it with their frequent issue "ELECTRICA". I wish that this technical magazine establishes to be a flint to fire the enthusiasm and excite their minds for many intrusive innovations among the students and inspire passion among the members of the faculty of Electrical Engineering committee. My greeting to the editorial board and department.

Principal's Message



Prof. (Dr.) Bimal Sarangi
Principal
AIET, Bhubaneswar

It gives me immense pleasure to note that, department of EE has been publishing their bi-annual magazine "ELECTRICA" and I am sure this will provide an opportunity for the faculty and students to share their knowledge and beacon the information about various issues and activities that are being taking place in the department. I look forward for more activities and achievements for the department to march towards excellence in the future. I would like to thank all teaching, supporting staff and our beloved students for their active participation in publishing this magazine. My special compliments and congratulation to the editorial team of the department for their consistent effort in publishing this magazine.

Dean Academic's Message



Prof. (Dr.) P K Swain
Dean Academics
AIET, Bhubaneswar

I am glad to know that the Department of Electrical Engineering is bringing out its technical magazine “ELECTRICA” which will mount creativity in the minds of the students as well as the staff members. The release of this spectacular first issue of ELECTRICA has added value to their constant efforts. Through this message, I wish them “All the very Best” for their future endeavors to and hope the students of EE bring more achievements to the college on the whole.

Vice Principal's Message



Prof. (Dr.) A K Sahoo
Vice Principal
AIET, Bhubaneswar

I am glad to pen for this wonderful magazine “ELECTRICA” as an appreciation of the commendable efforts put forth by the team of Electrical Engineering department for its first issue in the academic year 2023-24. The efforts taken to bring about innovative content is appreciable. I wish all the students who have involved in bringing out the magazine for their greater success and career ahead.

HOD's Message



Prof. (Dr.) P C Nayak
HOD EE
AIET, Bhubaneswar

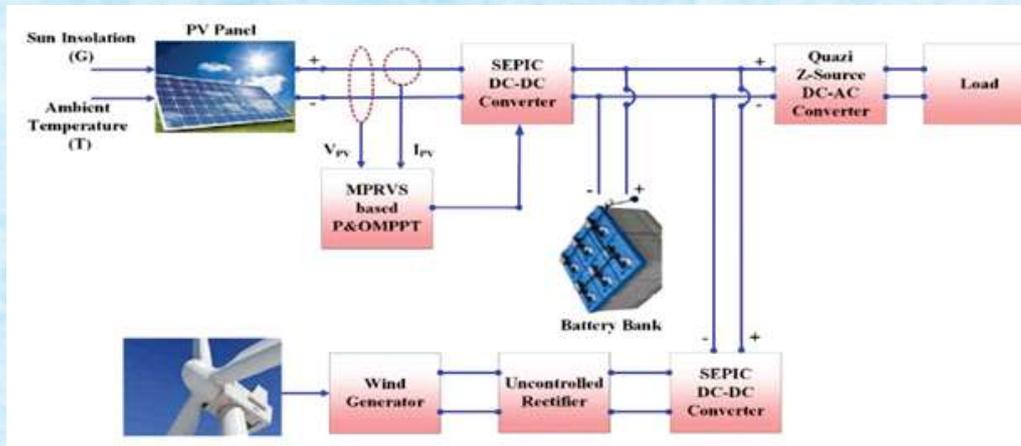
I feel privileged in presenting the first issue of departmental magazine “ELECTRICA” once again successful for this academic year 2023-24. This magazine is intended to bring out the unseen fictitious talents among the students and the faculty and also to inculcate leadership skills among them. I'm confident that it will inspire the students who aspire to be poets and writers and push their imaginations to explore new avenues. I acknowledge my gratitude to our principal for their continuous support to prepare these issues of magazine. I extend my sincere thanks to the editorial team for their constant effort and support in bringing out the magazine in the present form.

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FACULTY CORNER

MODELLING OF HYBRID POWER SYSTEM USING QUASI-Z SOURCE INVERTER



Micro-grid comprises the combination of interconnected loads and distributed energy resources (DER), including energy storage devices and several active loads/prosumers which work as a controlled unit to deliver the electric demand for miniature location. It supplies power generation with tremendous reliability as well as an affirmation to varying loads. This work deals with the modeling and control of a hybrid photovoltaic (PV)-Wind micro-grid using Quasi Z-source inverter (QZsi). This inverter has major benefits as it provides better buck/boost characteristics, can regulate the phase angle output, has less harmonic contents, does not require the filter and has high power performance characteristics over the conventional inverter. A single ended primary inductance converter (SEPIC) module used as DC-DC switched power apparatus is employed for maximum power point tracking (MPPT) functions which provide high voltage gain throughout the process. Moreover, a modified power ratio variable step (MPRVS) based perturb & observe (P&O) method has been proposed, as part of the PV MPPT action, which forces the operating point close to the maximum power point (MPP). The proposed controller effectively correlates with the hybrid PV, Wind and battery system and provides integration of distributed generation (DG) with loads under varying operating conditions. The proposed standalone micro grid system is applicable specifically in rural places.

Figure 1. A block diagram with the structure of Hybrid PV-Wind micro grid system

Single ended primary inductor converter (SEPIC) is considered as an impedance adapter between the PV module and the Z-source inverter as it provides high gain throughout the operation, better voltage performance and high voltage rating for lower/higher power requirements. When boost converter combines with the additional inductor and the capacitor, a SEPIC converter is developed. The generation of gating pulses to the SEPIC converter is possible without the action of the PI controller, which makes the reduction of power oscillation nearer to MPP and forces operating point close to the MPP. It also prevents the battery charging system from over voltage.

