From Chairperson's Desk

Dear esteemed members of J.C. Bose University of Science and Technology, YMCA, Faridabad, and cherished Electronics family. Greetings and a warm welcome! I am pleased to propose the latest edition of our newsletter, "स्पंdan."

As we embark on this journey, I recall a Chinese proverb: "Tell me, I will forget; Show me, I may remember; Involve me, and I will understand and learn." This philosophy resonates with our commitment to continuous learning in the Electronics Department. This newsletter captures a glimpse of our activities; much more is transpiring within our dynamic department.

We celebrate endings and embrace new beginnings; this newsletter encapsulates the spirit of our community.

This small newsletter may not do justice to everything being done in the department. But it gives a little glimpse of what is happening in the department. It serves as a testament to our collective journey.

Your feedback is valued, so please share it with our enthusiastic editorial team.

Best Wishes and Regards

Mission

- To frame a well-balanced curriculum with an emphasis on basic theoretical knowledge as well as the requirements of the industry.
- To motivate students to develop innovative solutions to the existing problems for the betterment of society.
- Collaboration with the industry, research establishments, and other academic institutions to bolster the research and development activities.

Vision

To be a Centre of Excellence for producing high-quality engineers and scientists capable of providing sustainable solutions to complex problems and promoting cost-effective indigenous technology in the area of Electronics, Communication & Control Engineering for Industry, Research Organizations, Academia, and all sections of society.

News & Events:

ACTIVITY REPORTS:

In our pursuit of academic excellence and knowledge dissemination, the Department of Electronics Engineering at J.C. Bose University of Science and Technology, YMCA, is excited to announce a series of enlightening initiatives for 2023. These endeavors are designed to empower our students, faculty, and the broader community through:

EMPOWERING TECHNICIANS: ADVANCING SKILLS IN HOME APPLIANCE TECHNOLOGY

The University's Electronics Engineering Department, in collaboration with the R&D Cell, recently conducted a two-day Training Programme for Technicians from Godrej & Boyce Mfg. Co. Ltd. Held on October 25th and 26th, 2023, at the Centre of Excellence (Godrej), the program aimed to update technicians on the latest technological advancements in home appliances. Dr. Sunil Jadav and Godrej officials coordinated the program. Master trainer Sh. Jaswinder Singh Sanotra shared theoretical and practical insights on Godrej's Home Appliances with 22 district participants. Prof. Munish Vashishath discussed fault detection and emphasized integrating advanced technologies into products. The program targeted enhancing the skills of Godrej technicians. It included participation from the electronics engineering department for broader skill upgrades.

FACULTY CRICKET MATCH: ELECTRONICS VS. COMPUTER ENGINEERING

To promote camaraderie among teachers and staff, the Departments of Electronics Engineering and Computer Engineering arranged a cricket tournament on October 14, 2023. Electronics Engineering, commanded by Dr. Vedpal and overseen by Prof. Munish Vashishath, won the toss and elected to bat first, amassing 155/5 in 15 overs. Dr. Dushyant Shukla, Sh. Kapil and Dr. Sunil Jadav gave noteworthy performances. Computer Engineering barely scored 81/7, with Prof. Komal Bhatia leading the team despite their best efforts. Electronics Engineering won the series for the third time in a row, with Dr. Dushyant Shukla named Man of the Match.

- On October 25 and 26 2023, the Electronics Engineering Department and the R&D Cell held a two-day training program Updates on home appliance improvements were the presentation's main focus, led by Godrej officials and Dr. Sunil Jadav. Master trainer Sh. Jaswinder Singh Sanotra offered wisdom, and Prof. Munish Vashishath focused on technological integration and defect detection. Upskilling Godrej technicians was the goal of the effort, which involved the electronics engineering department.

