

empowerEd

Beyond the Clock Pulse and the Code Loop, We Engineer Every Possibility. The Power of Two Streams, One Vision.



Serves as a dynamic platform to share knowledge, innovations, and updates in the rapidly evolving tech world. Its primary motive is to foster a culture of learning, collaboration, and creativity among students by showcasing projects, technical articles, and industry trends. This initiative helps bridge the gap between academic learning and real-world applications, inspiring peers to stay informed and engaged in their field.

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THE BREAKTHROUGHS



Neuralink's First Human Trial - Quadriplegic Man Controls Computer with Thoughts :

On January 28, Neuralink, a neurotechnology company founded by Elon Musk, implanted its brain-computer interface device, known as "Telepathy," into a human subject for the first time. The recipient, Noland Arbaugh, a 30-year-old quadriplegic man, underwent the procedure at the Barrow Neurological Institute performed by a surgical robot designed to implant ultra-thin threads into the brain's motor cortex. Post-surgery, Arbaugh demonstrated the ability to control a computer cursor and play video games using only his thoughts. However, approximately a month after the procedure, Neuralink reported that a significant number of the implant's threads had retracted from Arbaugh's brain, reducing the device's effectiveness. Despite this setback, software updates allowed Arbaugh to regain some functionality, and he continues to use the implant to interact with digital interfaces.

Air, Microbes, and Sunlight: The Ingredients of the Future at Solar Foods' New Facility :

On 15 April, the world's first commercial-scale factory producing sustainable high-protein food from air, microbes and solar energy, Solein, launched.



THE BREAKTHROUGHS

Japan's SLIM Mission Lands on Moon, Showcasing Unprecedented Landing Accuracy :

Japan's SLIM mission successfully landed on the Moon on January 20, making Japan the fifth country to achieve a soft landing on the lunar surface. The other countries that have achieved soft landings on the Moon are the United States, the former Soviet Union, China, and India. The SLIM mission, nicknamed "Moon Sniper," is designed for precise landings and aims to investigate the Moon's origin.



Historic Transplant: Human Receives Genetically Edited Pig Kidney in Pioneering Procedure :

On March 16, Massachusetts General Hospital performed the world's first successful transplant of a genetically engineered pig kidney into a living human. The recipient was 62-year-old Richard "Rick" Slayman, who was suffering from end-stage kidney disease. The surgery, which was a four-hour procedure, was a significant step forward in the field of xenotransplantation. The pig kidney used in the transplant was genetically edited by the biotech company eGenesis to enhance compatibility with the human immune system. This involved removing harmful pig genes, adding human genes, and inactivating porcine endogenous retroviruses to reduce the risk of infection

THE BREAKTHROUGHS



Its's name is Gemini :

On 8 February, Google renames AI chatbot Bard to Gemini, and makes it available on mobile.



End of Silicon Era? Georgia Tech Unveils High-Speed Graphene-Based Semiconductor :

On 3 January, researchers have developed the world's first functional semiconductor made from graphene. This breakthrough, achieved by a team at the Georgia Institute of Technology, could revolutionize electronics by offering a potential alternative to silicon, which is reaching its limits for faster and smaller devices. Graphene, a single layer of carbon atoms, is known for its exceptional strength, flexibility, and high conductivity. It's been considered a potential replacement for silicon in electronics due to its potential for faster and more energy-efficient devices. A key hurdle in graphene electronics was the lack of a "band gap," a crucial property that allows semiconductors to switch on and off. Researchers addressed this by growing high-quality graphene on silicon carbide wafers, a technique called epitaxial growth. This process created epitaxial graphene that formed a chemical bond with the silicon carbide, resulting in a semiconducting material. The resulting graphene semiconductor has 10 times the mobility of silicon, meaning electrons can move much more easily through it. This translates to faster computing speeds and potentially lower energy consumption.



AlphaFold 3 Released: AI Model Predicts Structures of Proteins, DNA, RNA, and More :

On 8 May, Google introduced AlphaFold 3, a new AI model for accurately predicting the structure of proteins, DNA, RNA, ligands and more, and how they interact.

DO YOU KNOW ?

A plastic bag was discovered at the Mariana Trench, the ocean's deepest point, emphasizing the far-reaching impact of human pollution.

BYTES

Blockchain Unveiled: The Digital Ledger Transforming Our World



Beyond Bitcoin, Blockchain's Broader Applications :

While blockchain technology was initially developed to support cryptocurrencies, its applications have expanded into various sectors:

- Supply Chain Management
- Healthcare
- Finance
- Provides tamper-proof platforms for secure and transparent elections.
- Digital Data: Empowers individuals with control over their personal data.

