



# NEWS LETTER

2023 ISSUE 1

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## VISION

To develop professionally competent electrical and electronic engineers having innovative skills and capabilities to work ethically in consonance with technological demands and developments of industry and society



## MISSION

As one of the first few departments to be set up in the year 1958, the Electrical and Electronics Engineering Department offers a diploma certificate for students who complete the course. The three years' course is designed to provide a broad foundation in electrical and electronics engineering and its different applications such as the generation, storage and distribution of electricity, semiconductor technology, biomedical applications, industrial automation... digital media, and computer aided drafting.

- To provide state-of-art resources that contributes to achieve excellence in teaching, learning and development.
- To mould Electrical Engineering professionals in synchronization with the dynamic industry requirement.
- To inculcate ethical education capable of fostering societal responsibilities.
- To enhance creative abilities, leadership skills and entrepreneurial spirit by facilitating interaction with industry

The students are encouraged to become practically skilled through hands-on training in the laboratories designed for the purpose. The courses are also designed to enhance practical experience by collaborating with leading industries. The laboratories designed for the purpose of training students are state of the art and facilities are upgraded frequently so that they provide the right ambience for the students to move in tandem with the latest technologies.



**ELECTRICAL AND ELECTRONICS ENGINEERING STUDENTS' ASSOCIATION**  
CENTRAL POLYTECHNIC COLLEGE, VATTIYOORKAVU



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# EEE BULLETIN

 **Neuron**™ Neuron Energy, which manufactures lithium-ion for electric 2-wheelers and 3 wheelers in India, recently said it plans to invest ₹50 crore in the Li-Ion battery pack segment.

The increase in demand for Li-Ion batteries is a testament to the fact that there is a substantial increase in demand for electric mobility owing to rising eco-consciousness among consumers. In the near future, Neuron may venture into battery research for deep technology as a result of the increase in its R&D team. As part of its expansion plans, Neuron has planned to construct a mega-plant by 2025 that will serve the EV2W and EV3W segments.

*Renewable*



**Thiruvananthapuram to be developed as solar city**

A formal agreement was signed to make the State capital a “Solar City”. Solar City’s various components include the establishing solar power stations to provide electricity at subsidized rates to domestic consumers, solar power plants to supply electricity to government offices, charging stations for electric vehicles, smart bus shelters that run on solar power, and to provide electric vehicles to all government institutions that function in the city.

*Motor*



**Sumitomo Electric develops Powder Magnetic Cores for Axial Gap Motors**

Sumitomo Electric Industries, Ltd. has developed a powder magnetic core for axial gap motors, which are advantageous for creating thin and high-performance motors (in terms of output and efficiency). Sumitomo Electric has developed a powder magnetic core that helps to realize high performance axial gap motors. Additionally, the Company has newly developed an insulation coating technology to ensure the dielectric strength between the powder magnetic core and the copper winding and has started the mass production and delivery of the insulation-coated powder magnetic core as an ideal component for axial gap motors. Compared to magnetic cores made of electrical steel sheets used in conventional radial gap motors, powder magnetic core has great flexibility in terms of shape design and superior high-frequency characteristics and has been put into practical use in various fields, such as automobile applications.

*Switch-gear*



GE Renewable Energy’s Grid Solutions business has energized a new 123 kV, 16.7 Hz HYpact switchgear for DB Energie GmbH’s 60-year-old Amstetten train station located in Lonsee between Stuttgart and Ulm in Germany. GE’s flexible digital HYpact solution can be used in several applications – from mobile (truck-mounted) substations to onshore wind substations. Basically, it helps make the unpredictability of the electrical network more predictable, while reducing the customers’ operational costs, as well as their impact on the environment.

Two-dimensional oxides open door for high-speed electronics

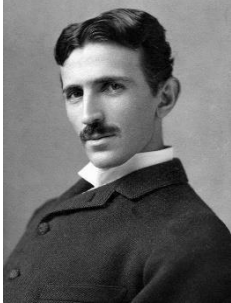
Advances in computing power over the decades have come thanks in part to our ability to make smaller and smaller transistors, a building block of electronic devices, but we are nearing the limit of the silicon materials typically used.

India marks a milestone in sustainable transport with the launch of its first hydrogen truck, a pioneering step towards cleaner energy solutions in the nation's logistics sector. This initiative signifies a significant stride in reducing carbon emissions and embracing eco-friendly technologies for a greener future.