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PATH WAY TO START-UP FROM IDEA TO PRODUCT DESIGN TO MANUFACTURING

On 09 Oct 2023, an expert lecture was hosted by the Electronic Department of J. C. Bose University of Science and Technology, YMCA. The Conference Hall was excited as the faculty members, Research Scholars and Students eagerly awaited the lecture. The guest lecture was delivered by the guest of honor, Sh. Rama Kant Ji, Director and officiating CEO of Entrepreneurship Promotion and Incubation Council (EPIC) at Ambala College of Engineering and Applied Research (ACE) on the topic "Pathway to Start-Up from Idea of Product Design to Manufacturing". Chairperson of the Electronics Department, Shri Pradeep Sir, extended a green welcome to our revered guest.

In his Talk, Sh. Rama Kant Ji mentioned about the importance of entrepreneurial development. He also discussed the 7 Steps to approach as a beginner. He was followed by Mr. Manohar Lal Ji, CEO of EPIC, who introduced the audience to the incubation center in Ambala.

Alumni Interaction taught everyone the importance of skills, the market demand for different skills, and how to start, practice, and master the skill of one's own choice. Overall, the event was a huge success. The event was coordinated by Ms. Sangeeta Dhall and Ms. Nittin Sachdeva, Assistant Professor in the Department of Electronics Engineering. Around 70 students of the Electronics Department have benefited from the experts' guidance.

Research & Publications

- MD Ashif Raja, Anzar Hussain Lone, Manpreet Kaur, **Preet Kaur**, Rajinder Singh Sodhi, "Exploring Machine Learning Approaches for Predicting Brain Tumors: A Comparative Study," International Journal of Membrane Science and Technology, October 2023.
- **Archana Agarwal, Shailender Gupta and Munish Vashishath**, "Contrast Enhancement of Underwater Images Using Conditional Generative Adversarial Network," Multimedia Tools Applications, 2023
- **Nitin Sachdeva, Neetu Gupta** and Tarun Kumar Sachdeva, "Analysis of Sub-threshold Leakage Reduction Techniques for High-Speed Low Power VLSI Circuits," 14th International Conference on Computing Communication and Networking Technologies ICCCNT, Delhi, India, Pages 1-7, November 2023.
- **Pratibha Rani,** Arti M.K. and **Pradeep Kumar Dimri,** "Channel Estimation and Detection With Space-Time Transmission Scheme in Colocated Multiple-Input and Multiple-Output System," ETRI Journal, Pages 952-962, November 2023.
- **Rahul Gupta, Pradeep Kumar** and Dinesh Kumar, "Deep Neural Network Based Modelling of Chemisorption Process on Surface of Oxide Based Gas Sensors," Journal of Scientific & Industrial Research, Vol. 82, Pages 1143-1151, November 2023.
- Kuldeep Choudhary, **Sunil Jadav,** Shubham Tayal, **Preet Kaur, Lalit Rai** and Rajneesh Sharma, "Power Efficient Multiplier Using Vedic Algorithm and Self Bias Transistor Technique," International Journal of Electronics, Vol. 110, Issue 11, Pages 2085-2099, 2023.

Achievements

- Dr. Nitin Sachdeva, Dr. Neetu Gupta and Dr. Lalit Rai, along with the students' team, including Vikas kumar, Garima Dhingra, Jayant Bhatia, and Saket Jha, ENC 8th Semester, have made notable contributions to technology by publishing their "Automated Hand Gesture Recognition System" by the Patent Office of the Government of India, which marks a significant milestone in human-computer interaction. This groundbreaking system, capable of accurately recognizing hand gestures, holds immense promise for many applications, offering intuitive control and enhancing user experience. Their accomplishment is a testament to his dedication to advancing technology and pushing the boundaries of innovation. Congratulations to all on this remarkable achievement! (Published on 24/11/2023)

- Dr. Preet Kaur embarks on a cutting-edge Research and Development project titled "Design and Development of Nano Antenna Sensor System for Real-Time Analysis in Smart Agriculture" for 2023-24. With substantial funding of 40,00,000/- over three years, this project aims to revolutionize agriculture through advanced nano-antenna technology. Dr. Kaur's endeavor signifies a significant step towards sustainable and efficient farming practices, leveraging innovation to address crucial agricultural challenges. (Published on 22/12/2023)