Understanding blockchain empowers individuals to make educated choices in finance, technology, and beyond. Also allows for active involvement in shaping future technological advancements. As blockchain technology continues to evolve and integrate into various aspects of our lives, staying informed about it is crucial for both personal and professional growth.

What Is Blockchain?

Blockchain is a decentralized digital ledger that records transactions across a network of computers, ensuring transparency, security, and immutability. Each "block" contains a set of data, and these blocks are chronologically linked to form a "chain." This structure makes it nearly impossible to alter previous records without consensus from the network, thereby enhancing trust among participants.

How Blockchain Powers Cryptocurrency ?

Cryptocurrencies utilize blockchain technology to operate without the need for a central authority, such as a bank or government. Here's how blockchain underpins cryptocurrencies:

- Allows cryptocurrencies to operate on a peer-to-peer network, eliminating the need for intermediaries.
- Transactions are secured through cryptographic techniques.
- All transactions are recorded on a public ledger, allowing anyone to verify and audit them.
- Once a transaction is added to the blockchain, it cannot be altered or deleted, ensuring the integrity of the data.

SHAPING THE FUTURE

Our Journey as Innovators at IIT Palakkad

One of the most remarkable milestones in our journey has been the development of the **Innovative Smart Safety Shoe** with Integrated Technology, a groundbreaking project that secured recognition at the prestigious **KSCSTE Tech Fest 2024**, held at IIT Palakkad. This project was born out of a simple yet powerful vision—to integrate smart technology into everyday wear for enhanced safety. The shoe is designed with advanced sensor-based hazard detection, alerting users in real-time about environmental dangers such as uneven terrain, obstacles, or hazardous conditions. The core technology leverages IoT-enabled connectivity, allowing users to receive notifications directly on their devices, while built-in machine learning algorithms continuously refine the system's ability to predict risks. Developing this innovation was an intense process, involving rigorous research, prototyping, and testing. The recognition at IIT Palakkad was a testament to the relevance of our work and the impact that such technology can have on safety in various industries, including construction, healthcare, and personal mobility.

Beyond our projects, we thrive in ideathons and tech challenges, where we get the opportunity to push our creative limits, experiment with emerging technologies, and collaborate with visionary minds. Participating in events at IIT Palakkad has provided an extraordinary platform to connect with industry leaders, gain insights into the latest technological advancements, and refine our skills through high-pressure problem-solving scenarios. Each competition has reinforced our belief that engineering is not just about technical knowledge—it's about the ability to think critically, innovate beyond conventional methods, and apply technology in ways that truly make a difference. The interactions with mentors, judges, and fellow competitors have offered invaluable lessons in entrepreneurship, product design, and scalability, preparing us for bigger challenges ahead.

~ U GOPIKA DAS



KETCON'24

The KTU TechFest and Kerala Technology Congress (KETCON) 2024, held from February 16 to 18 at Ahalia School of Engineering and Technology in Palakkad, served as APJ Abdul Kalam Technological University's flagship annual event. This three-day fest brought together over 5,000 students, researchers, and innovators from across Kerala, fostering a vibrant platform for showcasing technological advancements and collaborative learning.

The event was inaugurated by Higher Education Minister Dr. R. Bindu, with University Vice Chancellor Dr. Saji Gopinath presiding over the ceremony. The fest featured a diverse array of activities, including project expos, ideathons, hackathons, technical workshops, paper presentations, and a competitive quiz competition. These events were centered around the theme of "Sustainable and Green Technologies," encouraging participants to explore innovative solutions for environmental challenges.

A notable highlight was the distribution of the "KTU Researcher of the Year" awards, recognizing outstanding contributions in research. The fest concluded with a valedictory function inaugurated by Minister for Electricity K. Krishnankutty, who emphasized the importance of practical knowledge and skill development in engineering education. Overall, KTU TechFest and KETCON 2024 served as a dynamic platform for fostering innovation, collaboration, and the exchange of ideas among the state's burgeoning technical community.

DO YOU KNOW ?

Washington State University scientists have developed two insect-like robots, the mini-bug and water strider, which are considered as the smallest, lightest, and fastest fully-functional micro-robots ever created. The mini-bug weighs 8 milligrams and moves at a speed of about 6 millimeters per second, while the water strider weighs 55 milligrams and also moves at 6 millimeters per second.

