✉ From Chairperson's Desk

Dear esteemed members of J.C. Bose University of Science and Technology, YMCA, Faridabad, and cherished Electronics family.

It is my great pleasure to extend heartfelt greetings to the readers of Spandan for the issue of July-Sept 2023.

"We cannot always build the future for our youth, but we can build our youth for the future." Franklin D. Roosevelt. These words by Franklin D. Roosevelt perfectly provide the path of holistic learning in educational institutes. Examination season is here and let me wish good luck to all the students appearing in the End Semester examination. "You don't have to be great to start, but you have to start to be great."

Please feel free to send your feedback to our hardworking editorial team to improve the content.

Best wishes.

🎯 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:

The Department of Electronics Engineering at J.C. Bose University of Science and Technology, YMCA, Faridabad, has highlighted the academic discourse with four Ph.D. Pre-submission seminars were scheduled for July 2023.

- Ph.D. Pre-submission seminar on the title "Design and Fabrication of Low Cost Printed Sensors using 2D Materials" by Mr. Amir Mansoori (Regn. No. 17-YMCA-904001) (Roll No 17001904001) was held on 19.07.2023 at 11:00 AM in the offline mode in the Conference Room of the Department. His work was on printed sensors and electronic devices on a low-cost substrate like coated paper, plastics, and textiles using 2D materials and their nanocomposites as ink. He explored the transduction properties of nano-coating on the substrates by fabricating the cantilevers with printed patterns for applications like humidity sensing, force sensing, and many others. His supervisors are Prof. Munish Vashishath, Prof. Shamim Ahmad and Dr. Sonia.
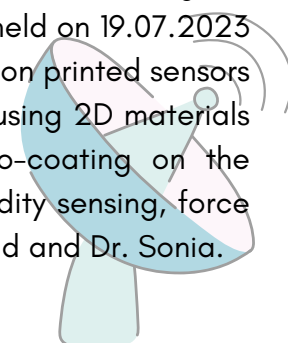
- Mr. Lalit Kumar (Regn. No. 15-YMCAU-657) presented his work on the "Performance Analysis of Wireless System For IoT Applications" on 28.07.2023 at 09:30 AM. His research is based on designing a hybrid optimization model for improving the wireless system's routing path, security, packet delivery ratio, throughput, and energy. He also has worked on different technologies like BLE, Wi-Fi, Image Processing, Signal Processing, Cloud, and Smart Sensors. His supervisor is Prof. Pradeep Kumar Dimri.

- Ms. Savita Lohat (Regn. No. 17-YMCA-904006) defended her findings on "Performance Analysis of Fog Computing in IoT" on the same day at 02:00 PM. Her work focused on selecting fog nodes to maximize coverage and considering static and random vehicles to reduce computational time. The research work includes reliably broadcasting the service message information to the intended recipient in the IoV network with the help of relay vehicles using some optimization techniques. Her supervisors are Dr. Sheilza Jain and Dr. Rajinder Kumar.

- Mr. Mayank Nehra, scholar (Regn. No. 17-YMCA-904003), delved into the intricacies of "Analysis and Deployment of Solar Photovoltaic System for Sustainability" at 03:30 PM. His research was to estimate and analyze the potential of various renewable sources in Haryana. Solar photovoltaic energy has massive potential in Haryana among the available renewable energy sources. He has addressed many questions in his research, such as, What are the issues and barriers to its deployment and respective applications? How can green energy ease the lives of rural people? How the irregular and low-voltage power supply problem can be addressed? How can a framework be developed for the deployment of solar photovoltaic systems? His supervisor is Dr. Sheilza Jain.

- Ms. Sangeeta Dhall, a dedicated Ph.D. scholar with registration number 17-YMCA-904010, was set to defend her thesis on "Analysis and Design of a Multilevel Security Mechanism for Data Communication Networks." The final Ph.D. viva voice was scheduled for July 28, 2023, at 11:00 am in the Conference Hall of the Electronics Engineering Department, conducted offline. Her research endeavors were marked by rigorous investigation and innovative solutions, earning her peers and mentors accolades. Her thesis delved into the intricate realms of data security, promising to contribute significantly to network communication. His supervisor is Dr. Shailender Gupta.

