



Jyothy Institute of Technology

TECH HERALD

Volume 17, August—December 2022

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Vision:

To be a Department of excellence at a global level in Electronics and Communication Engineering education, incorporating Research & Innovation and Leadership training components.

Mission:

The Department will

M1: Strive to provide state of Art infrastructure in classrooms and laboratories.

M2: Enable all-round development with individual attention and innovative teaching learning methodology.

M3: Impart leadership qualities into the students by exposing them to industry and research in global Electronics and Communication Engineering domain.

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PSO3: Work on various platforms as an individual/ team member to develop useful and safe Circuits, PCB, Power Management Systems and Automation for the society and nation

FACULTIES



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MR. SHIVARAJ A
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SENIOR INSTRUCTOR



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Mrs. MANJULA
SDC

FROM HOD'S DESK



Dr. K. Chandrasekhar
Professor & Head
Department of Electronics and
Communication Engineering

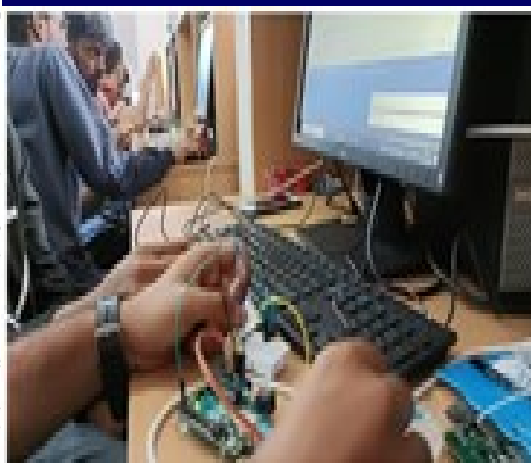
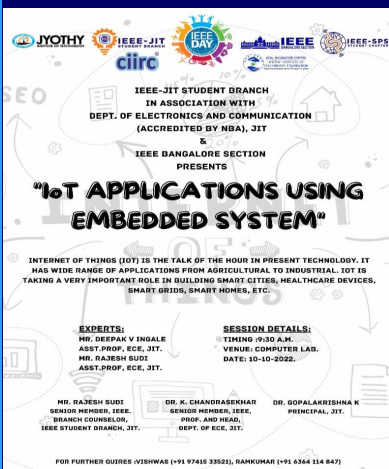
The Department of Electronics and Communications Engineering (ECE) continuously strives to keep exemplary academic record. The highly motivated Faculty of the department emphasize to prepare the students to be ready to take on the multicultural global work environment. The co-curricular activities are designed in this direction to make the students to be industry ready.

Regular student development programmes are conducted with hands on workshops to minimize the curriculum-industry gap. The Department is continuously engaged in creating a welcome atmosphere for reception and encouragement of innovative ideas. Students are encouraged to take up individual/team-based innovative projects. The motto of the department is to continuously strive to create exceptional entrepreneurs and better human beings, who would take their education and attitude they gained in the institution a long way in creating a better society.

WORKSHOPS

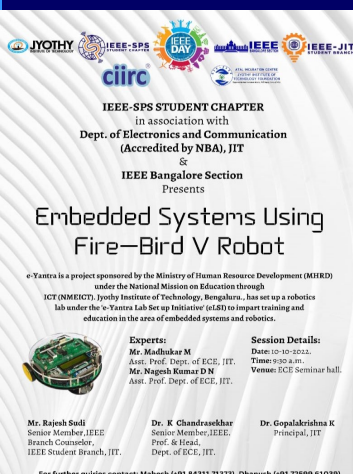
IoT Applications Using Embedded Systems

The department of E&C had conducted a 5 day hands on workshop on IoT Applications Using Embedded Systems in association with IEEE JIIT Student Branch. The Workshop was conducted for the pre final year students from 10 Oct – 14 Oct and from 17 Oct - 21 Oct in two batches. Resource person to deliver the workshop was Mr. Deepak V Ingale, Mr. Rajesh Sudi, Mr. Keshava, Gowtham and Mr. Goutham C. It started with interfacing sensors to Arduino UNO and continued with connecting ESP8266 to cloud using think speak. The interfacing to mobile API and developing the package was also demonstrated.