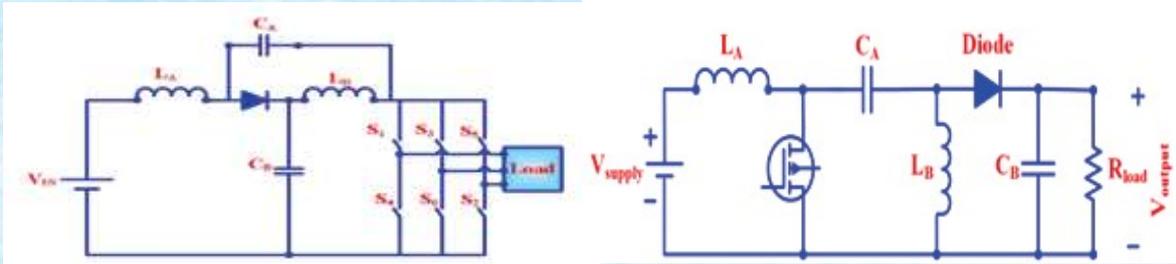


Figure 2. Quasi Z-Source inverter Equivalent Circuit Figure 3. SEPIC Converter Equivalent Circuit

The dSPACE real-time hardware platform has been employed to test the proposed micro grid system under varying wind speed, solar irradiation, load cutting and removing conditions etc. The experimental results based on a real-time digital platform, under dynamic conditions, justify the performance of a hybrid PV-Wind micro-grid with Quasi Z-Source inverter topology

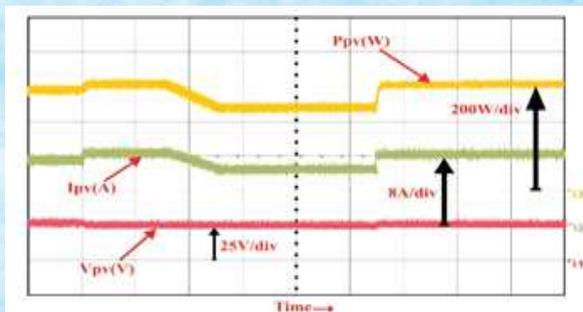


Figure 4. PV system responses

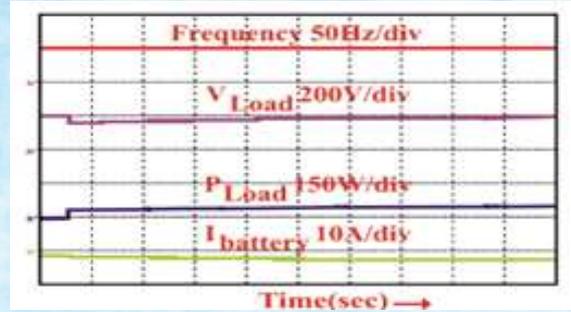


Figure 5. Microgrid response with varying wind velocity and constant solar irradiation

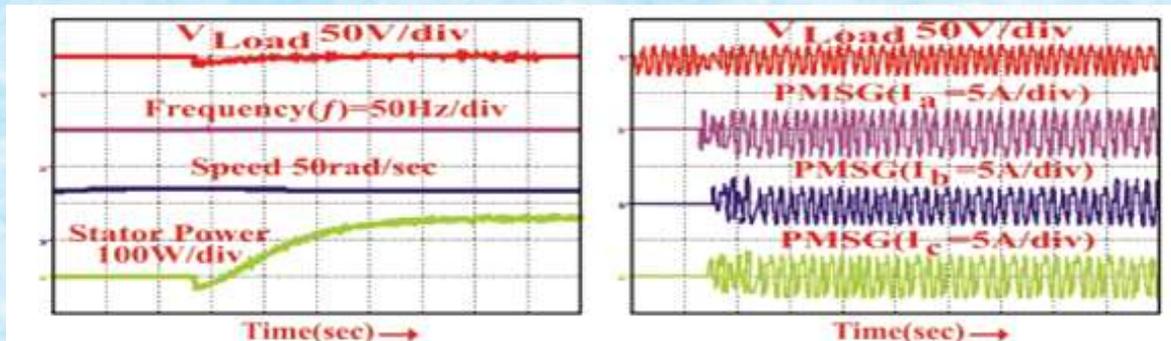


Figure 6. Performance of the wind generator with different operating conditions

The MPRVS based P&O MPPT performance with SEPIC converter has been validated effectively, which delivers MPP achievement with low power oscillation for the PV system. (ii) The performance of the Quasi Z-source inverter has been evaluated experimentally as having better buck/boost characteristics with fast dc-link voltage regulation under different operating conditions.

Dr. B V Pandian
Professor,EE
AIET, Bhubaneswar

SAPFs are available in four distinct forms which are categorized according to the circuit topology employed, namely standard inverter (either voltage source inverter (VSI) or current source inverter (CSI)), switched capacitor, lattice structure and voltage regulator. Generally, a SAPF is connected to a harmonic-polluted power system at the point of common coupling (PCC), between the voltage supply and a harmonic-producing load. The structure of a SAPF consists of two main elements, namely a standard two-level voltage source inverter and controller.

Time-domain harmonics extraction approaches are based on the instantaneous derivation of reference current signals from harmonic-polluted sources. They are considered as the simplest harmonic extraction approaches, offering increased speed and fewer calculations as compared to their counterparts in the frequency-domain and learning technique categories. In time-domain, the most widely applied algorithms are synchronous reference frame (SRF) and instantaneous power (pq) theory-based approaches.