🔍 Research & Publications

- Sandeep Rangi, Sheilza Jain and Yogendra Arya, "SSA-Optimized Cascade Optimal-PIDN Controller for Multi-Area Power System with RFB Under Deregulated Environment," Optimal Control Applications and Methods, Vol. 44, Issue 4, Pages 1972-1994, July 2023.

- Kalyanee Devi and Rohit Tripathi, "Identification of Best Social Media Influencers Using ICIRS Model" Computing, Vol. 105, Issue 7, Pages 1547-1569, July 2023.

- Lalit Kumar and Pradeep Kumar, "BITA-Based Secure and Energy-Efficient Multi-Hop Routing in IoT-WSN," Cybernetics and Systems, Vol. 54, Issue 6, Pages 809-835, August 2023.

- Anisha Nagpal, Munish Sabharwal, and Rohit Tripathi, "A Hybrid Feature Selection Approach for Urinary Tract Infection Detection and Prediction in IoT-Fog Environment," International Journal of Computing and Digital Systems, Vol. 14, August 2023.

- Lalit Kumar and Pradeep Kumar, "Home Appliances Automation Using IPv6 Transmission Over BLE Check for updates ," ICT with Intelligent Applications, ICTIS, Vol. 1, September 2023.

- Anjali Malik, Sunil Jadav and Shailender Gupta, "A Multilevel Qubit Encryption Mechanism Using SHA–512", Multimedia Tools Applications, 2023.

- Nisha Yadav, Sunil Jadav and Gaurav Saini, "A Review on Role of Epitaxial Engineering in Improving the Drive Current and Subthreshold Swing in Area Scaled Tunnel FETs," International Conference on Computer, Electronics & Electrical Engineering & their Applications (IC2E3), Srinagar Garhwal, India, Pages 1–5, September 2023.

⊛ Achievements

- We are thrilled to announce that Dr. Preet Kaur, a dedicated member of our department, has been granted a patent by the Government of India for her innovative Smart Dustbin design. This groundbreaking invention integrates advanced sensors and wireless connectivity, revolutionizing waste management with real-time monitoring and data analytics capabilities. Dr. Kaur's achievement exemplifies our department's commitment to fostering innovation and addressing pressing environmental challenges. We congratulate Dr. Kaur on this well-deserved recognition and look forward to the positive impact her invention will have on waste management practices (02-06-2023).

- Dr. Prashant Kumar, an esteemed researcher, has recently made significant breakthroughs in the Internet of Things (IoT) with two groundbreaking inventions. The first innovation, titled "Real-Time Monitoring of Water Quality and Feeding Device for Fisheries," addresses critical concerns in the aquaculture industry. By integrating IoT technology, Dr. Kumar has developed a system capable of continuously monitoring water quality parameters and automating feeding processes. This invention ensures optimal conditions for aquatic life and streamlines operational efficiency in fisheries management. (30/06/2023). In his second invention, "IoT-Based Real-Time Monitoring of Dust Deposition on BIPV System and Cleaning Device," Dr. Kumar tackles challenges faced by Building-Integrated Photovoltaic (BIPV) systems. This system provides real-time monitoring of dust deposition levels on BIPV panels through IoT sensors and automatically initiates cleaning processes when necessary. By maintaining the peak efficiency of BIPV systems, this invention contributes to sustainable energy practices and infrastructure maintenance. (16/06/2023)

Smart Bin- An "Internet of Things" Approach to Clean and safe Public Space

Both inventions underscore Dr. Kumar's dedication to leveraging IoT technology for environmental monitoring and management. With these groundbreaking solutions, he addresses pressing challenges in fisheries and renewable energy sectors and paves the way for more innovative, sustainable practices in various industries. Congratulations to Dr. Prashant Kumar on these remarkable achievements!