ESCAPADE'24

YAVANIKA'24

SAHITHYA'24

- 400m Race : 1st & 3rd
- Badminton : 1st Prize
- Carroms : 1st Prize
- Star Dance : 1st Prize
- Face Painting : 2nd Prize
- Group Gala : 3rd Prize
- Malayalam Story Writing : 1st Prize
- English Essay Writing : 2nd Prize
- Malayalam Essay Writing : 3rd Prize

S3 Toppers



Anudhyana A S
Sgpa : 8.82



Gopika M Sharma
Sgpa : 8.77



Devi Krishna S
Sgpa : 8.73



B R Kavya Prabhakar
Sgpa : 8.64



Neshwa Fathima K
Sgpa : 8.59

ABOUT US

We are the first batch of the newly introduced Electronics and Computer Engineering course at LBSITW, launched in the year 2022, with Electronics and communication Engineering as our parent department. Our class comprises 49 students, and according to the result analysis of the S3 examinations, we have achieved an overall pass percentage of 67.35%.

Class Representatives : Drishya N, Nivedya G S

Staff Advisors : Dr. Reena M Roy, Dr. Deepambika



BEYOND THE ORBIT



Successfull Launch Of WESAT

WESAT (Women Engineered SATellite) payload was successfully **launched on January 1, 2024, at 9:10 AM IST, UTC +5:30, with India's 60th PSLV mission PSLV-C58** from Satish Dhawan Space Centre (SDSC), Sriharikota. WESAT has successfully completed 500 orbits. WESAT payload is crafted to measure the intensity of Ultraviolet Radiations and Solar Irradiance in Space, tracing the PSLV Orbital Experiment Module (POEM) trajectory 350 Kilometres above sea level. UV Index (UVI) can be derived from this, which can be compared with the corresponding UV Index at earth's surface which will provide important clues for the climate changes and global warming phenomena. Normally, UV radiation intensity data are obtained from the multispectral satellite metadata (spectroradiometers) which are used in meteorological satellites such as MODIS, TEMIS, and NOAA; but with the launch of WESAT, exclusive point source data is received for UV Radiation intensity.

The Role of Ground Stations

To understand the variation of UV intensity in space with respect to earth's surface, an intact ground monitoring station is set up at our campus, which has been continuously recording UV radiations, solar irradiance, temperature and humidity in real-time for the past 4 months. A dedicated website <https://wesat.in/> has been developed and interfaced with the ground monitoring station to display the parameters in real-time on a daily basis. Since the geographical location of Kerala lies in the tropical zone, it always experiences high UVI during the summertime. The maximum instantaneous UVI reported at the Ground Monitoring Station at LBS Institute of Technology for Women (LBSITW), Trivandrum, Kerala, India is 11 which extreme according to the exposure category. This high value of the index was obtained due to the sudden high solar radiation just after the rain.

(contd...)

Importance of Measuring UV Radiation

Measuring UV radiation both in Earth's atmosphere and space is crucial for multiple reasons. UV data contributes to the study of climate change, aids in the protection of human health, and is invaluable for exploring celestial objects. The insights gained from UV measurements provide a wealth of information for researchers and decision-makers.

Measuring UV Radiation and Solar Intensity

WESAT collected data through a specially designed payload in Space above 350Km in circular orbit of 9.6 degree inclination from the earth's surface and a monitoring station on Earth. The payload is equipped with UV sensors and solar intensity sensors, allowing for the comparison of UV radiation measurements in space with those on the Earth's surface.



The WESAT mission was born out of a collective passion for space exploration and the allure of a women-only space endeavor. The team was captivated by the potential of contributing to space research and understanding the impact of UV radiation. The mission's goal aligned perfectly with the desire to make a positive difference in society and set a unique milestone in the field of aerospace engineering. This ambitious project, led by an all-female team of engineers, has demonstrated the remarkable capabilities of women in aerospace engineering. Beyond the technical achievements, WESAT's commitment to education and empowerment serves as a source of inspiration for women and girls around the world. Through dedication, collaboration, and innovation, WESAT is shedding light on the impact of UV radiation and changing the narrative in space exploration.

~ WESAT CORE TEAM

YOUR NEW FAVORITE BRAIN IN A BOX-CHATGPT

~ ADITHYA RAMESH

Imagine a chatbot that cracks jokes, helps with, and even critiques your midnight poetry, meet ChatGPT. This one-page scoop dives into the coolest turns in its evolution, sprinkles in fun facts, and hooks you with questions you'll actually want to answer. Let's roll!

Whirlwind Evolution

GPT-1 to GPT-2 (2018–2019):

Remember GPT-1? Neither do most people, it quietly launched in 2018, a 117-million-parameter model that could mimic human-style text. By early 2019, GPT-2 exploded onto the scene with 1.5 billion parameters—supercharging fluency and coherence in writing tasks.