SAPF is the most preferred and effective solution to current harmonic problems. Other than providing superior mitigation performance and high flexibility in handling dynamic system conditions, its development is also spurred by the availability of suitable power semiconductor switching devices and powerful controller at affordable prices. This manuscript has thoroughly compared and discussed various types of existing control algorithms for SAPF. The control algorithms of SAPF can be categorized into three distinct groups according to their respective purposes namely harmonic extraction, DC-link capacitor voltage regulation and current control algorithms. For harmonic extraction, there are implementation advantages of some techniques over the others, but all of them can perform effectively if the source voltage is balanced and sinusoidal. However, in practical environments, distortion and unbalance of the source voltage will make the performance of most of the harmonic extraction algorithms (in unmodified form) unacceptable. The key to effectiveness under non-ideal source voltage conditions is the ability to extract the fundamental component of non-ideal source voltage and subsequently apply it for synchronization and reference current generation purposes.

Dr. Ramesh Chandra Rath
Professor, EE
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IEC 61850 BASED SMART SUBSTATION AUTOMATION

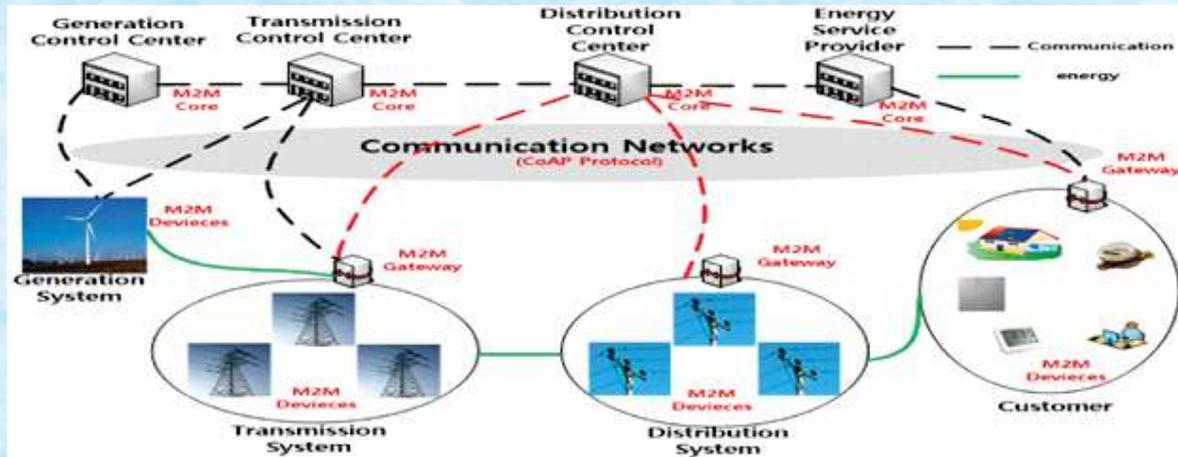


Figure 1. IEC 61850 Mapping with Constrained Application Protocol

I. Substation Automation

A substation automation system is a collection of hardware and software components that are used to monitor and control an electrical system, both locally and remotely. A substation automation system also automates some repetitive, tedious and error-prone activities to increase the overall efficiency and productivity of the system. High availability and constant operation of an electrical substation has always been the focus of an electrical company. More faults mean more interruption of service to clients and it translates to less revenue that is not desirable to any company. From the early age of electrical systems, engineers and operators have always been interested in collecting useful information on different devices in a substation so they can better evaluate the health of their system, predict potential problems and – in case of a fault – to analyze and troubleshoot the problem as soon as possible to protect their high values assets and to improve their continuous service to their clients.

With more information remotely available, new supervisory systems were developed to facilitate the task of a system administrator in the control center. A Supervisory Control and Data Acquisition (SCADA) system can collect information from various IEDs in an electrical system via different methods of communication and then control and monitor them using various visualizing technologies – even automating the supervision task based on predefined parameters and algorithms. A Human Machine Interface (HMI) is deployed in each substation to provide operators with the local control and monitoring capabilities that are often necessary during the configuration, commissioning or maintenance of the substation.

I. Digital substation, auto configuration and standards

Digital control and protection technology has been evolving since the first introduction of digital devices. The more intelligent and capable the devices became, the more responsibilities that tended to be transferred from human to device. Unlike early digital technologies – where an operator had to work with bits and bytes on a primitive user interface to define every parameter of the system and make sure all elements of the system are correctly configured to make the processing and communication work – new technologies let users focus more on high-level aspects of the system architecture by taking care of the tedious task of defining every single detail in the system configuration.

II. IEC 61850 based Communication protocols

A communication protocol defines a set of rules for transmitting data between two or more communication parties. Protocols have been developed to serve various purposes based on specific requirements of that application. IEC 61850 standard now becoming more popular in communication channels for transferring data in digital substations. The IEC 61850 standard was accepted by most of the utilities as a modern protocol that can address the shortcoming of traditional protocols. Unlike older protocols, IEC 61850 is more a suite of standards that address different aspects of a modern substation, rather than just a communication protocol. It defines in detail a standard model for each function in a substation plus the communication standards to support such a model as well the methods on how the map this model into the lower level communication. IEC 61850 also addresses necessary hardware requirements for a substation-grade device and defines a communication language that can be used to exchange a substation or a device model.