- Dr. Prashant Kumar's latest invention, "A Lightning Protection System for Rooftop Solar PV Panels," represents a significant advancement in renewable energy infrastructure. Published on October 6, 2023, this innovative system addresses a crucial challenge rooftop solar installations face. By providing adequate protection against lightning strikes, Dr. Kumar's invention ensures the safety and longevity of solar panels, thereby enhancing the reliability and sustainability of rooftop solar energy generation. This breakthrough underscores Dr. Kumar's commitment to developing practical solutions for enhancing the performance and resilience of renewable energy systems. Congratulations to Dr. Prashant Kumar on this remarkable achievement!

Jayant Sharma, a talented fourth-year Electronics Engineering student specializing in the Internet of Things (IoT), has achieved a significant milestone by securing the role of Graduate Engineer Trainee at Schneider Electric. His success underscores his exceptional technical acumen, problem-solving abilities, and dedication to his field of study. Throughout the rigorous selection process, which included technical interviews and assessment tests, Jayant demonstrated his proficiency and aptitude, showcasing his expertise in IoT technologies. His achievement reflects his individual capabilities and highlights the quality of education and training provided by his academic institution. As he embarks on this new journey with Schneider Electric, Jayant is poised to make valuable contributions to the organization and continue to excel in electronics engineering.

Chirag Tyagi, a dynamic third-year student of Electronics Engineering with a specialization in the Internet of Things (IoT), showcased his expertise and passion for innovation at the Yuvamanthan Model G20 Conference hosted by Miranda House, Delhi University. His participation and subsequent verbal mention highlight his exceptional leadership qualities, dedication to global issues, and ability to contribute meaningfully to discussions on an international platform, reflecting positively on himself and his academic institution.

Quantum computing, The next big thing?
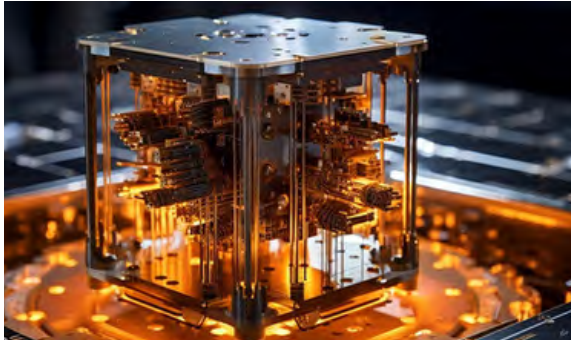
The following remarkable technology trend is quantum computing, a form of computing that takes advantage of quantum phenomena like superposition and quantum entanglement. This fantastic technology trend is also involved in preventing the coronavirus's spread and developing potential vaccines, thanks to its ability to easily query, monitor, analyze, and act on data, regardless of the source. Another field where quantum computing finds applications in banking and finance is to manage credit risk for high-frequency trading and fraud detection.

Quantum computers are now much faster than regular computers, and huge brands like Splunk, Honeywell, Microsoft, AWS, Google, and many others are now involved in innovations in Quantum Computing. The revenues for the global quantum computing market are projected to surpass $2.5 billion by 2029. To make a mark in this new trending technology, you must have experience with quantum mechanics, linear algebra, probability, information theory, and machine learning. Quantum computing is the next technology that amuses many tech-heads around the globe nowadays. Many are already trying to make it a practical and feasible experiment area. Others are already on their way to harnessing it as soon as possible as they know how drastically it would lead to increased technical research and how the tech world will go in awe seeing the impact of quantum computing. So, let's indulge in this wave of new-gen tech.

A Brief Insight into PhD Research Area

Name: Mrs. Neha Verma
Supervisor: Prof. Neelam Turk
**Co-Supervisor:. Prof. Munish Vashishath**

Topic: Autonomous Smart Farming

Work: With more than five years of experience in the field of Industrial Automation, 6 patents filed, 3 patents published and 3 copyrights received, her work in projects and proto-typing speaks for itself. Her current research is inclined toward advancements in smart farming techniques using wireless sensor networks, cognitive analysis of received data and complete automation of processes using recent embedded technologies. There is considerable potential for developing such a system for Indian farmers still practicing traditional crop growth, monitoring and health methods. Thus, they still need to catch up with the ever-increasing demand for high crop yields and organically grown crops yet meet the desired profit margins. Her research provides a one-stop solution to the farmers with ZERO- technical know-how and a Sample GIU-based Mobile app.

