



R. C. PATEL
INSTITUTE OF TECHNOLOGY, SHRIPUR
An Autonomous Institute



ENERGY CLUB ACTIVITIES REPORT



DEPARTMENT OF ELECTRICAL ENGINEERING



ABOUT ENERGY CLUB

The Energy Club of our institute is dedicated to fostering awareness and understanding of diverse energy-related topics, ranging from renewable energy sources to sustainable practices. The club provides a vibrant platform for students to explore, discuss, and contribute to the ever-evolving field of energy through interactive events, workshops, seminars, and discussions.

Members actively collaborate on projects that promote energy conservation and advocate cleaner and greener solutions. By nurturing innovation and knowledge sharing, the club aims to inspire the next generation of leaders committed to tackling global energy challenges.

To enrich students' real-world understanding, the club regularly organizes industrial visits, expert talks, and hands-on sessions with professionals from the energy sector. Overall, the Energy Club plays a crucial role in empowering students to make a meaningful contribution toward energy efficiency and sustainability.

OBJECTIVES

Raise Awareness:

To enhance students' understanding of energy-related issues, including various energy sources, sustainability concepts, and the environmental impact of energy consumption.

Education and Knowledge Sharing:

To create a learning platform where students can exchange ideas, organize workshops, and engage with experts on emerging technologies and innovations in the energy sector.

Promote Sustainability:

To encourage the adoption of sustainable practices through energy conservation campaigns, renewable energy initiatives, and projects that minimize environmental footprints.

Facilitate Networking:

To build a strong network among students, faculty, and industry professionals, enabling collaboration and career development in energy-related domains.

Community Engagement and Projects:

To undertake community-based projects such as campus energy audits, awareness drives, and partnerships with local organizations to address real-world energy challenges.



ACTIVITY - 1

EVENT REPORT

Event: Poster Making Competition on Energy Sustainability and Green Innovations

Venue: Drawing Hall, First Floor, RCPIT

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 04 October 2025

Themes:

- Energy Sustainability
- Renewable Energy
- Green Energy

INTRODUCTION

The Energy Club of the Department of Electrical Engineering, R. C. Patel Institute of Technology, Shirpur, organized a Poster Making Competition on October 4, 2025, at 3:00 PM in the Drawing Hall.

The initiative was undertaken to provide students with a creative platform to express innovative ideas and perspectives on critical issues such as energy conservation, sustainability, and renewable energy technologies. The event also marked the re-opening of the Energy Club, reinforcing its commitment to fostering awareness, innovation, and sustainable practices among budding engineers.

The competition served as both a creative engagement and a learning activity, encouraging participants to visualize the challenges and opportunities within the energy domain through art and design.

OBJECTIVES OF THE WORKSHOP

The primary objectives of the Poster Making Competition were to:

- Enhance student awareness of global and local energy challenges.
- Encourage creative expression related to energy sustainability, conservation, and renewable technologies.
- Develop a sense of social and environmental responsibility among students.
- Foster interdisciplinary participation by involving students from different engineering branches.
- Re-launch the Energy Club as a dynamic platform for experiential learning and innovation in the energy sector.



EVENT OVERVIEW

The competition was open to all First Year and Second Year students across various engineering departments. A total of 19 participants registered for the competition, demonstrating keen interest and enthusiasm toward the event themes.

The participants were provided with basic materials, while they were free to use additional stationary and colors of their choice. They were encouraged to reflect on their understanding of renewable and green energy practices through self-designed posters.

Rules and Guidelines:

1. Only hand-made posters were accepted. Use of AI-generated or pre-designed templates was strictly prohibited.
2. Posters had to align with the given themes.
3. Any violation of the rules resulted in disqualification.
4. Each participant was given two hours (3:30 PM – 5:30 PM) to complete their artwork.

INAUGURATION AND CLUB RE-OPENING CEREMONY

The event commenced at 3:00 PM with the inauguration ceremony, which also marked the re-opening of the Energy Club.

Chief Guest: Dr. J. B. Patil, Director, RCPIT

Guest of Honour: Faculty Members of Electrical Engineering Department



Ceremony Highlights:

1. **Welcome Address:** The event began with a warm welcome by Ms. Pragati Patil, Head of the Energy Club, who introduced the event's purpose and shared the vision for future club activities.



- **Director's Address:** Dr. J. B. Patil delivered an insightful speech highlighting the urgency of energy conservation and the importance of innovation in renewable energy solutions. He commended the department's efforts and motivated students to become proactive learners and innovators.
- **Vision Presentation:** Ms. Patil also presented the Energy Club's upcoming agenda, emphasizing workshops, industrial visits, and projects promoting sustainability.
- **Official Opening:** The Director officially declared the competition open, symbolizing a fresh start for the Energy Club's activities.