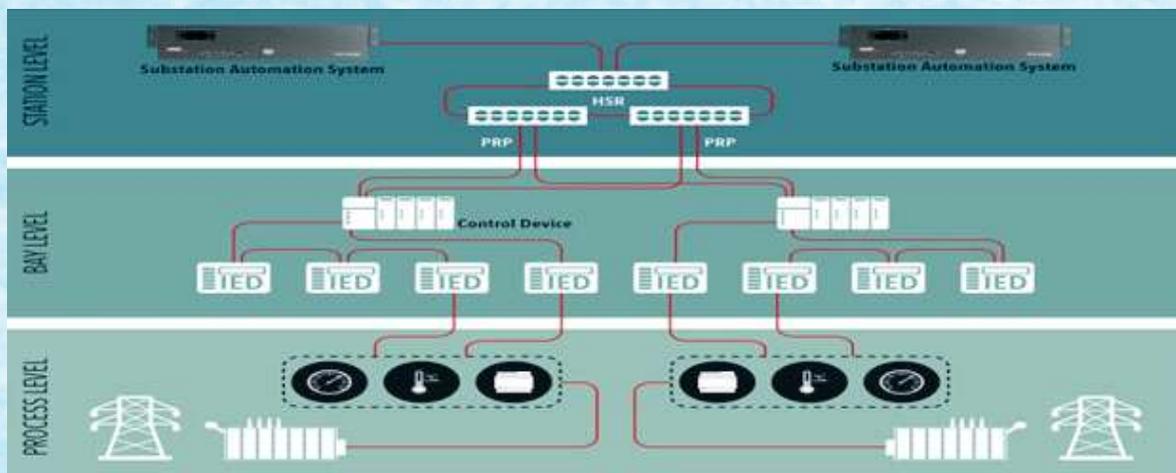


Figure 2. IEC 61850 based Substation Automation

Dr. Prakash Chandra Sahu
Associate Professor
AIET, Bhubaneswar

RECENT DEVELOPMENTS IN SMART GRID THROUGH RENEWABLE ENERGY RESOURCES INTEGRATION

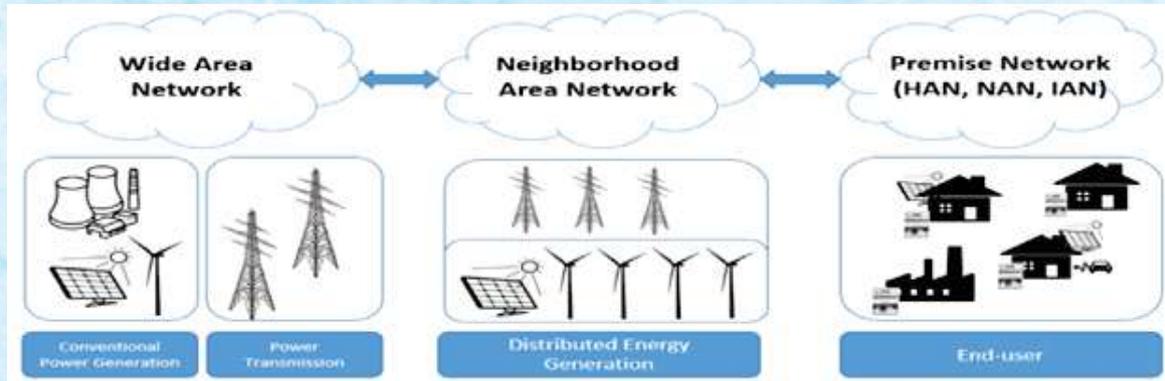


Figure 1. Commination Architecture of Smart Grid

Smart grid integration of advanced technologies can enhance energy generation and management, which is important for electricity customers as well as utilities. This creates the prospect of bringing about the transformation of current industries into a new era of improved networks, providing power generation, transmission, and distribution with an intelligent, responsive, and bi-directional automatic management system. A more distributed smart grid structure is replacing the centralized generating structure of the conventional grid. Loads need to be sufficiently isolated from the main grid and completely integrated into the grid in order to construct this new decentralized structure. Clean, economical, and efficient loads can all be integrated into the smart grid. The grid is strained by the increasing degree of distributed generation (DG) integration. The grid is strained by the increasing amount of distributed generation (DG) integration, leading to disruptions with dynamic reactions. The integration of renewable energy resources (RERs) into the grid was the topic of this paper's thorough examination of recent advancements in smart grid technology.

The smart grid makes use of renewable energy sources, also known as green energy, which derive from natural sources such as solar, wind, geothermal, nuclear, or bio energy. A collection of distributed energy resources, such as renewable energy, energy storage, controllable loads, networking, prosumers, and consumers, is known as a virtual power plant (VPP). Users are promised that their energy issues will be resolved after the resources are contributed to the power system in the form of a component. Recent studies predict that the global market for VPP would expand at a quick rate between 2016 and 2023, rising from \$191.5 million to \$1.1875 billion, mostly as a result of the considerable interest shown by prosumers. This has gradually become an indispensable resource for important participants in the energy market, and it is probable that this trend will continue. Incorporating electric vehicles (EV) into smart grids not only lessens the reliance that the transportation sector has on fossil fuels, but it also brings about a reduction in the amount of greenhouse gases (GHG) that are released.