- We are thrilled to announce that Dr. Kalpana Sheokand has been awarded a prestigious SEED Grant of 2,00,000/- for her pioneering work in Organic Green Fodder Creation in Agriculture by the Director of Research and Development at JCBUST, YMCA, Faridabad, Haryana. This grant, awarded on August 21, 2023, acknowledges her dedication and innovation in advancing sustainable agricultural practices. Her research focuses on developing organic methods for producing nutritious green fodder, which is crucial for livestock nutrition and farm sustainability. With this grant, she aims to further her research efforts, contributing to the promotion of eco-friendly and sustainable agriculture practices.

- Prof. Neelam Turk, renowned for her interdisciplinary prowess, has been appointed Chairperson of the Center for Energy Studies, alongside her role as Dean of the Faculty of Interdisciplinary Studies & Research. This dual appointment signifies a strategic move towards advancing sustainable energy practices and fostering interdisciplinary collaboration. Prof. Turk's leadership promises to drive transformative research initiatives at the intersection of various fields, propelling us toward a more sustainable energy future. Congratulations to Prof. Turk on this pivotal appointment, marking a significant step forward in our institution's commitment to energy sustainability. (10/07/2023)

We extend heartfelt congratulations to all deserving individuals on their well-deserved achievements, recognizing the culmination of their hard work and resilience. Their dedication exemplifies the pursuit of excellence, and we eagerly anticipate the impactful outcomes that will stem from their scholarly endeavors. May their achievements inspire and pave the way for future advancements, enriching their respective fields and benefiting society as a whole.

Can AI Take Over Jobs?

Humans have an ever-changing tendency; not only can we change ourselves, but we also have the power to invent technologies to transform our lives. One such invention that has caused a massive change in our lives is Artificial Intelligence(AI). The tide of artificial intelligence (AI) in the workplace is rising, as is speculation over how it will affect the future of the workforce across the business world. To pass a judgment on whether AI can take over jobs or not, one would never need more time to analyze the situation and observe the technical progress made in this domain. The benefit of AI is that, unlike humans, it stays energized and can work nonstop with consistent quality and a better pace. This insinuates that AI can do beginner-level regular tasks. However, the disadvantage is that AI can't outsmart humans or have any emotions.

However, one can classify the current jobs that might undergo specific changes as the use of AI increases. According to PwC, 30% of jobs will be automated by 2030. Jobs such as customer service executives, proofreading, data entry, bookkeeping, etc, are expected to have a higher risk of replacement by AI. On the other hand, roles such as surgeons, nurses, therapists, chefs, and teachers are considered safe. New jobs that bridge the gap between humans and AI will be born, such as AI trainers, programmers and Data storytellers who can interpret data and communicate between the two.

AI will definitely impact the market, but it is in our hands to address this change. We can create a future that maximizes the benefits of AI while protecting our interests.

"Human creativity and ingenuity are the driving forces behind innovation, empathy, and adaptability, qualities that surpass the capabilities of even the most advanced artificial intelligence."
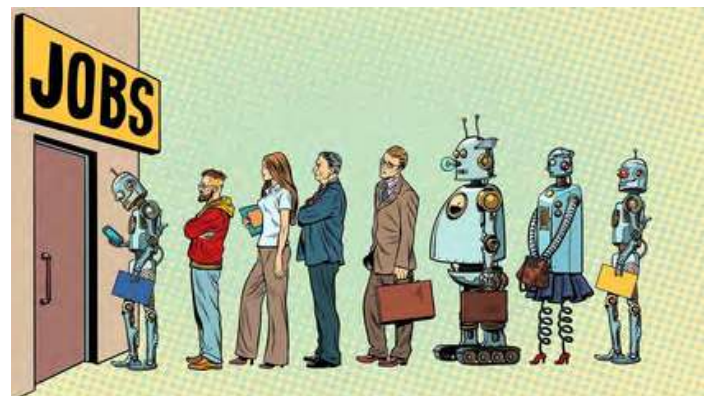
💡 INNOVATIONS

ROBO SOCCER:

