



# SETHU

## INSTITUTE OF TECHNOLOGY



**AN AUTONOMOUS INSTITUTION | ACCREDITED WITH 'A++' GRADE BY NAAC**

Approved by AICTE, New Delhi & Permanently Affiliated to Anna University, Chennai

Approved Research Centres for MECH, CSE, ECE, EEE, IT, CSBS, PHYSICS & CHEMISTRY by Anna University, Chennai

B.E. MECH, B.E. CSE, B.E. ECE, B.E. EEE & B.Tech. IT are Accredited by NBA, New Delhi under Tier – I (Washington Accord)

**Pulloor – 626 115, Kariapatti Taluk, Virudhunagar District, Tamil Nadu, India.**



**Mr. S. Mohamed Jaleel, B.Sc., B.L.,**  
Founder & Chairman

# SETRite

# 2023

## SETHU RESEARCH NEWSLETTER

(Association with Sethu Research Forum)

# INDEX

S.No	Content	Page No
1.	Coffee with Elite Researcher	1
2.	Research Achievements by Faculty	4
3.	Recent Researches and Innovation in Technologies	5
4.	Research Publications by Faculty	8
5.	Patents Filed/Granted	11
6.	Consultancy Work	11
7.	Programs Organised	12

## COFFEE WITH ELITE RESEARCHER

“THINK BIG, TRUST YOURSELF AND MAKE IT HAPPEN”

### YOUNG RESEARCHERS:

- 1.V.Harshini III YEAR CIVIL
- 2.A.Amuprakash III YEAR CIVIL
- 3.A.kiruthikraj III YEAR CIVIL

### MENTORS:

1. Dr.A.M.Arun Mohan  
Associate Professor / Civil
2. Mrs.S. Bharathi. AP/Civil



## OUR INSPIRATION TO BECOME A RESEARCHER

As a researcher in the field of civil engineering, our inspiration to delve into the development of the "IOT based smart structures" project stemmed from a deep-seated passion for innovation and a desire to address real-world challenges in the construction industry. Witnessing the rapid advancements in technology and the increasing demand for sustainable and efficient infrastructure, we felt compelled to contribute our skills and expertise towards creating impactful solutions.

The decision to focus on IoT- based smart structures was influenced by our recognition of the pressing issues faced by the construction industry, such as monitoring structural integrity, optimizing energy consumption, and enhancing overall building performance. We were driven by the belief that leveraging IoT technology could revolutionize how we design, construct, and manage structures, ultimately leading to safer, smarter, and more sustainable built environments.

Moreover, our aspiration to go beyond the traditional academic path and make a tangible difference in society motivated us to pursue research in this domain. We saw the opportunity to not only expand our knowledge and skills but also to collaborate with like-minded individuals and contribute to the advancement of our field.

Overall, our journey as researchers was fueled by a combination of passion for innovation, a commitment to addressing real-world challenges, and a desire to make a meaningful impact on the built environment. The "IOT based smart structures" project represents our dedication to pushing the boundaries of traditional engineering practices and embracing cutting-edge technologies to shape a more resilient and sustainable future.

## HOW WE CAME UP WITH AN INNOVATIVE IDEA

As researchers in the field of civil engineering, the process of generating an innovative idea for the "IOT based smart structures" project was driven by a systematic approach to problem-solving and a keen awareness of industry challenges.

Our journey began with a thorough examination of the current issues plaguing the construction industry, including concerns related to structural integrity, energy efficiency, and building performance. Through extensive research and analysis, we identified a gap in existing monitoring systems for building structures, particularly in terms of real-time data collection and analysis.

With a clear understanding of the problem at hand, we embarked on a process of brainstorming and ideation to explore potential solutions. We drew inspiration from emerging technologies, such as the Internet of Things (IoT), which offered promising opportunities for enhancing the functionality and efficiency of building monitoring systems.

Through collaborative discussions and iterative refinement, we conceptualized the idea of developing an "IOT based smart structures" project. This innovative solution aimed to leverage IoT technology to create a comprehensive monitoring system capable of collecting data on various parameters, such as temperature, humidity, CO2 levels, and air quality, to ensure the optimal performance of building structures.

Furthermore, our engagement with mentors, academic resources, and industry professionals provided valuable insights and guidance throughout the ideation process, helping us refine and validate our innovative idea.

In summary, our journey towards generating an innovative idea for the "IOT based smart structures" project was characterized by a methodical approach to problem identification, collaborative brainstorming, and leveraging cutting-edge technologies to address real-world challenges in the construction industry.

## CURRENT STAGE OF OUR PROJECT

As of the current stage, our "IOT based smart structures" project has made significant progress in terms of development and implementation. We have successfully completed the initial phases of research, design, and prototyping, laying a solid foundation for the project's advancement.

At this stage, our focus is on refining the prototype and conducting rigorous testing to ensure its reliability, functionality, and scalability. We are leveraging the latest advancements in IoT technology to integrate sensors and data collection mechanisms into the

structure, enabling real-time monitoring of key parameters such as temperature, humidity, CO2 levels, and air quality.

Additionally, we are working on enhancing the system's capabilities by incorporating advanced analytics and predictive maintenance algorithms. This will enable us to not only monitor the current state of the structure but also predict and mitigate potential issues before they arise, ultimately improving the overall performance and longevity of the building.

Furthermore, we are collaborating with industry partners and stakeholders to gather feedback, validate the effectiveness of our solution, and ensure alignment with industry standards and regulations. This involves conducting field tests and pilot studies in real-world environments to validate the performance and reliability of our smart structures.

Overall, we are excited about the progress we have made thus far and remain committed to advancing our project towards its final stages of deployment and commercialization. We believe that our "IOT based smart structures" project has the potential to revolutionize the construction industry by providing smarter, safer, and more sustainable built environments.

## OUR JOURNEY, COMPETITION & SUCCESS STORY

Our journey with the "IOT based smart structures" project has been an exhilarating adventure filled with learning, challenges, and ultimately, success. It all began with our participation in the Pentathlon & Makeathon competition 2023 organized by the Institution of Engineering and Technology, Chennai.

From the outset, we were driven by a shared passion for innovation and a desire to create meaningful solutions that would address real-world challenges in the construction industry. Inspired by the competition's theme of fostering innovation, we embarked on a journey of ideation, research, and collaboration to develop our project.

we honed our technical skills and gained invaluable insights into the practical aspects of project implementation.