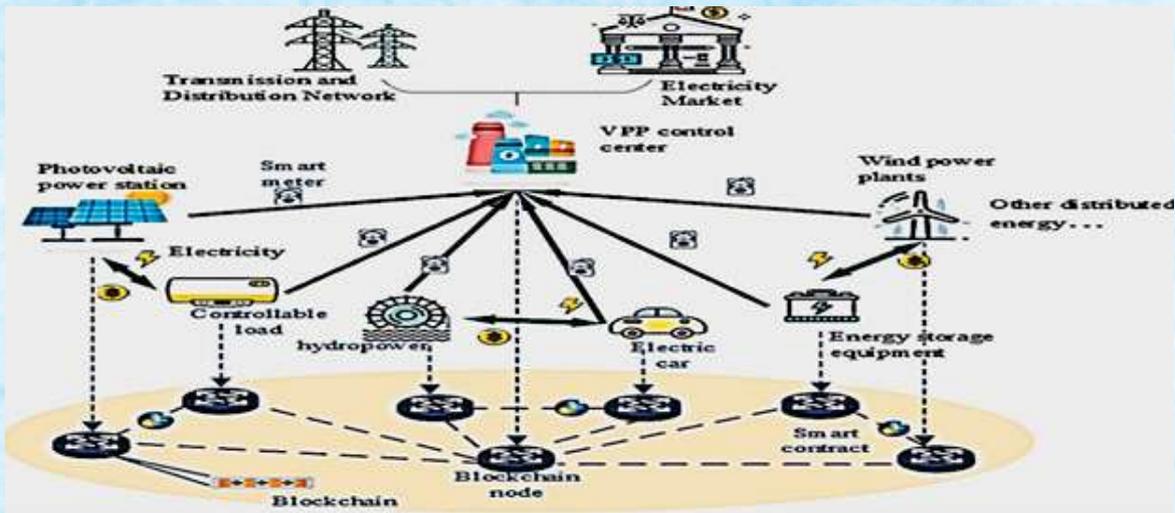


Figure 2. The generic control architecture of a VPP.

Electric vehicle mobility creates challenges for smart grids, including those related to power quality, long-term regulation, and reliability. In order to enable RERs-based generation and integration into smart grid, the battery storage system for electric cars (EVs) is now under development.

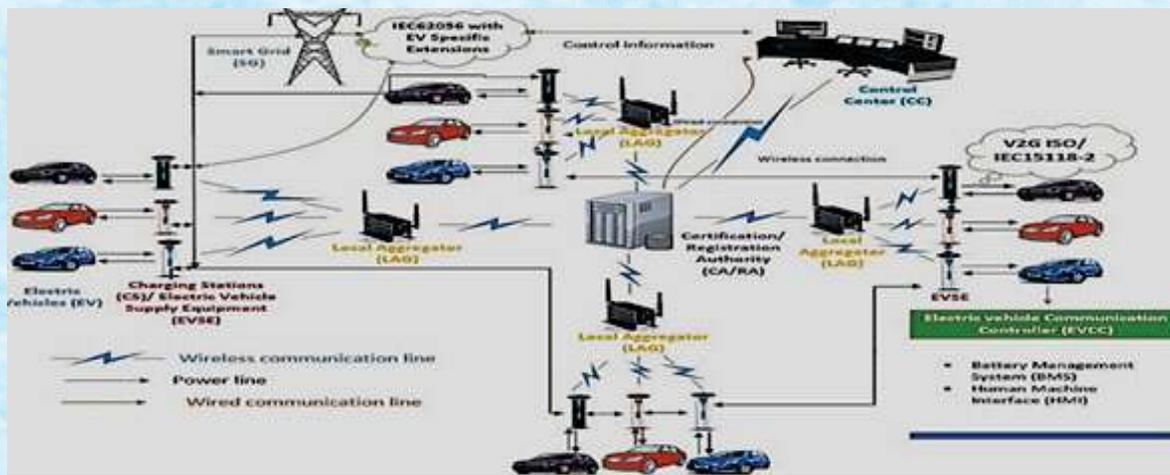


Figure 3. The smart and optimum charging operation of EVs under SG and V2G.

In order to satisfy the need for energy, researchers should concentrate their efforts on developing technology for energy harvesting, storage, and management. In the pursuit of a dependable and environmentally friendly energy source, a significant amount of focus needs to be placed on the manner in which cutting-edge technologies, such as artificial intelligence (AI), are utilized in smart homes and buildings to gather helpful information and signal sensations.

