



BITS AND BYTES

Dept. Of Electronics & Communication Engg.



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EDITORIAL DESK

Good day, Readers!

I am delighted to present to you Volume 2 Issue 2 of the ECE Department's e-Newsletter, "Bits and Bytes." Our Department's fundamental objective is to foster passionate engineers who possess the unwavering determination to realize their dreams and aspirations. Moreover, we strive to ignite their vibrant intellects, propelling them toward resounding success in the realm of Electronics and Communication. I extend my heartfelt gratitude to our esteemed Principal, Dr. Manpreet Singh Gujral, and the Head of the Department, Dr. Davinder Singh Saini, for their invaluable support in actively encouraging student participation in this edition. I also express deep appreciation to the dedicated students and faculty members whose enthusiastic involvement and timely efforts have brought this endeavor to fruition. The tireless commitment of the student committee deserves special commendation for ensuring the resounding triumph of the e-Newsletter. Within its pages, you will find details about the department's organized FDP/Workshops, Book Chapters, journals/Conferences conducted by our esteemed faculty, Workshops attended, Sessions Chaired, Student Achievements, and Global Tech News. We eagerly await your valuable feedback on this e-newsletter, and our editorial board is thrilled to assist you in any way possible.

Wishing you Pleasant Nostalgia, and Best Wishes.
Dr. Shilpa Jindal (Editor Departmental Newsletter)

FDP/WORKSHOPS/EVENTS

ORGANISED:

1. Dr. Parvinder Kaur coordinated the astronomical Observation Event "Universe Unveiled" to observe celestial objects visible that night namely Venus and Moon on 5th April 2023.
2. Dr. Parvinder Kaur organised a talk on "G20 Awareness -2" On 26th April 2023 for the students and faculty of CCET, Degree Wing.
3. Dr. Irfan A. Khan Coordinated One Week Short Term Course on "MATLAB/SIMULINK" for engineers in association with NITTTR, Chandigarh from 8-12 May 2023. It was attended by many faculty members.

JOURNAL/CONFERENCE:

Dr. Anil Kumar Vaghmare, wrote a research paper on " Audio Source Separation by Estimating the Mixing Matrix in Underdetermined Condition using Successive Projection and Volume Minimisations" Springer, for the International Journal of Information Technology, which got published on April 2nd, 2023.

BOOK CHAPTERS:

Dr. Anil Kumar Vaghmare, contributed book chapter namely "BSS in Underdetermined Applications using modified Sparse Component Analysis": in Springer, Volume 17 (ISBN 978-3-031-31163-5) (https://doi.org/10.1007/978-3-031-31164-2_31)

INDUSTRIAL VISIT:

Dr. K.G. Sharma, Dr. Dinesh Sharma, and Dr. Shilpa Jindal, organised an Industrial Visit to Power-grid, Kurukshetra for students of 2nd Year and 3rd Year of ECE department on May 9th, 2023.

INDUSTRIAL TRAINING VISIT

Faculty members of ECE Department namely, Dr. Anil Kumar Vaghmare, Dr Dinesh Sharma, Dr. Parvinder Kaur, Dr. Shilpa Jindal, and Dr. Sarita Sharma, completed 2 week industrial training at power grid corporation, Hallomajra, Chandigarh on power grid and telecom systems from 01.06.2023 to 14.06.2023.



STUDENT ACHIEVEMENTS

2020-2024 Batch (Present 4th Year):

Ruman Sidhu (CO20550) of ECE 4th year got her book published, titled 'The Mist' on Wattpad, It's a free online platform where individuals can read and publish creative narratives and literary works.

ADOPTION OF ELECTRIC VEHICLES IN INDIA

Kritika Thakur (CO21542)

The operation of electric vehicles has been on a rise encyclopedically since 2008 and according to exploration by the International Energy Agency(IEA), the number of electric vehicles has increased to 2 million from just five thousand in 2016. It has converted the way we travel. The reason behind this exponential growth are the benefits of electric vehicles. They're terrain friendly, have low running costs, duty and fiscal benefits and low conservation costs. India needs further electric vehicles to drop its carbon footmark as pollution is a major concern. Indeed though the Indian Government has blazoned only electric vehicles by 2030 the thing still seems not impending. This composition deals with the problems that consumers and diligence face in India concerning electric vehicle operation and product. It also focuses on the government's inauguration and results for the same.

The compass of this exploration covers big companies like Tata, Mahindra and Mahindra for 4- wheelers, Piaggio vehicles for 4- wheelers and idol electric vehicles, and Ampere vehicles for 2- wheelers. The major concern from the consumer's side is the dearth of charging stations, high cost, lack of long- range vehicles and the time consumed to charge the battery using a private light- duty slow bowl. piecemeal from these, the manufacturers face numerous challenges which affect the product of electric vehicles. These include the lack of technology professed labour which is a result of lower manufacturing of microcontrollers, semiconductors and batteries. Due to this India has to calculate on importing lithium in cells. Due to its capital- ferocious nature, the product of an electric vehicle needs backing and it's delicate due to changing government programs.