Embedded Systems Using Firebird V Robot

The Department of ECE had conducted a 5-day hands on workshop on Embedded Systems using Firebird V robot in association with IEEE JIIT Student Branch. The Workshop was conducted for the pre final year students from 10 Oct – 14 Oct and from 17 Oct- 21 Oct in two batches. Mr. Madhukar M and Mr. Nagesh Kumar from Department of Electronics and Communication Engineering was the Resource persons to deliver the workshop, which had a uniform blend of theory as well as hands on. It includes interfacing sensors to firebird V robot which includes IR, Ultrasonic, White line follower, and object detection sensors and motor drivers.



Hands on Experience on PCB Design and Production

The department of Electronics and Communication Engineering in association with IEEE JIIT Student Branch had conducted a one day workshop on Hands on Experience in PCB Design & Production. The Workshop was conducted for faculty members and technical staff of department on 18th November 2022. Mr. Vasudev V Kale, Head, Phenix Electronics was the Resource person to deliver the workshop. Printed Circuit Board are essential part of a electronic connections to generate a mechanical support as well. PCB Designing is more of an art then just science with lots of scope for designer. This hands on training provided different aspects of PCB design and production.



VLSI Design Verification

The department of E&C had conducted a 2 day workshop on VLSI Design Verification in association with IEEE JIIT Student Branch. The Workshop was conducted for final year students from 29 Oct – 30 Oct . Resource person to deliver the workshop was Mr. Someshekar Y, MTS Silicon Design Engineer, Advance Micro Devices. As lack of fundamentals in advanced digital design, Analog design and Verilog for design & verification is a major deterrent for students in finding right career opportunities. This workshop ensures that students are empowered with all the essential skill set required for various job roles in VLSI front end domain.



EVENTS

IEEE Day

IEEE Day was celebrated on 13 October 2022 by Department of Electronics and Communications Engineering. The event was inaugurated by the chief guest Retired commander B Chandrasekaran, Dr. K Gopala Krishna, Principal, JIT & Dr. K Chandrasekhar, HOD, Dept. of ECE along with department staff and students. After that he spoke about “Out of the box thinking”. Various other activities were conducted as part of this events, which includes Circuit debugging coopetition, Family Feud, Mini Cricket, Treasure hunt and Badminton.



Winners

- Circuit debugging coopetition: 1st Prize: Aditya S (5th Sem ECE), Rakshitha C (7th Sem ECE), 2nd Prize: Prasanna Vadiraj P (5th sem ECE) ,Shreesha S (5th sem ECE).
- Treasure Hunt: Dhanyashree, Keerthana, Jahnvi, Sahana (5th sem ECE)
- Badminton: 1st Prize: Deepanshu Nanjappa (3rd Sem CSE), 2nd Prize: Namrath K N (3rd Sem CSE)



Government School Adopted and Conducted Science Model Demonstration

Dept. of Electronics and Communications Engineering with IEEE JIT Student Branch sponsored the "School Renovation and Science Model Demonstration" event from 16 September to 1st December 2022 at Government Primary and High School, Agara under the guidance of Principal, Dr. K Gopala Krishna, HOD, Dr. K Chandrasekhar, branch counsellor Mr. Rajesh Sudi and event coordinator Dr. Ajjiah H.B.M. The event started with analysing the problems faced by the students. As a part of this event The school's exterior walls and the gate were painted and the plumbing work on the tap was done. Then To give the students a conceptual knowledge of the subjects, 3D science models were constructed by our students and explained it school students. A workshop for school teacher were also held.