Students of the Electronics Department under SAMARPAN Technophilia did a project for the famous robotics competition named "ROBO SOCCER." In Robo Soccer, two teams, having two or three bots in each team, compete with each other to make the most number of goals, just as in the actual soccer game. This competition was held under "The World's Robotics Championship" in July 2023. We made three robots for this competition, one Goalkeeper and two fielders. The robots are made to kick the ball, stop the ball from making a goal and drag the opponent robots in the arena. This is made possible by the kicker, dribbler and strong bodies of the robots.
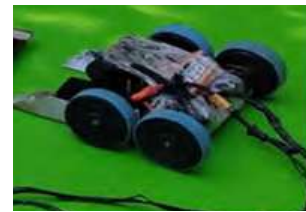
Escalade 12.0:

The students of the Electronics department under the SAMARPAN club participated in the annual robotics competition organized by IIT Guwahati named "Escalade 12.0" under their technical event "Technique." The prelims round of this event was scheduled between 18-25 July, 2023. We participated in the event to test our robotics skills significantly. We are glad to announce that we successfully cleared the preliminary round of this competition held in Delhi and participated in the main round conducted between 31st August and 3rd September in the IIT Guwahati campus. Teams from all over India and outside India are participating in this competition and we got to compete with them.

Maze Solver:

The students of the Electronics department under the IEEE YMCA SB created an Innovative Maze Solver for the Technoxian World Robotics Championship. It is designed to navigate complex mazes with precision and efficiency; this maze solver robot represents months of dedication, collaboration, and ingenuity from the IEEE YMCA SB team. With its advanced sensors and intelligent algorithms, the robot can autonomously map out intricate maze layouts and identify the optimal path to reach the destination.

PACMAN AI:

Students of the Electronics Department under the Microbird club transformed classic Pacman into a cutting-edge version using OpenCV technology. Now, Pacman's like a brainy buddy, using computer vision to play smart. The ghosts got an upgrade, too, learning tricks and making the game super attractive. It's not just a game anymore; it's a peek into how computers can be clever playmates. The students didn't just make a game; they made Pacman a genius, blending old fun with new brains.

Interfacing IoT Workshop:

The students of the Electronics department under SAMARPAN the Technophilia organized an "Interfacing IoT" workshop with hands-on experience. Aiming the workshop on the fact, "The internet is no longer a web that we connect to. Instead, it's a computerized, networked, and interconnected world that we live in. This is the future and what we call the Internet Of Things." Its aim was to provide participants with practical skills and knowledge.

👤 Body Shaming

Have you ever wondered how often we are told to change our appearances? Advertisements constantly advise us to get slimmer, taller, and get better complexion and hide all our imperfections.

Body shaming is a concept that has gathered quite a lot of public attention over the years. The fact that somebody thinks your body doesn't fit their ideal standard and that you should feel bad about it is happening worldwide — and it's not limited to one gender. Learning about body shaming may be the first step in figuring out how it can be stopped.

Body shaming is the act of making negative comments regarding someone's weight or size. People who are overweight are frequently subjected to being "too fat" and underweight people are often criticized for looking "too skinny."Body shaming can occur against any gender, and the statistics are alarming.

Although body shaming refers to a person's physical appearance, it can also have an impact on your overall well-being.

Potential mental health consequences associated with body shaming include:
• Depression
• Anxiety
• Eating disorders
• Body dysmorphic disorder
• Suicidal thoughts
• Emotional distress
• Lower self-esteem

You might not be aware of your actions or choose the right words, but you may be body-shaming other people, too. Make sure to choose the right words and be extra sensitive to others. We all need to stop body-shaming because this can cause trauma and low self-esteem in those we unknowingly body-shame.

To sum up everything that has been stated so far one must recognise the importance of body positivity. We should accept ourselves practice self-care and always be kind to ourselves.

🎂 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 them a token of thanks and gratitude, 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 shand formal wishing letters to them. This is one of the good practices followed in the department for its family members.

स्पंDAN

✉ 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**