As we progressed with our project, we encountered various challenges and obstacles along the way. However, each challenge served as an opportunity for growth and innovation, pushing us to think creatively and find novel solutions. Through perseverance and determination, we overcame these hurdles, emerging stronger and more resilient than ever.

Our efforts culminated in our participation in the Pentathlon & Makeathon competition 2023, where we had the opportunity to showcase our project to a panel of esteemed judges and industry experts. We were thrilled to receive the second prize in the competition, a testament to the hard work, dedication, and innovation demonstrated by our team.

Winning the competition was a defining moment in our journey, validating our efforts and reaffirming our commitment to pursuing excellence in the field of civil engineering. It was a testament to the power of teamwork, collaboration, and ingenuity, and served as a springboard for future endeavours.

Looking back on our journey, we are incredibly proud of what we have accomplished. Our success story is a testament to the power of passion, perseverance, and determination, and we are excited to continue pushing the boundaries of innovation in the field of civil engineering.

## JOURNEY OF OUR PROJECT

We honed our technical skills and gained invaluable insights into the practical aspects of project implementation.

The journey of our project has been a transformative odyssey characterized by collaboration, innovation, and relentless pursuit of excellence. It commenced with a bold vision to pioneer ground breaking solutions

to pressing challenges in the construction industry. Guided by our collective vision and fueled by our passion for innovation, we embarked on an exhilarating journey of discovery and creation.

As we traversed through the myriad stages of development, from conceptualization to prototyping, we encountered myriad obstacles and setbacks. Yet, armed with unwavering determination and a spirit of resilience, we persevered, transforming challenges into opportunities for growth and innovation.

Today, as we reflect on our journey, we stand poised at the precipice of unprecedented innovation, poised to revolutionize the construction industry with our ground breaking project.

Our journey is a testament to the power of collaboration, innovation, and determination in driving meaningful change in the construction industry.

## COFFEE WITH ELITE RESEARCHER - PART 2

### YOUNG RESEARCHERS:

1. Kasthuri M III YEAR ECE

### MENTORS:

1. Dr. R. Tamilselvi, Prof / ECE
2. Mrs. T. Ruba, AP / ECE
3. Mr. A. Nagaraj, AP / ECE



## INSPIRATION TO BECOME A RESEARCHER

My journey towards researcher was deeply influenced by a personal tragedy within my family. Witnessing my sister's miscarriage during her pregnancy due to a lack of continuous monitoring was a heart breaking experience. Despite being well-educated, she faced challenges in accessing timely and affordable healthcare solutions, which fueled my determination to make a difference in this space.

## HOW WE CAME UP WITH AN INNOVATIVE IDEA

The genesis of my innovative idea stems from the pain and frustration my sister endured during her high-risk pregnancy. Seeing her undergo multiple scans each month highlighted the need for a more accessible and affordable healthcare solution for expecting mothers like her. This personal experience ignited my passion to develop a solution that could address this pressing need and ensure continuous monitoring for pregnant women.

## CURRENT STAGE OF THE PROJECT

At present, our project has reached the prototype stage, signifying significant progress in its development. While we have created a tangible product, there is still ongoing testing and refinement to ensure its effectiveness and usability.

## OUR JOURNEY, COMPETITION & SUCCESS STORY

My journey with this project has been both challenging and rewarding. Alongside my dedicated team members, we have dedicated six months to its development. Our participation in the DR KALAM YOUNG ACHIEVERS AWARD 2023, organized by the WORLD YOUTH FEDERATION, was a significant milestone. It provided us with a platform to showcase our innovation and garnered recognition for our efforts in addressing a critical healthcare need.

## SUPPORT NEEDED

To propel our project forward, we require financial assistance to secure funding for its further development. Additionally, we seek guidance and mentorship to navigate the next steps in its evolution and eventual deployment.

## JOURNEY OF OUR PROJECT

Our project commenced as a mere idea, fuelled by our collective passion and vision. Through perseverance and dedication, we transformed this idea into a tangible prototype. Currently, we are focused on refining our product and envisioning its transformation into a wearable belt, symbolizing our commitment to accessibility and ease of use for expecting mothers.

## RESEARCH ACHIEVEMENTS BY FACULTY

*"Do not follow where the path may lead.  
Go instead where there is no path and leave a trail."*

### SEPTEMBER 2023

1. Dr.R.Tamilselvi, Dr.M.Parisa Beham received Rs.10 Lakhs grant for the project titled, "Thaisei Care" from Nidhiprayas on 05.09.2023.
2. Dr.R.Tamilselvi, Dr.M.Parisa Beham and Mr.A.Nagaraj received Rs.2.5 Lakhs grant for the project titled, "Comatcare" from MMU Research Grant on 15.09.2023.
3. Dr.R.Tamilselvi, Dr.M.Parisa Beham and Mrs.T.Rubareceived Rs.2.5 Lakhs grant for the project titled, "Amnisen" from MMU Research Grant on 15.09.2023.
4. Dr.R.Tamilselvi, Dr.M.Parisa Beham and Mrs.T.Rubareceived Rs.2.5 Lakhs grant for the project titled, "Portable Kashaya Machine" from EDII-IVP on 10.09.2023.
5. Dr.M.Fathunisha, Dr.M.Pandimadevi, Mrs.A.Shakinbanu and Ms.A.Jansi ranimentored and received "First prize and Rs.1500 cash award" in Pogeypaper presentation event on 15.09.2023.

6. Dr.M.Fathunisha, Dr.M.Pandimadevi, Mrs.A.Shakinbanu and Ms.A.Jansi ranimentored and received “First prize” in a paper presentation event for the project title “Smart Farming” on 15.09.2023.

7. Ms.A.Jansi ranimentored and received “Second prize” in a paper presentation event for the project title “Sign Language Identification” on 08.09.2023.

## OCTOBER 2023

1. Dr. J. Rajalakshmi, Mr.A. ManojPrabaharan, Mr.P.Selvaprasanthmentored and received “Second prize and Rs.1000 cash award” in EEEROXIA23 paper presentation event on 25.10.2023.

2. Dr. J. Rajalakshmi, Mrs.P.Deepamentored and received “First prize and Rs.4000 cash award” in BRAIN STROMZ 2K23 paper presentation event on 13.10.2023.