The Indian government has rickshaws in the country which is a common means of transportation and also declared it as marketable transportation in 2015. For the adding use of hacks around the country, the government has given the contract of manufacturing 10,000 electric vehicles to Tata and Mahindra.

They're looking for a combination of fixed and interchangeable batteries in the future. The Indian Government has also started electric motorcars to promote the relinquishment of electric vehicles in the country. To bring down the cost of electric vehicles the National Electric Mobility Mission Plan 2020 was established. An incitement scheme named Faster Relinquishment and Manufacturing of Hybrid Vehicles was launched under this. Wireless charging styles can be used at charging stations that work on the principle of electromagnetic induction and power stations can be set up using the original force in colorful areas. To bring down the cost of manufacturing batteries need to be produced in India and battery relief should be introduced where battery costs are separated from vehicle costs.

UNLEASHING THE POWER OF THE LATEST TECHNOLOGY

Ruman Sidhu (CO20550)

In the fast-paced world of electronics and communication, the latest advancements in technology have paved the way for remarkable breakthroughs that are reshaping our lives. From the Internet of Things (IoT) to 5G networks and artificial intelligence (AI), these cutting-edge developments are unlocking new opportunities and transforming various industries.

The emergence of 5G networks has revolutionized communication. With speeds up to 100 times swifter than 4G, 5G enables instantaneous data transfer, minimal delay, and extensive connectivity. This technology is on the verge of transforming diverse industries, including autonomous vehicles, remote surgery, virtual reality, and intelligent manufacturing. The development of beyond-5G (B5G) and 6G technologies is already underway, promising even more rapid speeds, reduced latency, and universal connectivity. The world stands at the threshold of a new era of communication, where connectivity becomes seamless and empowers groundbreaking applications that were once inconceivable.

Artificial intelligence (AI) has become an integral part of modern electronics. AI algorithms are embedded in consumer electronics devices, enabling smart features and advanced functionalities. AI-powered chips and processors are enhancing energy efficiency, optimizing performance, and enabling real-time data processing in applications such as autonomous vehicles, robotics, and edge computing. From voice assistants to facial recognition systems, AI is transforming the way we interact with technology and empowering us to do more with less effort.

Among these groundbreaking developments, the rise of wearable devices and flexible electronics stands out. These technologies are revolutionizing the way we interact with our devices, opening up new possibilities for seamless integration into our daily lives.

Versatile electronics, encompassing pliable screens and portable gadgets, have garnered substantial interest in recent times. Due to progressions in materials and fabrication methods, we can now contort, rotate, and crease electronic components without compromising their functionality. Adaptable displays are reshaping the smartphone industry, enabling the inclusion of curved screens and collapsible devices that offer heightened portability and immersive user experiences. Additionally, wearable devices such as smartwatches and fitness trackers have witnessed a surge in popularity, delivering real-time health monitoring, activity tracking, and personalized notifications. The elasticity and malleability of these devices render them more comfortable to wear and seamlessly integrate into our day-to-day routines.

1. Spot the deep fakes; AI-generated images same as the real version, which is scary enough and to know what is fake, deep searches are to be made. Tech News from, Page-4, April 8, 2023.
2. Artificial throat with 99% speech accuracy developed, the throat relies on AI models to interpret captured sounds and bodily vibrations to generate vocalisations. Tech News from Electronics for you, Page-13, April 13, 2023.
3. STMicroelectronics has unveiled the world's first microcontroller(MCU) edge-AI developer cloud, the cloud opens access to an extensive suite of online development tools built around the STM32 family of MCUs. Tech News from Electronics for you, Page-20, April 13, 2023.
4. Microchip to boost SiC, and Si production capacity amid growing demand. Leading provider of control solutions Microchip Tech. is ready to expand its SiC and Si production capacity at Colorado Springs, Colo. manufacturing facility. Tech News from Electronics for you, Page-58, April 14, 2023.
5. Creators of AI issue new warnings and urge for AI risks to be a global priority. Tech News from DigWatch, May 31, 2023.
6. Nvidia is the world's newest, AI-amped tech giant. A chip technology company, became a trillion-dollar enterprise this week and the world's newest tech giant. Here are a few key facts about the little-known firm. Tech News from India Times, May 31, 2023.
7. All's not lost! AI can complement human labor rather than replacing it, feel optimists. Tech News from India Times, May 31, 2023.
8. Scientists Successfully Produce Slow Electrons in a Solution. Tech News from Sci Tech, June 18, 2023.
9. Zoom is bringing a bit of movie magic to make you look better on video calls. Tech News from Tech Radar, June 28, 2023.
10. Powerful new Chromebook tablets are coming, and they could finally bridge the gap between laptops and tablets. Tech News from Tech Radar, June 30, 2023.

Chandigarh College of Engg. & Tech.



CCET

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