InstructGPT and ChatGPT Launch (2022):

January 2022 saw InstructGPT fine-tuned on human feedback for safer, more accurate answers. But true fame hit when ChatGPT (GPT-3.5) dropped on November 30, 2022, OpenAI unveiled ChatGPT as a free research preview—and it went viral overnight.

GPT-4 and Multimodal Power (March–May 2023):

In March 2023, GPT-4 debuted with major jumps in logic, creativity, and multilingual prowess. By May 2024, OpenAI rolled out GPT-4o (“omni”)—capable of text, image, and audio understanding—with free access limits lifted for Plus users

By mid-2024, ChatGPT's toolkit included advanced code editors, canvas for freehand sketches, and specialized “agents” that can automate tasks on your desktop. As OpenAI fine-tunes GPT-4.1 and beyond, expect deeper understanding, fewer hallucinations, and even more ways to plug AI into daily workflows. Whether you're crafting your first article or building the next AI startup, there's never been a cooler time to dive in.

Why Everyone's Buzzing About ChatGPT

Whether you're a techie or just curious, ChatGPT's superpowers shine:

Use Case Category	What It Does	Real-World SparkNotes
Content Creation	Drafts blog posts, social-media captions, even poems—instantly.	Bloggers generate outlines in seconds.
Education & Tutoring	Explains tough concepts, solves math problems step-by-step, and quizzes you on vocabulary.	Students ace exams with custom practice quizzes.
Coding & Dev Help	Autocompletes code, debugs errors, even spins up helper functions on demand.	Dev teams integrate ChatGPT API for instant code review.
Visual Analysis	Reads and describes charts, diagrams, and images you upload—making complex data digestible.	Marketers upload sales graphs for instant insights.
Language Translation	Converts text across 60+ languages with nuance and context awareness.	Global teams collaborate without language barriers.

UNBOXED IDEAS

HERE ARE THE UNLEASHED IDEAS OF OUR CLASS THAT EXCEUTED AS IMPACTFUL COURSE PROJECTS

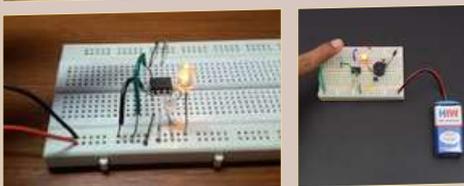
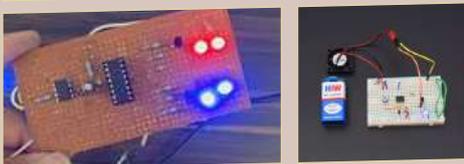
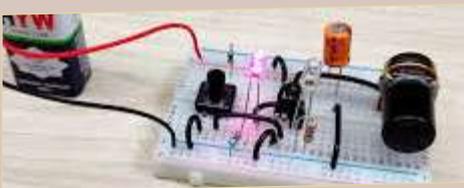
DATABASE MANAGEMENT SYSTEMS

1. **Event Management System**
2. **Hospital Management System**
3. **Student Management System**
4. **Online Shopping System**
5. **Employee Management System**
6. **Quiz Management System**
7. **Cafe Management System**
8. **Hotel Management System**
9. **Fest Management System**
10. **Library Management System**
11. **Online Banking System**
12. **Inventory Management System**



INTEGRATED CIRCUITS

1. **Touch Sensor using 555 Timer**
2. **Temperature Control System**
3. **Darkness Sensor**
4. **Police Light Flasher**
5. **Adjustable Delay Timer**
6. **Adjustable Flashig Circuit**
7. **Electronic Mosquito Repellent**
8. **Automatic Street Light**
9. **Fire Alarm**
10. **Sound Activated Circuit**
11. **Dark Activated Light Sensing Circuit**



VISION & MISSION

- **VISION OF THE INSTITUTION**

To be a centre of academic excellence empowering women in technical domain.

- **MISSION OF THE INSTITUTION**

Imparting value based technical education for transforming young women to professionals excelling globally in academics, research & development and industry meeting societal challenges.

- **VISION OF THE DEPARTMENT**

To become a centre of excellence in Electronics, Communication, Instrumentation and Computer Engineering to facilitate professional education and research keeping higher level of value systems.

- **MISSION OF THE DEPARTMENT**

M1 : To transform young women to high quality engineers, entrepreneurs and researchers with ethical values.

M2 : To contribute creative engineering solutions to industry by keeping pace with latest technological advancements.

M3 : To provide intellectual services to the society by the application of Electronics, Communication and Computer Engineering.