3. Dr.V.Akilandeswari received a grant of Rs 5 lakhs from Ministry of Consumer Affairs, Food and Public Distribution for the Onion Grand Challenge- the development of Technologies for primary processing storage and valorization of onions.

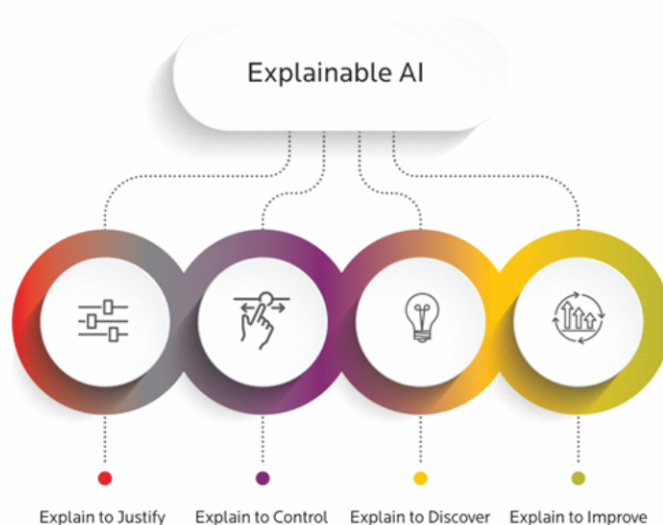
## RECENT RESEARCHES AND INNOVATION IN TECHNOLOGIES

*“Be prepared to ride the cycles and trends of life”*

### EXPLAINABLE ARTIFICIAL INTELLIGENCE (XAI)

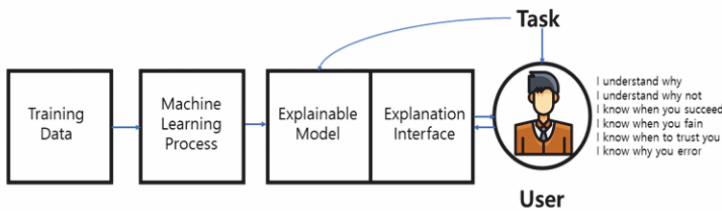
Explainable artificial intelligence (XAI) is a set of processes and methods that allow human users to comprehend and trust machine learning algorithms' results and output. Explainable AI describes an AI model, its expected impact, and potential biases. It helps characterize model accuracy, fairness, transparency and outcomes in AI-powered decision-making. It is crucial for an organization to have a full understanding of the AI decision-making processes with model monitoring and accountability of AI and not to trust them blindly. Explainable AI can help humans understand and explain machine learning (ML) algorithms, deep learning and neural networks.

ML models are often considered black boxes that are impossible to interpret. Neural networks used in deep learning are some of the hardest for a human to understand. Bias, often based on race, gender, age or location, has been a long-standing risk in training AI models. Further, AI model performance can drift or degrade because production data differs from training data. This makes it crucial for a business to continuously monitor and manage models to promote AI explain ability while measuring the business impact of using such algorithms. Explainable AI also helps promote end-user trust, model suitability, and productive use of AI. It also mitigates compliance, legal, security, and reputational risks of production AI.



### WORKING OF EXPLAINABLE AI

The motive of explainable AI is to improve the transparency, trustworthiness, fairness, and accountability of AI systems. Explainable AI Systems can aid in understanding the logic behind a specific prediction or conclusion produced by machine learning algorithms. This type of AI has grown in importance as a growing number of stakeholders have begun to challenge AI's forecasts. They want to know how the forecasts were formed before they depend on them and make decisions based on them. The illustration below depicts the necessity for explainable AI



## EXPLAINABLE AI WORKS ON FOUR MAIN PRINCIPLES

- ♦ Explanation
- ♦ Meaning
- ♦ Accuracy
- ♦ Knowledge limitations

### EXPLANATION

All system outputs are accompanied by evidence. The Explanation principle demands AI systems to offer proof, support, or justification for each output. This idea does not imply that the evidence is correct, instructional, or explanatory in and of itself; rather, it states that a system can give an explanation.

### MEANING

Individual users can comprehend system explanations. The system fulfills the Meaningful principle if the recipient understands the system's explanations. This idea is frequently satisfied if the user comprehends the explanation and it is useful in performing a task. This principle does not imply a one-size-fits-all solution. Different explanations for different categories of users may be necessary for a system. Explanations may be tailored to each user group to the Meaningful concept.

### ACCURACY

The description correctly depicts the output-generating process of the system. When used together, the Explanation and Meaningful principles simply need a method to create explanations that are meaningful to a user group. These two concepts do not need the plan to offer an explanation that precisely describes the output creation process of the system. The Explanation Accuracy principle requires that the explanations provided by a system be correct. Explanation correctness is different from decision

accuracy. Decision correctness in decision tasks refers to whether or not the system's judgment is correct. Whatever the system's judgment is, the accompanying explanation may or may not accurately describe how it arrived at that outcome. AI researchers have developed standard measures for algorithm and system accuracy. While there are established decision accuracy metrics, Researchers are actively working on performance metrics for explanation correctness.

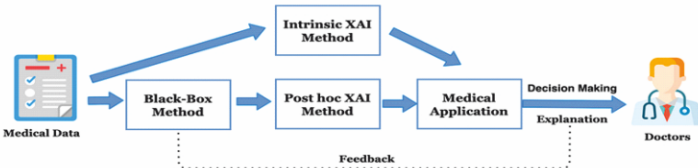
### KNOWLEDGE LIMITATIONS

The system only operates in the conditions under which it was designed, or when the output of the system is sufficiently trustworthy. The previous notions suggest that a system functions within the limitations of its knowledge. According to this Knowledge Limits notion, systems recognize conditions in which they were not designed or approved to function, or in which their replies are not reliable. This method safeguards replies by identifying and communicating knowledge constraints, ensuring that no judgment is made when it is not required. The Knowledge Limits Principle can boost system confidence by removing misleading, damaging, or unjust decisions or outputs. A system's knowledge restrictions might be approached in one of two ways. First, the investigation may fall outside the purview of the system.