Dr. Pratap Chandra Nayak
 HOD EE
 AIET, Bhubaneswar

POWER SYSTEM MODELLING & SIMULATIONS-ETAP

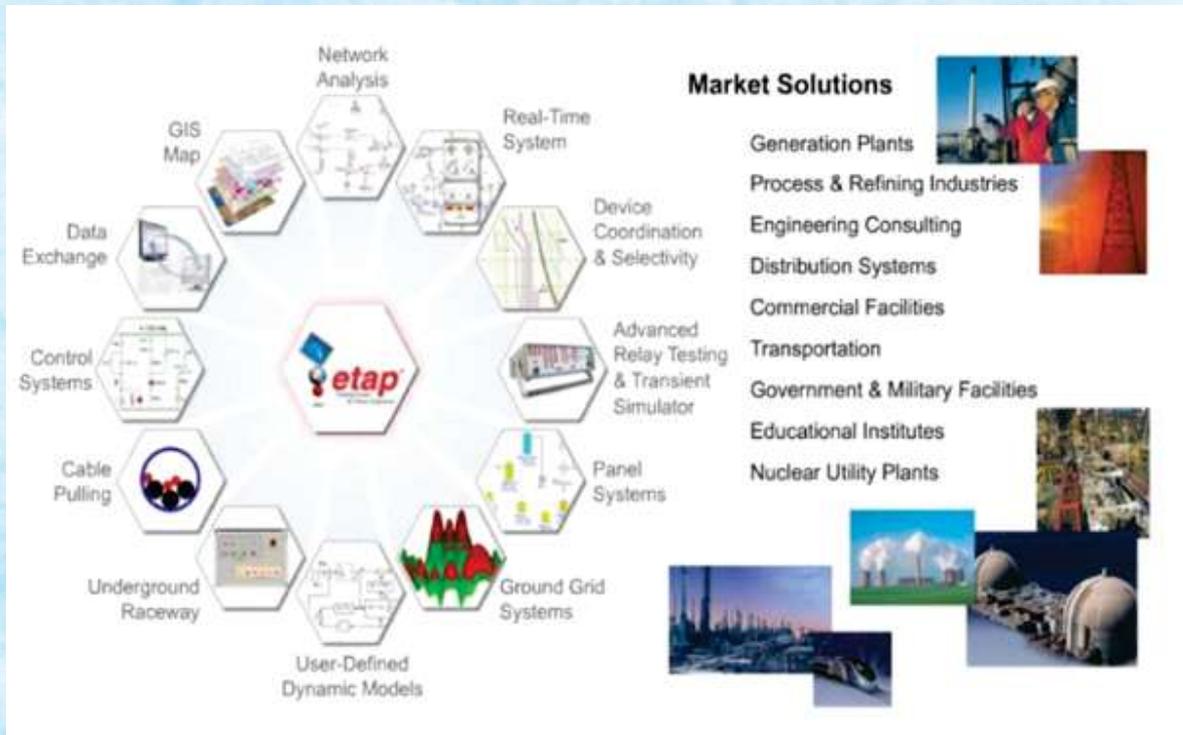


Figure 1. Overview of ETAP features

Software for modelling and simulation is extremely valuable to power system designers. These programs are essential tools for engineers to constantly evaluate and test their designs before they are put into practice. Software is utilized for a variety of analyses prior to system deployment, such as cost-benefit evaluations, feasibility studies, protection coordination, etc. To test their suggested ideas, electrical engineers employ industry-standard software. Matlab/Simulink is utilized for calculations and estimations with excellent performance. One of the greatest electrical transient analysis programs is ETAP, which offers a good interface for conducting thorough study on electrical power systems. Among its many incredible features is its interaction with Microsoft Excel.

ETAP is specifically designed for power system simulation. You can design a test system and can do any type of analysis on the system i.e., steady state or transient analysis. Most of the standard models are available in the library. Also advanced analysis like Security Assessment, State Estimation, Optimal Power Flow etc. are available in ETAP. These things are tedious to do in MATLAB. This software is used in the analysis, simulation, monitoring, control, optimization, and automation of electrical power systems. The ETAP Software offers a user-friendly, intuitive interface and a thorough user manual to assist users with any issues they may run into during simulation. The picture below depicts the ETAP Basic interface. ETAP software is intelligently divided into different toolbars according to their functionality. User can easily access each toolbar while creating one line diagram of a power system model. Besides toolbars, there are different options available to perform analyses on the system model through study cases, configurations, edit toolbars.

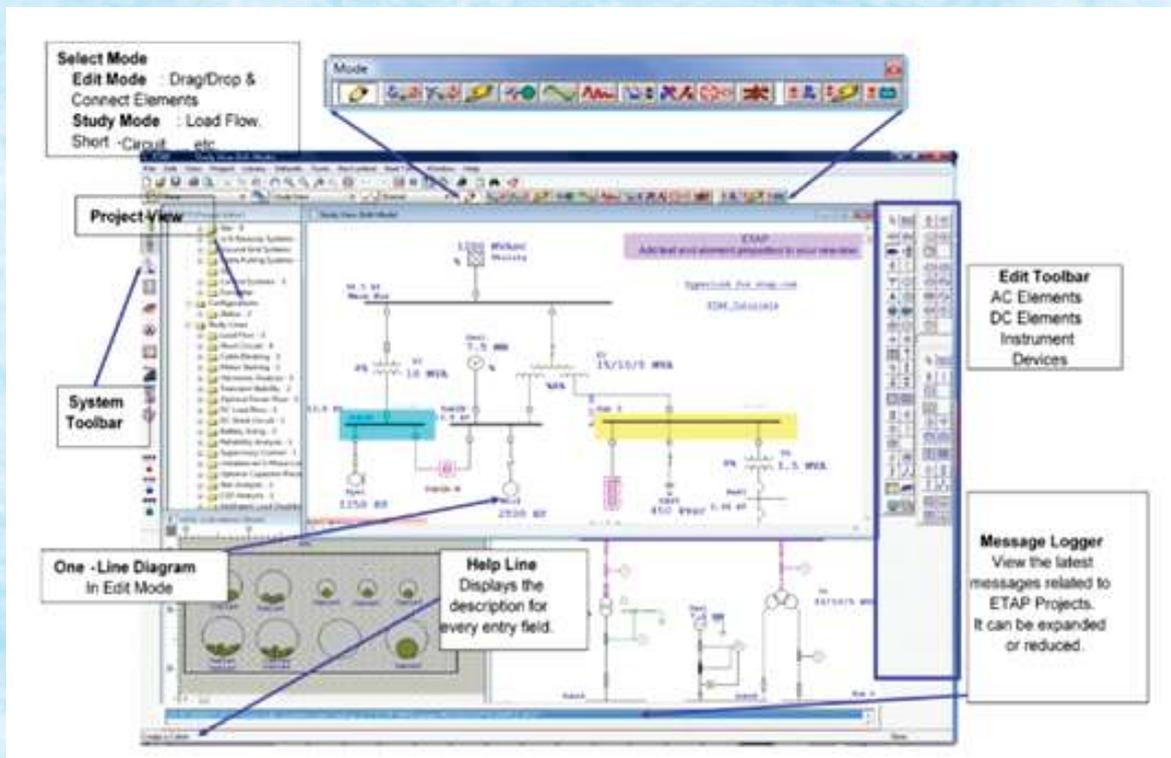


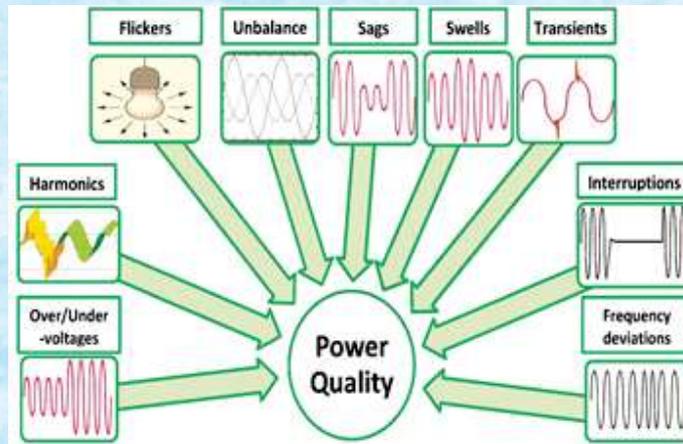
Figure 2. Simulink design of ETAP software

There is total 13 study modes in ETAP such as Load Flow (balanced, unbalanced), ANSI Short Circuit Analysis, Motor Starting Analysis, Harmonic Analysis, Transient Analysis, Star Protection Coordination, Optimal Load Flow, Reliability Analysis, Optimal Capacitor Placement, DC Load Flow, DC Short Circuit Analysis and Battery Sizing Analysis.