Academic Qualifications:
PhD [Pursuing] Design and Analysis of IoT Based Automated
 Network for Smart Farming from JCBUST (YMCA), with 8.6
CGPA in course work.

M.TECH in ECE from YMCA University, Faridabad with 8.5
CGPA with Honours (2015) B.E. in ECE from MRCE with honours
Faridabad (2009)
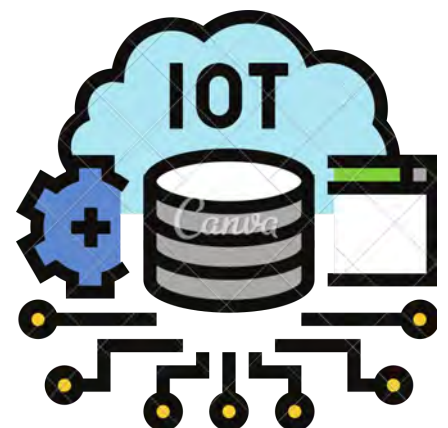
💡 INNOVATIONS

PCB Designing with Altium:

Students of Electronics Engineering under the headship of SAMARPAN the Technophilia organized a PCB DESIGNING WITH ALTIUM workshop with hands-on experience. It was an open-for-all workshop conducted on the 21st and 22nd of October, 2023. This workshop aimed to provide practical skills in designing, prototyping, and understanding the fundamentals of PCBs. Students were taught PCB basics, PCB design Software Components selection, and Footprint Prototyping and Testing. Covering these aspects helped foster a deeper understanding of electronic systems and technology.

Interfacing IOT Workshop:

Students of the Electronics Department under SAMARPAN Technophilia have organized an open-for-all workshop on the topic "Internet Of Things" on 20th August 2023. This workshop was concerned about what the Internet Of Things is and how it works, Technologies that made IOT possible, different wired and wireless communication protocols used, and some eye-catching projects, including a Biometric attendance system, RFID attendance system, home automation by a self-made web interface, etc. The audience included students from the 2nd and 3rd years.

IEEE DAY 2023:

Under the IEEE Branch, students of the Electronics Department marked IEEE Day 2023 with an impressive celebration, hosting four flagship events - PokemonxHunter, TechNerd 3.0, Canvas Chronicles, and Algo-rhythms. The event drew an enthusiastic crowd of 800-900 students and showcased the branch's commitment to technological excellence and community engagement. The resounding success of these events underscored the YMCA Student Branch's position as a vibrant hub for innovation and collaboration within the global IEEE community.

STAIR - O - BOT:

The students of the Electronics Department under Microbird- the Techno Club designed Stair-O-bot, a high precision and high-speed stair climbing robot that is not just capable of climbing the stairs with reliable velocity and precision but can also shoot at long-distance targets with perfection. Its principle, when extended to a higher level, can also be of prime importance in fields like defense and hospitality. The same bot competed at the national level in IIT Guwahati. It helped Microbird again raise the University's name high, loud, and proud.

PokemonxHunter :

""Pokemon Hunter," held in the first week of October, was a captivating and engaging experience. The event aimed to foster fun, teamwork, problem-solving skills, and technical collaboration among the participants. The "Pokemon Hunt" event emerged as a resounding success, blending adventure, problem-solving, and technical ingenuity elements. The active participation of first-year juniors, coupled with the support of seniors, created an atmosphere of camaraderie and shared accomplishment. The event celebrated the spirit of IEEE and fostered a sense of community within the University.