# MEET THE SCIENTIST

## NIKOLA TESLA

"In the twenty-first century, the robot will take the place which slave labor occupied in ancient civilization." - Nikola Tesla



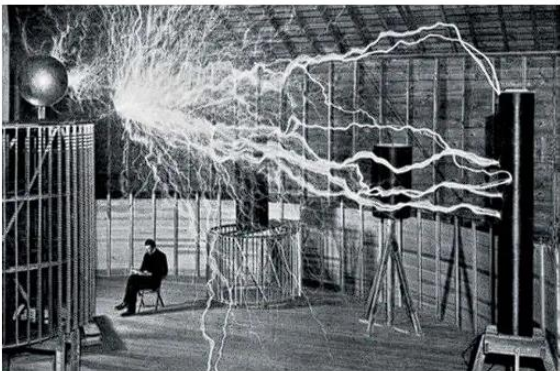
NIKOLA TESLA

**N**ikola Tesla practically invented the 20th century. He gave us alternating current, wireless radio, x-rays, radar, hydroelectric power, and transistors. But the troubled Tesla had a host of obstacles to overcome—and reinvesting all his profits into new inventions made life extraordinarily difficult on several occasions. This is the story of Nikola Tesla and how he came to be one of the most under-rated inventors of modern history.

## TESLA'S CAREER

Tesla began work on patenting his original arc lighting system and secured finance to start his own company, the Tesla Electric Light & Manufacturing. Soon, though, his private investors found the industry too competitive. They failed to see the potential in his inventions; namely alternating current (AC) motors and electrical transmission equipment. Instead they only saw value in utilities. They dropped the manufacturing arm and abandoned Tesla's company to form their own utility business. Tesla was left penniless and patent-less, for he'd signed his arc lighting patents over to the company in exchange for stock.

The following year, Tesla made a comeback. He found new private investors experienced in profiting from novel inventions. Together they formed the Tesla Electric Company where Nikola developed an AC induction motor. The AC power system was already gaining massive ground in Europe and the US for its ability to transmit high voltages across long distances. Tesla's motor used a novel principle of polyphase current, which generated a magnetic field to turn the motor.



Tesla sitting next to his magnifying transmitter



Tesla's Wardenclyffe Tower in Long Island (1902).

"Let the future tell the truth, and evaluate each one according to his work and accomplishments. The present is theirs; the future, for which I have really worked, is mine." - Nikola Tesla

"Being an honest man himself, Tesla trusted everyone he met...and almost everyone ripped him off." - **Robert Lomas** (Tesla's biographer)

"Seldom did one meet a scientist or engineer who was also a poet, a philosopher, an appreciator of fine music, a linguist, and a connoisseur of food and drink" -**Julian Hawthorne** (writer and friend of Tesla)

"[Tesla's] thoughts and efforts during at least the past 15 years were primarily of a speculative, philosophical, and somewhat promotional character often concerned with the production and wireless transmission of power; but did not include new, sound, workable principles or methods for realizing such results." - **John G Trump** (MIT Professor)

"Albert Einstein was once asked, 'How does it feel to be the smartest man alive?', he responded, 'I don't know, you'll have to ask Nikola Tesla.'"

# ACHIEVEMENTS

## PROFICIENCY IN ACADEMICS



Manu K. (2019-22)



Gokul Krishnan R. (2020-23)



Abhinav A. (2021-24)

## WINNER OF EEE LOGO MAKING COMPETITION



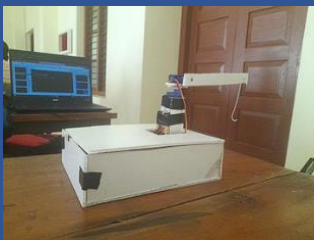
Praveen M. (S6)

## INAUGURATION OF NEW ACADEMIC BLOCK



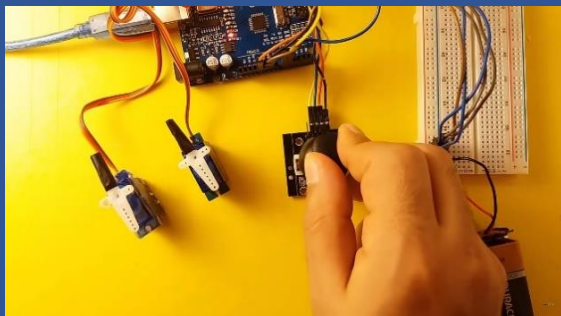
## CREATIVE SPARK

### SERVO WEIGHT LIFTER [MINOR PROJECT]



PRNAV P (S5)

The Arduino-based weight lifter, employing two servos and a joystick, epitomizes the fusion of robotics and control mechanisms. This innovative project allows users to manipulate a miniature lifting arm, replicating the motions of a real-life weight lifter. By interfacing a joystick with the Arduino microcontroller, users can intuitively control the movement of the lifting arm in multiple axes, offering a dynamic and engaging user experience. The incorporation of two servos enables precise control over both the vertical and horizontal movements of the arm, providing versatility in lifting and positioning objects. Whether for educational purposes or recreational tinkering, this project serves as a hands-on exploration of robotics, sensor integration, and real-time control systems. With the Arduino platform's accessibility and versatility, enthusiasts can delve into the realm of robotics and automation, unleashing their creativity in building interactive and functional projects like the servo-controlled weight lifter.



SERVO MOTORS CONTROLLED BY JOYSTICK