Dr. Sunita Pahadasingh
Associate Professor
AIET, Bhubaneswar

STUDENTS CORNER

HARMONICS IN POWER SYSTEM



Harmonics are electric voltages and currents on an electric power system that can cause power quality problems. Harmonics are created by electronic equipment with nonlinear loads drawing in current in abrupt short pulses. The short pulses cause distorted current waveforms, which in turn cause harmonic currents to flow back into other parts of the power system. Problems Caused by Harmonics: -

Overloading neutral conductor

The three-phase system consists of three individual phase conductors and a neutral conductor. If all the phase conductors carry the same current, the phase currents tend to cancel one another out provided there is a balanced load. This balanced load makes it possible to reduce the size of the neutral conductor. Unfortunately, switched mode power supplies used in computers have a very high third-harmonic current. While harmonic currents cancel out on the neutral wire, the third harmonic current is additive in the neutral.

Overheating Transformers and Increased Associated Losses

For transformers feeding harmonic-producing loads, the eddy current loss in the windings is the most dominant loss component in the transformer. This eddy current loss increases proportionate to the square of the product's harmonic current and its corresponding frequency. The total transformer loss to a fully loaded transformer supplying to a nonlinear load is twice as high as for an equivalent linear load. This causes excessive transformer heating and degrades the insulation materials in the transformer, which eventually leads to transformer failure.

Nuisance Tripping of Circuit Breakers

All circuits containing capacitance and inductance have one or more resonant frequencies. When any of the resonant frequencies correspond to the harmonic frequency produced by nonlinear loads, harmonic resonance can occur. Voltage and current during resonant frequency can be highly distorted. This distortion can cause nuisance tripping in an electrical power system, which can ultimately result in production losses.

Yashwant Tudu
Regd. No. : 2101320142
3rd Year, EE, AIET, BBSR

ROBO PETS



Pets are often lovable companions that bring joy to their respective owners. However, one of the inconveniences of pet ownership is the constant support that pets require as most are not self-sufficient. For those seeking a pet companion but not the responsibilities a robotic pet may be a option. While the major benefit of a live pet is the unwavering companionship, robotic pets have nice benefits in their own right. Fewer Responsibilities, unlike a real pet, there is no need to continually refill the water and food bowls. Better yet, there are no sad, puppy-dog eyes seeking food off the dinner table. As there is no need to feed the robotic pet, there is also no dealing with any after-dinner walks. And there's the benefit of a home free of the odors associated with those bodily functions. Live animals, especially dogs, get dirty, can smell, and need a bath. However, with a robotic pet, none of that is required. Robotic Pets won't be a “Bad” Pet. Robotic pets will vary in technological capabilities, but robotic pets will only get better as technology continues to advance. A simple robotic pet may be stationary and have limited actions, typically facial movements such as closing and opening the eyes and mouth. Other robots may be available that are mobile, including the ability to follow an owner around, or that have more intricate features such as recognizing voice commands. While robotic pets may not fulfill the real-life aspect desired by some, the pets certainly do have their own advantages. Some of the benefits are directly the opposite of the negatives associated with a live pet, which will greatly appeal to some prospective owners. It will ultimately be a personal choice, but don't forget: Having one doesn't mean not having the other. Owning both is always a possibility, and an owner's live pet will possibly enjoy playing with the robotic pet too

Soumyaranjan Behera

Regd. No. : 2101320137

3rd Year, EE, AIET, BBSR

TRANSPARENT SOLAR WIND



Transparent solar panels are a new generation of energy panels that can generate electricity from glass or window surfaces. Transparent solar panel is essentially a counterintuitive idea because solar cells must absorb sunlight (photons) and convert them into power (electrons). When a solar glass is transparent, the sunlight will pass through the medium and defeat the purpose of utilizing sunlight. However, this new solar panel technology is changing the way solar cells absorb light. The cell selectively harnesses a portion of the solar spectrum that is invisible to the naked eye, while allowing the normal visible light to pass through. To achieve this technological wonder, the researchers have developed the transparent luminescent solar concentrator (TLSC) rather than trying to do the impossible by creating a transparent photovoltaic glass cell. Solar panel blinds are cleverly combining these two divergent functions. An innovative startup called Solar Gaps has introduced solar panel blinds, which it claims can cut down energy costs by up to 70 percent. For every 10 sq. ft. of window space, these solar window blinds can generate 100 watts of power (you could roughly power three laptops with this much electricity). These solar blinds can be installed either inside or outside, and you can control their angle and positioning using an app that will also inform you of the energy generation figures. It includes a setting to automatically optimize the angle of the blinds according to the position of the sun. It's estimated that there are 5 to 7 billion square meters of glass surfaces in the United States, so the opportunities to use solar glass are nearly limitless. This means that the windshields and sunroofs on cars, smartphone screens, curtain walls, and canopies on buildings can all generate solar power. If this new technology is implemented in the glass on skyscrapers, there is a greater potential to generate a significant amount of solar energy because tall buildings have so many vertical surfaces. Also, the angle that the sun hits transparent solar panels isn't so critical.