NIVISTA

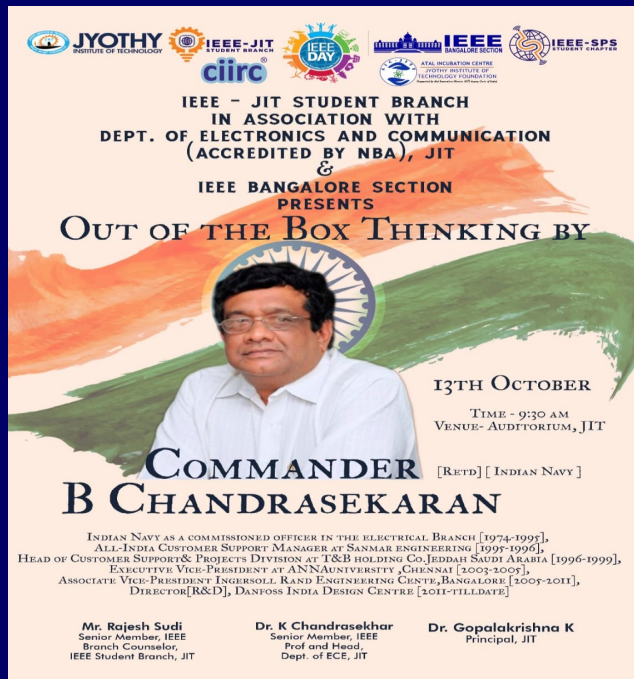
The Department threw a Fresher's Party for third semester students. One of the main purpose of this even is to welcome new students in college friendly atmosphere and to encourage their creative impulses to boost their confidence and pursue their passion. It is the day where seniors and juniors finally bond and unite to celebrate being part of the college. Fresher's party is a way to welcome new comers in a college. The Fresher's party isn't just a day for the new comers but is also important and special for the seniors.



TECHNICAL SEMINARS

OUT OF THE BOX THINKING

IEEE, JIT Student Branch organized a technical talk titled "OUT OF THE BOX THINKING" by B Chandrasekaran. He is a retired navy officer. He was honoured by the Company Sargent Major, Sargent, and two Corporals by Piloting. Mr. Chandrasekaran made sure that the session was more fun and interactive with the students and also with the faculty. He conveyed three important things to us, always think outside the box, convert our negatives into opportunities and we shouldn't just assume but should make sure we validate our answer. Mr. Chandrasekaran also explained how a missile works. The students were motivated while listening to his experience in the Navy. He also took a quick tour of the JIT NCC office.



ACHIEVEMENTS

Dhanush S, 7th sem achieved best paper award presentation in in the international conference on futuristic communication and network technology .

Sai Eshwar V R , 3rd sem Particpated at BMS UTSAV cultural fest, Performed at RangaShankara cultural fest and Performed at Indian Institute of Music gallery.

Pravalika K , 3rd sem won 1st place in Hockey South zone .

Amrutha, 5th sem is selected for One Karnataka Batallion, 1/2 COY, Bangalore A group.

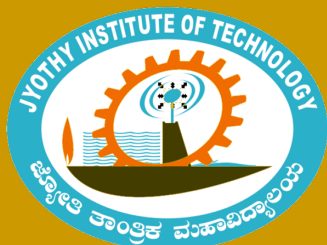
Susgma S Bharadwaj won Gold in 100m Butterfly, Silver in 200m Backstroke and 50 m backstroke, Bronze in 800 m freestyle, 200 mfreestyle and 50 m fly.

PHOTO GALLERY



Newsletter Editorial Board

- Dr. K Chandrasekhar, HOD, Dept. of ECE
- Mrs. Smita Agrawal, Asst. Professor, Dept. of ECE



JYOTHY INSTITUTE OF TECHNOLOGY ELECTRONICS & COMMUNICATION

August - December 2022 ISSUE



ECE TECHNICAL MAGAZINE

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Biodegradable Electronics



The rapid growth of technology has led to an increase in electronic waste (e-waste), which contributes to environmental pollution due to non-biodegradable materials. Biodegradable electronics, made from materials like organic polymers and silk proteins, offer a solution by naturally decomposing without harming the environment.

Key Components:

- Substrates: Paper, silk, and cellulose materials serve as the base.
- Conductors: Magnesium, zinc, and iron replace copper and silver.
- Semiconductors: Organic carbon-based molecules replace silicon.
- Dielectrics/Insulators: Silk fibroin and gelatin insulate circuits.

