

ECE MONTHLY NEWSLETTER - OCTOBER, 2023

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Monthly Newsletter - October, 2023

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Monthly Updates

The Bulletin

A Newsletter from
Electronics & Communication Engineering Department.

RESEARCH INNOVATION NEW IDEAS PLACEMENTS GOALS EVENTS WORKSHOPS

INDUSTRIAL VISIT



SCL, Chandigarh

This month, a significant industrial visit unfolded at SCL, Chandigarh, orchestrated for the eager minds of B.Tech ECE 2nd-year students. Under the adept guidance of Mr. Dheeraj Kalra, Assistant Professor, ECE, and Mr. SK Saraswat, Assistant Professor, ECE, students were immersed in an immersive learning experience.

The visit was a strategic move to expose students to the practical facets of their academic endeavors. Beyond the confines of the classroom, students delved into the industrial nuances of Electronics and Communication Engineering. The professors, acting as mentors, ensured the students gleaned insights that extended beyond textbooks, fostering a deeper understanding of industry applications.

The excursion served as a dynamic platform for students to

witness firsthand the implementation of their theoretical knowledge. By interfacing with the industrial landscape at SCL, students not only expanded their technical know-how but also cultivated a keen awareness of the industry's demands and advancements.

This initiative stands as a testament to the commitment of the academic faculty in nurturing well-rounded professionals. The impact of such experiences resonates not only in the academic realm but also in preparing students for the challenges of their future careers. This industrial visit to SCL, Chandigarh, undoubtedly left an indelible mark on the academic journey of these budding Electronics and Communication Engineers.

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TWO DAYS WORKSHOP ON INTERNET OF THINGS (IOT), FEATURING HANDS-ON SESSIONS WITH ARDUINO & ANDROID.



In a dynamic exploration of cutting-edge technology, the Department of Electronics and Communication Engineering (ECE) recently orchestrated a comprehensive two-day workshop on Internet of Things (IoT), featuring hands-on sessions with Arduino and Android. This educational endeavor, held this month, played a pivotal role in equipping all ECE students with valuable knowledge and practical skills.

The workshop received an illustrious inauguration with the esteemed presence of Prof. Vinay Kumar Deolia, Head of the Department ECE, Prof. Atul Bansal, and Dr. Aasheesh Shukla, Associate Dean of Academic Affairs. Their combined insights not only added a scholarly touch to the event but also showcased the department's commitment to fostering a

technologically adept learning environment.

Two distinguished alumni from the 2023 graduating batch, Mr. Saif Dixit, Embedded Engineer at AgVa Healthcare, and Mr. Rohit Tiwari, Graduate Engineer Trainee (GET) at Uno Minda, served as key resource persons. Under their guidance, participants delved into the intricate world of IoT, gaining firsthand experience in utilizing Arduino and Android for IoT applications.

Professors Deolia, Bansal, and Dr. Shukla not only inaugurated the session but also actively shared their insights, adding an academic perspective to the practical sessions. The workshop not only imparted technical knowledge but also served as a source of inspiration for the aspiring engineers. The success of the event is a testament to the collaborative efforts of faculty and alumni, creating an environment where theoretical concepts seamlessly blend with real-world applications. The impact of this workshop extends beyond the immediate gains, empowering ECE students to embrace the challenges of the evolving technological landscape with confidence and proficiency.

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INGESTIBLE DEVICE MONITORS PATIENT'S RESPIRATORY DEPRESSION



The sensor measures heart and breathing rates in sleep apnea patients and could monitor those at opioid overdose risk.

Diagnosing sleep disorders like sleep apnea involves an overnight stay in a sleep lab, where the patient is connected to multiple sensors and monitors.

Researchers from MIT, Celero Systems, and West Virginia University have developed an ingestible capsule, roughly the size of a multivitamin, aiming to make the diagnosis of conditions like sleep apnea less intrusive. Using an accelerometer to measure breathing and heart rates, this capsule monitors vital signs from within the patient's GI tract. Beyond diagnosing sleep apnea, it also holds the potential for detecting opioid overdoses in high-risk individuals.

Vital sign measurements:

The team has used a new capsule to measure vital signs

non-intrusively. This capsule, containing an accelerometer, batteries, and a wireless antenna, accurately measures heart and lung movements, transmitting data to external devices. It proved effective in animal tests, even detecting respiratory depression from fentanyl. In a clinical trial, ten patients were simultaneously monitored with this ingestible capsule and traditional sleep sensors, revealing the capsule's accuracy in measuring breathing and heart rates and detecting sleep apnea. The researchers noted the capsule's data matched traditional sensor outputs and comfortably passed through the patient's digestive systems without discomfort, as confirmed by radiographic imaging after 14 days.

Close monitoring:

The researchers aim to use this sensor technology as a less intrusive method for diagnosing sleep apnea compared to current skin-based sensors. Additionally, it holds the potential for monitoring patients during apnea treatment to ensure its effectiveness. Currently, Celero Systems is developing sensors capable of detecting conditions such as sleep apnea and opioid overdose, leveraging this innovative technology.

In future work, the researchers aim to integrate an overdose reversal agent like naloxone into the device. This addition would enable the device to automatically release the drug if the individual's breathing rate slows or stops. Moreover, they are focusing on methods to extend the capsules' duration in the stomach, enhancing their efficacy and application range.

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