Anil Sethi
Regd. No. : 2201320307
2nd Year, EE, AIET, BBSR

STORY

DON'T CHANGE THE WORLD

Once upon a time, there was a king who ruled a prosperous country. One day, he went for a trip to some distant areas of his country. When he was back to his palace, he complained that his feet were very painful, because it was the first time that he went for such a long trip, and the road that he went through was very rough and stony. He then ordered his people to cover every road of the entire country with leather. Definitely, this would need thousands of cows' skin, and would cost a huge amount of money. Then one of his wise servants dared himself to tell the king, "Why do you have to spend that unnecessary amount of money? Why don't you just cut a little piece of leather to cover your feet?" The king was surprised, but he later agreed to his suggestion, to make a "shoe" for himself. There is actually a valuable lesson of life in this story: to make this world a happy place to live, you better change yourself - your heart; and not the world.



Jaya Prakash Patra

Regd. No. : 2201320326

2nd Year, EE, AIET, BBSR

THE TRAVELERS AND THE PLANE TREE

Two men were walking along one summer day. Soon it became too hot to go any further and, seeing a large plane tree nearby, they threw themselves on the ground to rest in its shade. Gazing up into the branches one man said to the other: "What a useless tree this is. It does not have fruit or nuts that we can eat and we cannot even use its wood for anything." "Don't be so ungrateful," rustled the tree in reply. "I am being extremely useful to you at this very moment, shielding you from the hot sun. And you call me a good-for-nothing!" All of God's creations have a good purpose. Islam teaches us that we should never belittle Allah's blessings.



Heeramani Munda Lohar

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LEARN FROM MISTAKES

Thomas Edison tried two thousand different materials in search of a filament for the light bulb. When none worked satisfactorily, his assistant complained, “All our work is in vain. We have learned nothing.” Edison replied very confidently, “Oh, we have come a long way and we have learned a lot. We now know that there are two thousand elements which we cannot use to make a good light bulb.”



Saraswati Naik

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THE FARMER AND THE STORK

Finding that cranes were destroying his newly sown corn, a farmer one evening set a net in his field to catch the destructive birds. When he went to examine the net next morning he found a number of cranes and also a stork. “Release me, I beseech you,” cried the stork, “for I have eaten none of your corn, nor have I done you any harm. I am a poor innocent stork, as you may see - a most dutiful bird, I honor my father and mother. I...” But the farmer cut him short. “All this may be true enough, I dare say, but I have caught you with those were destroying my crops, and you must suffer with the company in which you are found.”

Umakanta Malik

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POEM

FRIENDSHIP

Either winter or monsoon
spring or summer,
this unsinkable ship,
floats forever.
This is my only lifeboat,
on which I can survive.
It is warmer than anything else,
and has always helped me to revive.

Akash Kumar Dash
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4th Year, B Tech
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IF I LIVE IN A DIFFERENT CENTURY

I would love to have lived in the 16th
Century. It was the time when Krishna
Devaraya ruled the Vijayanagara empire and
Tenali Rama was one of his courtiers. Tenali
Rama was a witty person and came up a
Solution to every problem. If I lived in that
Century, I would have learnt the tricks and
tactics of solving problems from Tenali Rama.

Gopikishan Sahu
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TIME

One moment I was in the air,
Above the clouds, nowhere to be found.
One moment I was below the Earth,
In its core I was bound.
One moment I was in a palace,
And the other in a cottage so small.
One moment I was happy with a stick
And the other, I hated my expensive ball.
Time changes as we go,
We can't follow it; it just goes,
Time is precious

Ganesh Munda
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NEVER GIVE UP

If I made a mistake,
then I would have to retake,
and do it once again,
even feel the pain.
But there also lays a prize,
and that made me realize that,
even if I was to fail,
it would be a learning trail.
If I hope for medals and a cup,
I can't just rely on luck
I must do hard work,
to show the world my worth.
That's the essence of never giving up!

Meghanad Rohidas

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HOSTEL

This is our hostel life,
we think it's strict and full of routine,
but staying without parents,
is great experience and fun.
With friends in hostel
everything is set and done.
At night, outside our room,
sounds can be heard.
The best birthdays are in hostel,
with the birthday song at midnight,
and parties with never-ending supply of
pizza and chocolates.
With friends of my school,
hostel life is the best.

Sivam Kishan

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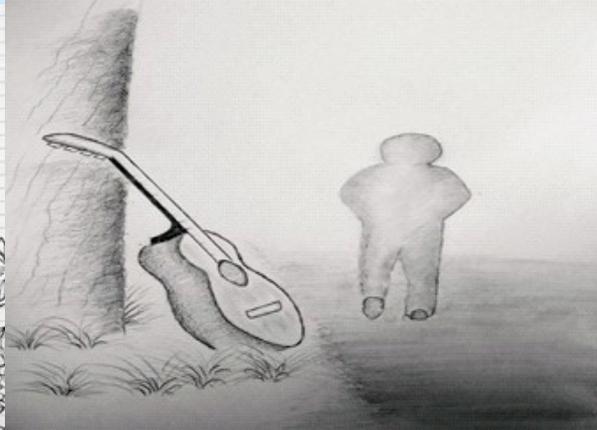
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PHOTO GALLERY



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Fresher's welcome function 2023-24



ANNUAL ATHLETIC MEET 2023-24



Conference organization in Auditorium Hall ICRAPEEE 2023-24



National Seminar Presentation in Auditorium Hall ICRAPEEE 2023-24



Techfest 2023-24