### APPLICATIONS OF EXPLAINABLE AI HEALTHCARE

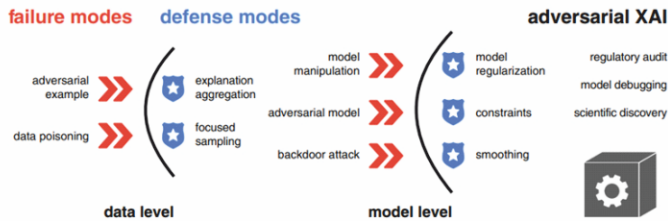
The potential benefits of AI in healthcare are significant, but the risks associated with an untrustworthy AI system are much greater. It goes without saying that AI models' judgments to aid clinicians in categorizing important conditions, whether utilizing structured criteria or unstructured data such as medical imaging, have far-reaching repercussions. If an AI system predicts and explains the reasons for its conclusion, it will be far more helpful than a system that predicts and allows clinicians to spend an equivalent amount of time (with or without AI judgments) determining if the AI system's decision is correct and trustworthy. Because lives are at risk in healthcare, XAI is crucial.





## DEFENSE

Explainable AI may be used in military training applications to explain the reasons behind an artificial intelligence system's choice (i.e., autonomous vehicles). This is significant because it helps to reduce any ethical issues, such as why it misidentified an item or failed to fire on a target. Explainable artificial intelligence (XAI) methods are portrayed as a remedy for debugging and trusting statistical and deep learning models, as well as interpreting their predictions. However, recent advances in adversarial machine learning (AdvML) highlight the limitations and vulnerabilities of state-of-the-art explanation methods, putting their security and trustworthiness into question. The possibility of manipulating, fooling or fairwashing evidence of the model's reasoning has detrimental consequences when applied in high-stakes decision-making and knowledge discovery.



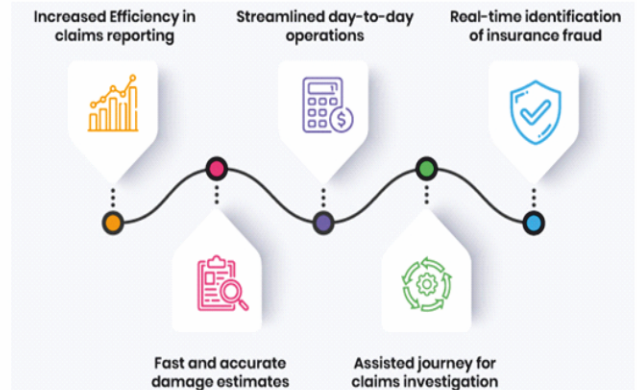
## JUDICIAL SYSTEM

In Western nations, there is a growing use of AI systems in judicial decision-making. Pro Republica has thoroughly studied the inherent bias that might come with it toward a single ethnic community in the past. Bias in AI applications, such as giving parole based on the likelihood of repeat offending, has far-reaching repercussions, and fairness in them is required since it deals with an individual's rights and liberties.



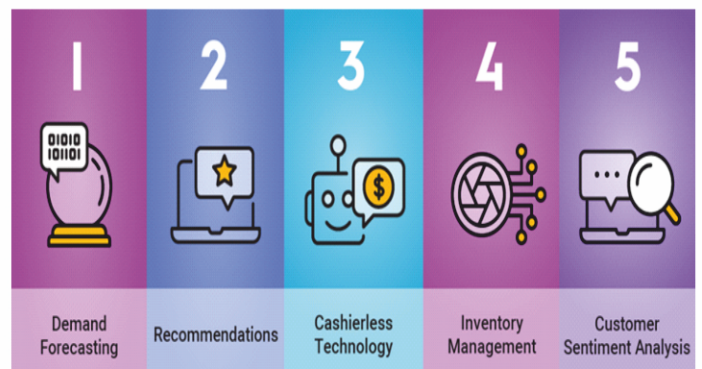
## INSURANCE

With such a big impact on the insurance industry, insurers must trust, understand, and audit their AI systems in order to fully utilize their capabilities. Explainable AI has proven to be a game-changer for several insurers. As a result of employing it, insurers report greater customer acquisition and quotation conversion, increased productivity and efficiency, and decreased claims rates and fraudulent claims.



## MANUFACTURERS

Explainable AI might be used to explain why a manufacturing line is malfunctioning and how it needs to be adjusted over time. This is critical for increased machine-to-machine communication and comprehension, which will aid in the creation of higher situational awareness between people and robots.



## HUMAN RESOURCES

Explainable artificial intelligence might be used to determine whether or not a resume was chosen. This increases understanding between humans and computers, which contributes to higher confidence in AI systems while decreasing prejudice and unfairness concerns.



## CHALLENGES OF EXPLAINABLE AI

Explainable AI is a very young field of study; XAI has been identified recently as an utmost need for the adoption of ML methods in real-life applications. It has built for clarifying different concepts underlying model explain ability, as well as by showing the diverse purposes that motivate the search for more interpretable ML methods. The systematic review dealing with explain ability has been approached from two different perspectives:

- ML models that feature some degree of transparency, thereby interpretable to an extent by themselves
- post-hoc XAI techniques devised to make ML models more interpretable

## RESEARCH PUBLICATIONS BY FACULTY

*“No research without action,  
no action without research”*

### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Meenalochini P. Dual-Channel Capsule Generative Adversarial Network Optimized with Golden Eagle Optimization for Pediatric Bone Age Assessment from Hand X-Ray Image 2023, International Journal of Pattern Recognition and Artificial Intelligence

Meenalochini P. Dual-Channel Capsule Generative Adversarial Network Optimized with Golden Eagle Optimization for Pediatric Bone Age Assessment from Hand X-Ray Image 2023, International Journal of Pattern Recognition and Artificial Intelligence

Sugumar S, Performance analysis of n-type PERT bifacial solar PV module under diverse albedo conditions, 2023, Solar Energy

Soundra Devi G.; Meenalochini P. Power electronics converters for an electric vehicle fast charging station based energy storage system and renewable energy sources: Hybrid approach, 2023, Optimal Control Applications and Methods

Murugan G.; Vijayarajan S. IoT based secured data monitoring system for renewable energy fed micro grid system 2023 Sustainable Energy Technologies and Assessments

Krishnan Jeyakanth Optimized channel prediction and auction-based channel allocation for personal cognitive networks 2023 International Journal of Communication Systems

Narmadha G. Detection of Human Stress Using Optimized Feature Selection and Classification in ECG Signals 2023 Mathematical Problems in Engineering

Harish Babu T, An early warning system for predicting earthquakes 2023, Novel AI Applications for Advancing Earth Sciences, physical and chemical water quality parameters using naive bayes control algorithm, Materials Today: Proceedings

### DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

G VairaSuganthi; M Parvathy; Muthamil Selvi N. Genetic algorithm for feature selection in mammograms for breast masses classification, 2023, Computer Methods in Biomechanics and Biomedical Engineering: Imaging and Visualization

Meenakshi Sundaram Parvathy. An enhanced deep learning-based phishing detection mechanism to effectively identify malicious URLs using variational auto encoders 2023 IET Information Security

Siva Ranjani S. A secured blockchain method for multivariate industrial IoT-oriented infrastructure based on deep residual squeeze and excitation network with single candidate optimizer, 2023, Internet of Things (Netherlands)

Rajalakshmi J.; Ranjani S.S.; Selvi S.A.M.; Muthuraja T. Printed MIMO Antenna for C and X band Applications, 2023, 14th International Conference on Computing Communication and Networking Technologies, ICCCNT 2023

Senthil kumar Saravana perumal Segmentation of Medical Images with Adaptable Multi functional Discretization Bayesian Neural Networks and Gaussian Operations 2023, International Journal of Electrical and Computer Engineering Systems

### DEPARTMENT OF INFORMATION TECHNOLOGY

Rajalakshmi M.; Machine Learning for Healthcare Systems: Foundations and Applications 2023,

### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Maraikkayar S.M.S.M.A.; Tamilselvi R.; Beham M.P. BIOPHYSIT: A Novel Biophysical Profile Database for Fetal Stress Measurement in High-Risk Pregnancies 2023, Biomedical and Pharmacology Journal

Dawood M.S.; Meenalochini P. Analysis of vital signs using remote photoplethysmography (RPPG), 2023, Journal of Ambient Intelligence and Humanized Computing,

Priyadharshini C, Devika R. Investigating the cross core octagonal photonic crystal fiber with high birefringence: A design and analysis study, 2023, Materials Today: Proceedings

Ruba T.; Tamilselvi R.; Beham M.P. Brain tumor segmentation in multimodal MRI images using novel LSIS operator and deep learning 2023, Journal of Ambient Intelligence and Humanized Computing

Arafat I.S.; Denial of Service Attack Analysis Using Machine Learning Techniques 2023 Proceedings of the 2nd International Conference on Edge Computing and Applications, ICECAA 2023

### DEPARTMENT OF MECHANICAL ENGINEERING

Perumal A. Machinability studies on AA<sup>Si</sup>TiO<sub>2</sub> based heat treated HMMC with negative polarity electrode using EDM, 2023, International Journal on Interactive Design and Manufacturing

Senthil Kumar A. Devanand S, Effect of fumed silica in rice bran wax-epoxy coating on aluminum substrate: mechanical, thermal, and water absorption properties 2023, Biomass Conversion and Biorefinery

Perumal A.; Rajkumar P.R.; Venkatesan G.; Paramasamy S.; Gangadharan T. Multi-response optimization of machining parameters of Ti-6Al-2Sn-4Zr-2Mo alloy using EDM process through grey relational analysis 2023 Research Express

Vairamuthu J. Human-robot interaction in medical equipment manufacturing, 2023, Medical Equipment Engineering: Design, manufacture and applications

Rajaram S.; Sivakumar G.D. Assessment of safety culture in the fireworks industry 2023 International Journal of Occupational Safety and Ergonomics

Nagaraj G. A Detailed Investigation on Potential Impact of Quantum Computing on Improving Artificial Intelligence 2023 International Conference on Innovative Data Communication Technologies and Application, ICIDCA 2023 - Proceedings

Edison T.N.J.I..In-situ Mg-Al LDH infused lignin-derived laser scribed graphene for facilitated ion transport in flexible supercapacitor application , 2023 Journal of the Taiwan Institute of Chemical Engineers

Edison T.N.J.I. Insights of pristine stainless steel mesh oxygen evolution reaction in diverse concentrations of potassium hydroxide 2023, Materials Letters

### DEPARTMENT OF MATHEMATICS

Narayanan K.L Theoretical understanding of reaction and kinetics in the reduction of the bromate anion to bromine on a rotating disk electrode, 2023, International Journal of Electrochemical Science

### PATENTS FILED/GRANTED

*“The only thing that keeps us alive is our brilliance. The only way to protect our brilliance is our patents”*

1. SETHU INSTITUTE OF TECHNOLOGY, Dr.R. Tamilselvi, Dr.M.ParisaBeham, Mr.S.M.Seeni Mohamed AliarMaraikkayar, Mrs.A.SabahAFroze, Ms.K.Shanmugapriya of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “System And Device For Amniotic Fluid Measurement” on 01/09/2023 with Patent number 202341054676 A

2. SETHU INSTITUTE OF TECHNOLOGY, Dr.M.ParisaBeham, Mr.S.M.Seeni Mohamed Aliar Maraikkayar, Dr.R. Tamilselvi of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “An Apparatus For Cotton Crop Monitoring System In Argo-Field Through Sensors” on 01/09/2023 with Patent number 202341054677 A

3. SETHU INSTITUTE OF TECHNOLOGY, Dr. M. Sheik Dawood, Dr. M. Pandimadevi, Dr.M.FathuNisha, Mr.A.ManojPrabaharan of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “Method Of Controlling An Apparatus For

Generating Electric Power And Methods Of Power Recovery.” on 01/09/2023 with Patent number 202341036558

4. SETHU INSTITUTE OF TECHNOLOGY, B.Muthu ChozhaRajan of AGRICULTURAL ENGINEERING has been Published a Patent for the work on “Method Of Controlling An Apparatus For Generating Electric Power And Methods Of Power Recovery.” on OCT/2023 with Patent number 202341069282

### CONSULTANCY WORK

*“The essence of strategy is choosing what not to do.”*

1. Dr.R.Tamilselvi, Dr.M.ParisaBeham, Department of ELECTRONICS AND COMMUNICATION ENGINEERING has completed a Consultancy work for “Requisition of BRAMSIT-database acquisition from institute website” with Mrs.Kulkarni Sheetal Vijay Research Scholar SATHYABAMA Institute of Science and Technology, for Rs.25,000 /- on 20.10.2023.

2. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar, for Rs.600/- on 02.09.2023.

3. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar., for Rs.600/- on 25.09.2023

4. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar., for Rs.600/- on 13.10.2023

Edison T.N.J.I..In-situ Mg-Al LDH infused lignin-derived laser scribed graphene for facilitated ion transport in flexible supercapacitor application , 2023 Journal of the Taiwan Institute of Chemical Engineers

Edison T.N.J.I. Insights of pristine stainless steel mesh oxygen evolution reaction in diverse concentrations of potassium hydroxide 2023, Materials Letters

### DEPARTMENT OF MATHEMATICS

Narayanan K.L Theoretical understanding of reaction and kinetics in the reduction of the bromate anion to bromine on a rotating disk electrode, 2023, International Journal of Electrochemical Science

### PATENTS FILED/GRANTED

*“The only thing that keeps us alive is our brilliance. The only way to protect our brilliance is our patents”*

1. SETHU INSTITUTE OF TECHNOLOGY, Dr.R. Tamilselvi, Dr.M.ParisaBeham, Mr.S.M.Seeni Mohamed AliarMaraikkayar, Mrs.A.SabahAFroze, Ms.K.Shanmugapriya of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “System And Device For Amniotic Fluid Measurement” on 01/09/2023 with Patent number 202341054676 A

2. SETHU INSTITUTE OF TECHNOLOGY, Dr.M.ParisaBeham, Mr.S.M.Seeni Mohamed Aliar Maraikkayar, Dr.R. Tamilselvi of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “An Apparatus For Cotton Crop Monitoring System In Argo-Field Through Sensors” on 01/09/2023 with Patent number 202341054677 A

3. SETHU INSTITUTE OF TECHNOLOGY, Dr. M. Sheik Dawood, Dr. M. Pandimadevi, Dr.M.FathuNisha, Mr.A.ManojPrabaharan of ELECTRONICS AND COMMUNICATION ENGINEERING has been Published a Patent for the work on “Method Of Controlling An Apparatus For

Generating Electric Power And Methods Of Power Recovery.” on 01/09/2023 with Patent number 202341036558

4. SETHU INSTITUTE OF TECHNOLOGY, B.Muthu ChozhaRajan of AGRICULTURAL ENGINEERING has been Published a Patent for the work on “Method Of Controlling An Apparatus For Generating Electric Power And Methods Of Power Recovery.” on OCT/2023 with Patent number 202341069282

### CONSULTANCY WORK

*“The essence of strategy is choosing what not to do.”*

1. Dr.R.Tamilselvi, Dr.M.ParisaBeham, Department of ELECTRONICS AND COMMUNICATION ENGINEERING has completed a Consultancy work for “Requisition of BRAMSIT-database acquisition from institute website” with Mrs.Kulkarni Sheetal Vijay Research Scholar SATHYABAMA Institute of Science and Technology, for Rs.25,000 /- on 20.10.2023.

2. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar, for Rs.600/- on 02.09.2023.

3. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar., for Rs.600/- on 25.09.2023

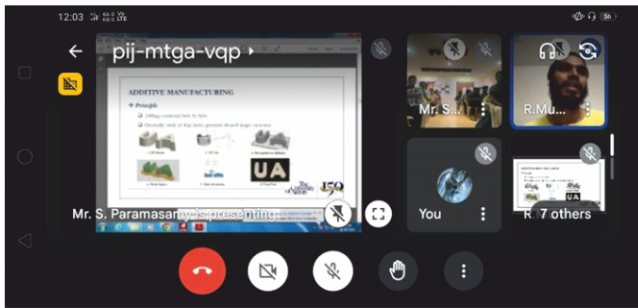
4. Mr.P.Rajeswaran, Department of CIVIL ENGINEERING has completed a Consultancy work for “Compressive Strength of Concrete Cubes” Atharva Associates, Undirmikudakulam, Virudhunagar., for Rs.600/- on 13.10.2023

## PROGRAMS ORGANISED

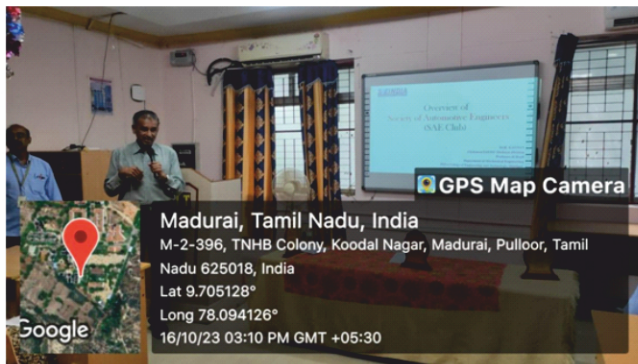
*“For every minute spent organizing, an hour is earned”*

### DEPARTMENT OF MECHANICAL ENGINEERING

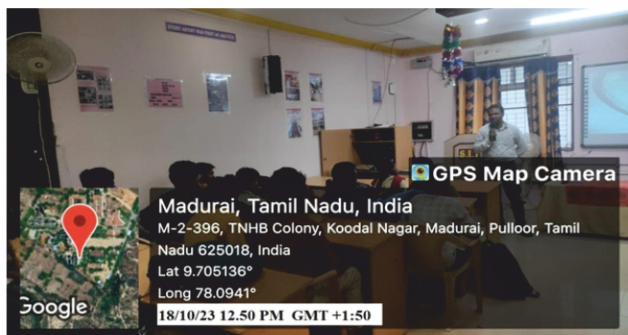
- ♦ Webinar on “Additive Manufacturing and its Research Scope” was organized on 08.09.2023



- ♦ Department of Mechanical Engineering and Society of Automotive Engineers (SAE) India jointly organizes SIT SAE Collegiate Club Inaugural Function and Guest Lecture on “Lithium Ion Battery Materials and Its Digital Twin” was organized on 16.10.2023



- ♦ Department of Mechanical Engineering and Society of Automotive Engineers (SAE) India jointly organizes Guest Lecture on “Automotive control system algorithms” was organized on 18.10.2023



- ♦ Department of Mechanical Engineering and Society of Automotive Engineers (SAE) India jointly organizes Guest Lecture on “Product design and development in an aerospace domain” on 20.10.2023 in Mechanical Department seminar hall.



### DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

- ♦ Five Days Short Term Course on Antenna Design Techniques - Tools was organized on 11.09.2023 - 15.09.2023

- ♦ Department of Electronics & Communication Engineering conducted Seminar on “AI - ML-Placement oriented Awareness Program” was organized on 01.09.2023. Dr. Kumar Natarajan, General Manager, VinsupIntotech Limited delivered lecture about AI-ML..