Advantages:

- E-Waste Reduction: Devices decompose, reducing landfill waste.
- Eco-Friendly Manufacturing: Uses non-toxic, biodegradable materials.
- Medical Use: Sensors and implants dissolve safely inside the body.
- Energy Efficiency: Require less energy to produce and operate.

Applications:

- Medical Implants: Sensors and drug delivery systems that dissolve after use.
- Environmental Sensors: Monitor pollution levels and degrade safely.
- Temporary Gadgets: Disposable health monitors.
- Smart Packaging: Sensors in packaging to track freshness.

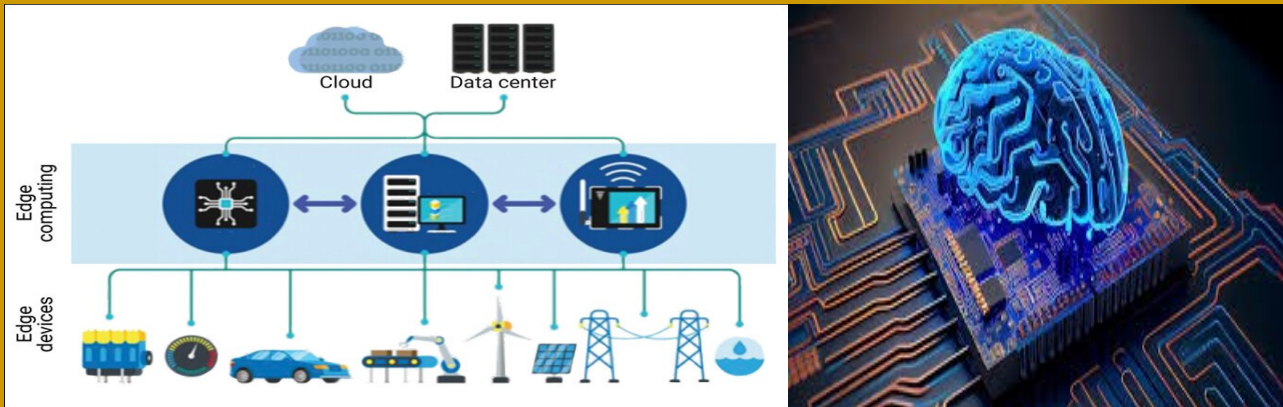
Challenges:

- Performance Limitations: Lower durability and efficiency.
- Scalability Issues: Mass production is still in early stages.

Material Stability: Ensuring controlled degradation while maintaining functionality. Biodegradable electronics provide a promising solution to e-waste. With ongoing research, they could transform industries and help create a more sustainable future.

Prajwal G S Shetty

Edge AI & Tiny ML



The rise in real-time data processing has spurred advancements in Edge AI and Tiny ML, bringing AI closer to data sources for faster, more efficient computation with lower power usage.

What is Edge AI:

Edge AI deploys AI algorithms directly on devices like smartphones and IoT sensor, enabling local data processing for faster responses and improved security.

What is Tiny ML:

Tiny ML is a subset of Edge AI that runs machine learning models on low-power microcontrollers, enabling AI tasks with minimal energy consumption, ideal for battery-powered devices.

Key Benefits of Edge AI & Tiny ML:

- Low Latency: Real-time decision-making with less cloud reliance.
- Energy Efficiency: Optimized for low-power devices.
- Enhanced Privacy: Minimizes data transmission, reducing security risks.
- Reduced Bandwidth Usage: Processes data on-device.
- Scalability: Supports broad AI deployment across industries.

Applications:

- Healthcare: Real-time monitoring via wearables.
- Smart Agriculture: AI for crop health and irrigation.
- Industrial IoT: Predictive maintenance.
- Autonomous Vehicles: Real-time decision-making.
- Smart Homes: AI-powered voice assistants and security.

Challenges & Future Trends:

Edge AI and Tiny ML face challenges like limited computing power and model optimization. However, advancements in AI models and hardware, such as neuromorphic computing and AI accelerators, promise continued growth.

Punyashree B M

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