Nurturing Mental Health in Student Life

Navigating the intricacies of student life comes with its share of challenges, especially concerning mental health. The demands of academics, social pressures, and personal expectations can create significant stressors for students. It's imperative to foster a supportive environment that prioritizes mental well-being.

Firstly, open dialogue and destigmatization are essential. Encouraging conversations about mental health helps break down barriers and allows students to seek help without fear of judgment. Universities can provide accessible resources such as counseling services and support groups, promoting proactive approaches to mental wellness. Additionally, promoting balance is crucial. Encouraging students to maintain a healthy lifestyle with adequate sleep, nutrition, and exercise can positively impact their mental health. Ultimately, by fostering an inclusive, understanding community and promoting holistic well-being, we can empower students to thrive both academically and emotionally, laying the foundation for a healthier future.

Birthday Celebration

Teachers are those who transform human resources into human capital. They are role models and influential figures who give society the tools to grow and succeed. To facilitate and provide a token of thanks and gratitude to them,

the department celebrates the birthdays of all the faculty members, workshop staff, and supporting team.

One day in a month is dedicated to a birthday celebration for all those members whose birthdays lie in that particular month, and they all are facilitated by presenting planters and formal wishing letters to them.

स्पंDAN
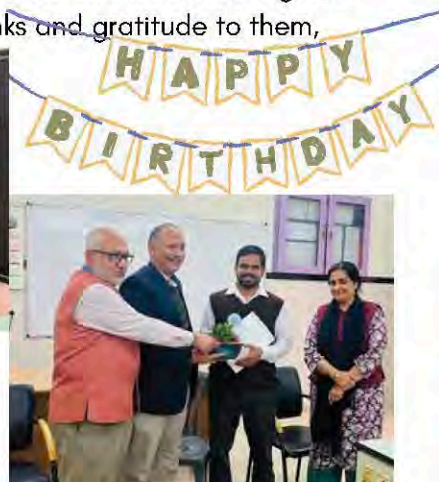
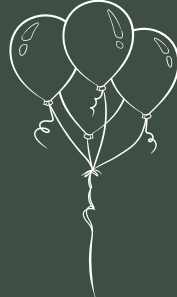## ✨ Birthdays of The Quarter ✨

Mr. Pradeep Kumar(October, 3)

Ms. Neetu Gupta(October, 8)

Ms. Rashmi Chawla(October, 9)

Ms. Neelam Turk(October, 23)

Ms. Archna Agarwal-II(October, 24)

Mr. Lalit Rai(October, 29)

Mr. Rohit Tripathi(October, 30)

Mr. Baij Nath(November, 3)

Ms. Kalpana Sheokand(November, 11)

Mr. Dushyant Shukla(December, 2)

Ms. Priyanka(December, 21)

✉ Message From Editorial Team

Creative and Intellectual impulse combined with curiosity opens the door to innovation, human expression, and personal growth. Our esteemed readers, We, the students of the Editorial Board, have a sense of Euphoria and pride in bringing some minor aspects of our Department through "स्पंdan" the official Newsletter of the Electronics Department of the J. C. Bose University of Science and Technology, YMCA.

We're sincerely grateful to Dr. Pradeep Dimri Sir, Bharat Bhushan Sir, Sangeeta Dhall Ma'am, and Nisha Yadav Ma'am for their invaluable guidance and exceptional leadership in helping us complete the task. We thank our seniors for leading us and giving us their invaluable advice on completing the task.

Kudos to our team, which worked hard. The end product was a wealth of knowledge, insights, guidance, and skills we learned. We are incredibly grateful to the Department for allowing us to express ourselves most creatively and constructively.

We hope our esteemed readers will be pleased with our work; we tried to bring in the latest advancements and breakthroughs in the tech landscape. Your feedback is invaluable to us to continue fostering a vibrant tech community.

For any suggestions and feedback, get in touch with us at: **spandan.eee@gmail.com**

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3rd sem : Amolica(ECE), Atul(ECE), Dhruv(ENC), Dev(EEIOT), Kalpika(EEIOT), Payal(EEIOT), Poonam(EEIOT), Pragya(EEIOT)