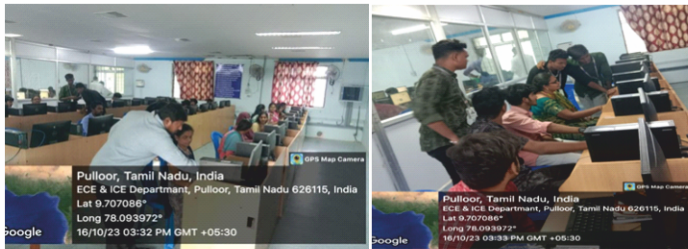


- ♦ One Day Seminar on Industrial Exposure on Embedded System was organized on 25.09.2023

- ♦ Technical Symposium “Electrocognizance 2k’23” was organized on 06.10.2023.

- ♦ One Credit Course on PCB Design was organized on 09.10.2023-11.10.2023.

♦ Department of Electronics & Communication Engineering conducted One Credit Course on Arduino Programming was organized on 10.10.2023-16.10.2023. The faculty of Electronics & Communication Engineering gave hands on training on Arduino Programming.



♦ One Credit Course on Arduino Programming was organized on 10.10.2023 - 16.10.2023.

♦ Industry Supported Internship Program on Antenna Design – Communication was organized on 03.10.2023 - 20.10.2023.

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

♦ Department of Computer Science and Engineering conducted Workshop on “Cloud Services Management with Virtual box, CloudSim, Google App Engine and Hadoop” was organized on 06.10.23. The Resource Person Mr.A.M.Sasi Kumar, Software Trainer and Developer and Mr.S.Thanga Pandian, Marketing Manager and System Admin, SSI Solutions delivered lecture about Cloud Management.

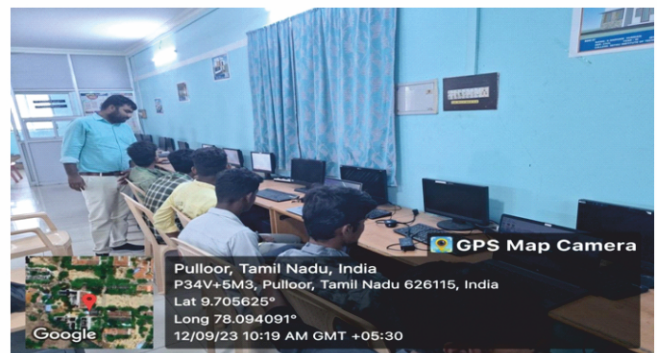


♦ Three Days Workshop on “Python Frame Work” was organized on 17,18,20.10.23

## DEPARTMENT OF CIVIL ENGINEERING

♦ A short-term course “Survey camp” was held from September 4, 2023, to September 8, 2023.

♦ Department of Civil Engineering organized one week Value added course on Building "Approval building drawing as per national building code (NBC)" 11.09.2023 - 13.09.2023 our department invited as a chief guest Er.R.Udhyasankar, BTR Construction, Erode

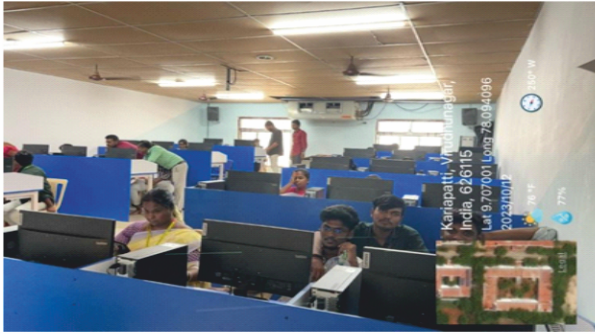


♦ Department of Civil Engineering organized Inauguration of Civil Engineering Association on 06.10.2023, our department invited as a chief guest Er.A.Karthikeyan, Structural and Geo technical consultant, Chennai



## DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS

♦ Department of Computer Science & Business System conducted webinar on “web framework using Python and flask” was organized on 12.10.2023. Mr.A.M.Sasikumar, General Manager, SSI Education delivered lecture for second year students.



♦ Department of Computer Science & Business System conducted webinar on “Recent Trends in IT Industry” was organized on 12.10.2023. Mr.M.Thirupugal Kumar, Consultant System Engineer, Verizon data services, Chennai delivered lecture for Third year students.

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

♦ Department of Electrical and Electronics Engineering organized the Awareness Program on “How To Do Mini Projects” on 07.09.2023. Faculty Coordinators were Dr.V.Vaishnavi, ASP/EEE, Mr.S.Kannadhasan,AP/EEE, Mr.V.Prabhu, AP/EEE, Ms.S.Chandravadhana,AP/EEE



♦ Parents meeting for the second year students” was organized on 09.09.2023.



♦ Department of Electrical and Electronics Engineering organized Value added course on Advanced PLC Program Professional. The Advanced PLC Program Professional course by Mr. Sahayam Beski at IPCS Industrial Automation, held from 11.09.2023 to 15.09.2023, significantly enhanced participants & PLC programming skills. Faculty Coordinators were Dr.P.Meenalochini ASP/EEE, Mrs.R.Brindha,AP/EEE, Mrs.C.Santhosh, AP/EEE, Mrs.M.Naveena,AP/EEE, Ms.M.Vijayalakshmi, AP/EEE.



♦ Department of Electrical and Electronics Engineering organized the Value Added Course on “Embedded C Programming” from 19.09.2023 to 21.09.23 by Smart Makers. Faculty Coordinators were Dr. G. Narmadha, ASP/EEE Dr.J.Jeyashanthi, ASP/EEE & Dr. B. karthikeyan ASP/EEE. Webinar on “Electro Magnetic Waves” was organized on 19.09.2023.





♦ Department of Electrical and Electronics Engineering organized the Webinar on “Electro Magnetic Waves” on 19.09.2023 for the benefit of second year students. The Resource Person for this webinar was Dr.M.Kalarahiti ASP/EEE, MepcoSchlenk Engineering College. Faculty Coordinators were Dr.P.Meenalochini ASP/EEE, Mrs.R.Brindha,AP/EEE, Mrs.C.Santhosh, AP/EEE, Mrs.M.Naveena,AP/EEE, Mrs.G.Thenmozhipandi, AP/EEE, Ms.M.Vijayalakshmi, AP/EEE.



♦ Department of Electrical and Electronics Engineering and IEEE power & Energy Society organized a Webinar on Benefits of IEEE Power & Energy Society on 03.10.2023. Mr.Adwaith Satheesh Kumar, chair IEEE Xtreme 17.0 & IEEE Brand Ambassador Expect delivered the speech about the Benefits of IEEE Power & Energy Society.



♦ Webinar on “Benefits of IEEE Power & Energy Society” was organized on 04.10.2023



♦ Department of Electrical and Electronics Engineering organized the Two Days National level workshop on “Arduino Based Embedded System” from 09.10.2023 to 10.10.23 in association with IEEE power & Energy Society. Faculty Coordinators were Dr. G. Narmadha, ASP/EEE Mr.S.Sugumar, AP/EEE & Dr. B. karthikeyan ASP/EEE.




**SETHU INSTITUTE OF TECHNOLOGY**  
Approved by AICTE, New Delhi & Permanently Affiliated to Anna University, Chennai  
 AN AUTONOMOUS INSTITUTION | ACCREDITED WITH 'A++' GRADE BY NAAC  
 PULLOOR - 626 115, KARIAPATTI TALUK, VIRUDHUNAGAR DISTRICT


**Department of Electrical & Electronics Engineering**  
 In association with IEEE Power & Energy Society


**Organize**  
**Two Days National Level Workshop**  
 On  
**Arduino Based Embedded Systems**


**09-10-2023**  
 &  
**10-10-2023**

**Resource Person**  
**A.Sheik Mohammed**  
 & **D.Manuel**  
Smart Makers - Madurai


**9.30 am to**  
**4.15 pm**  

**EEE**  
**Seminar Hall**

**PATRONS**

<b>Mr.S.M.Seeni Mohamed Jaleel</b> <small>Founder &amp; Chairman</small>	<b>Mr.S.M.Seeni Mohamed Aliar Maraikayar</b> <small>Joint Chief Executive Officer</small>	<b>Dr.M.Parisa Beham</b> <small>Dean ECE &amp; EEE</small>
<b>Mr.S.M.Seeni Mohamed Aliar</b> <small>Chief Executive Officer</small>	<b>Ms.S.M.Nilofer Fathima</b> <small>Director Administration</small>	<b>Dr.S.M.Nazia Fathima</b> <small>Director R&amp;D</small>
<b>Dr.A.Senthil Kumar</b> <small>Advisor</small>	<b>Dr.G.D.Sivakumar</b> <small>Principal i/c</small>	

**Convener**  
**Dr.G.Soundradevi**  
Professor & HoD/EEE

**Co-Convener**  
**Dr.B.Meenakshi Sundaram**  
Professor & PG-Head/EEE

**Coordinators**  
**Dr.G.Narmadha**  
Associate Professor /EEE

**Mr.S.Sugumar**  
Assistant Professor /EEE

**Mr.B.Karthikeyan**  
Assistant Professor /EEE

♦ Skill Development Program for Rural People in association with DigitAll on 06.10.2023.



Department of information Technology organized Skill Development Program for Rural People in association with Digit All on 06.10.2023.

♦ Seminar on “How to write research proposals” on 14.12.2023.



♦ Seminar on “How to write research proposals” on 14.12.2023. The seminar was delivered by Dr.RajaSekaran, Dean- Mechanical Department- SIT.

## CENTRAL LIBRARY

♦ Awareness Program on “Library Services and Online Education Resources OER”, 12 October 2023,

## DEPARTMENT OF COMPUTER SCIENCE AND DESIGN

♦ SKAIT IT EDUCATION Conducted a Seminar in the topic “Professionalism & Role of Technology in Future Industry” on 22.09.2023.

♦ Ecareerpluz Info Pvt Ltd Conducted a program named "Skill Based Merge Stack Development” on 25.09.2023 for third-year students



♦ Organized Skill Development Program for Third year students in the title “Hands-on in Abode illustrator and Blender(3D Modeling)” on 26.09.2023

♦ The Entrepreneurship Development Cell organized an awareness program on Innovation and Entrepreneurship at our college on 19.10.2023

## PATRONS

**MR.S.MOHAMED JALEEL**, Founder and Chairman

**MR.S.M.SEENI MOHAIDEEN**, Chief Executive Officer

**MR.S.M.SEENI MOHAMED ALIYAR MARAIKKAYAR**

Joint Chief Executive Officer

**MS.S.M.NILOFER FATHIMA**, Director - Administration

**DR.S.M.NAZIA FATHIMA**, Director - Research

**DR.A.SENTHIL KUMAR**, Advisor

**DR.G.D.SIVA KUMAR**, Principal

## SETRITE COORDINATORS

**Dr.M.ParisaBeham**, Prof & Head, Department of ECE

**Dr. R. Tamilselvi**, Prof & Pg Head, Department of ECE

**Dr. P.Mahalakshmi**, Associate Professor, Department of ECE

## SETRITE MEMBERS

**Dr.J.Vairamuthu**,

Associate Professor, Department of Mechanical Engineering

**Dr.V. Vaishnavi**,

Associate Professor, Department of EEE

**Dr. B.Lalitha**,

Associate Professor, Department of CSE

**Ms.T.Ruba**,

Assistant Professor, Department of ECE

**Mr.S.Parameswaran**,

Assistant Professor, Department of IT

**Ms.Mary James**,

Assistant Professor, Department of BME

**Ms.S.Bharathi**,

Assistant Professor, Department of Civil Engineering

**Dr.K.Nagalakshmi**,

Associate Professor, Department of CSE

**Dr. P.R.Rajkumar**,

Associate Professor, Department of Mechanical Engineering

**Ms.M.Uma Maheshwari**,

Research Faculty, Department of ECE

**Dr.A.M. Arun Mohan**,

Associate Professor, Department of Civil Engineering

**Mr.M.Jothi Bass**,

Assistant Professor, Department of Agricultural Engineering

**Ms.D. Juliebersiyal**,

Assistant Professor, Department of BME

**Dr. David Gnanaraj**,

Associate Professor, Department of Mechanical Engineering

**Dr.S.Mariaamalraj**,

Associate Professor, Department of BT

**Mr. Karthik Kumar**,

Assistant Professor, Department of AIDS



••• Estd : 1995 •••

# *Sethu*

## *Institute of Technology*

An Autonomous Institution



[www.sethu.ac.in](http://www.sethu.ac.in)

Follows us on