The inaugural session concluded with the distribution of materials to participants, followed by the commencement of the competition.

COMPETITION EXECUTION AND FLOW

The competition was executed as per the planned schedule:

Time	Activity
3:00 – 3:30 PM	Inauguration Ceremony & Material Distribution
3:30 – 5:30 PM	Poster Making Activity
5:30 – 5:45 PM	Evaluation and Judging by the Expert Panel
5:45 – 6:00 PM	Result Declaration & Vote of Thanks

During the competition, students showcased impressive creativity, linking concepts of sustainability, eco-friendly energy sources, and environmental responsibility through visual art. Faculty members observed the process, appreciating the participants' innovative thinking and effort.

JUDGING AND EVALUATION

To ensure fair and qualitative assessment, a panel of experts was constituted from the Electrical Engineering Department.

Evaluation Panel:

- Prof. N. S. Mahajan
- Prof. A. R. Mahire



Judging Criteria:

- Relevance to the Theme
- Creativity and Originality
- Visual Appeal and Artistic Presentation
- Clarity of Message

The judges acknowledged that several entries demonstrated deep technical insight and creative representation of global energy concerns, making the evaluation process highly competitive.



RESULTS AND RECOGNITION

The results were declared at 5:45 PM by Ms. Disha Patil and Ms. Sanjana Sonawane. The winners were felicitated with certificates and appreciation from the Director.

Position	Name	Remarks
First Prize	Jayesh Rajendra Mali	Exceptional creativity and clarity of concept
Second Prize	Riya Manohar Nikam	Strong visual appeal and originality
Third Prize	1) Janhavi Padmakar Marathe 2) Krushna Patil	Joint award for impressive conceptual representation
Consolation Prize	Disha Pankaj Kirange	Notable effort and thematic relevance

OUTCOMES AND IMPACT

The competition yielded multiple academic and behavioral outcomes, such as:

- Enhanced awareness of renewable energy and sustainability among students.
- Improved interdisciplinary collaboration between students from different departments.
- Revitalization of the Energy Club, setting a foundation for future activities like workshops, expert talks, and innovation challenges.
- Encouragement of creative and critical thinking, aligning with RCPIT's vision of holistic technical education.
- Promotion of eco-consciousness and responsible citizenship among engineering students.
- The posters created during the competition were later displayed in the department corridor, serving as an educational exhibit for other students.

OUTCOMES AND IMPACT

Post-event feedback from participants and faculty members was overwhelmingly positive. Students appreciated the opportunity to blend technical understanding with creative expression. Faculty suggested organizing similar theme-based competitions and technical exhibitions under the Energy Club's banner in the future.

Judges also noted that integrating visual creativity into engineering education enhances conceptual learning and problem-solving abilities.



CONCLUSION

The Poster Making Competition on “Energy Sustainability and Green Innovations” was a resounding success, effectively combining creativity with awareness. It achieved its intended objective of motivating students to think critically about energy challenges and sustainability solutions.

The Energy Club expresses its heartfelt gratitude to Dr. J. B. Patil (Director, RCPIT), the faculty advisors, judges, and student volunteers for their continuous support.

This event marks a significant step forward in fostering a culture of innovation, sustainability, and interdisciplinary collaboration within the institute.



LIST OF PARTICIPANTS

Sr. No.	Name	Format	Grade
1	Riya Manohar Nikam	Hard Copy (Hand Made)	8.5
2	Darshan Ravindra Chaudhari	Hard Copy (Hand Made)	5
3	Kunika Mahendra Khairnar	Hard Copy (Hand Made)	8
4	Janhavi premraj patil	Hard Copy (Hand Made)	7
5	Kaveri Rangrao patil	Hard Copy (Hand Made)	4
6	Patil Pranav	Hard Copy (Hand Made)	5
7	Jayesh Rajendra Mali	Hard Copy (Hand Made)	9
8	Janhvi Padmakar Marathe	Soft Copy (Hand Made)	8
9	Kuldip Devendra Sonawane	Soft Copy (Hand Made)	6
10	Disha Pankaj Kirange	Soft Copy (Hand Made)	7
11	Chetan Ranjit Gosavi	Soft Copy (Hand Made)	4
12	Mayur Navneet Marathe	Soft Copy (Hand Made)	5
13	Krushna Patil	Soft Copy (Hand Made)	8
14	Tejas Sharad Patil	Soft Copy (Hand Made)	6
15	Dishant Hiralal Pawar	Soft Copy (Hand Made)	6
16	Ketan Rajendra Patil	Soft Copy (Hand Made)	4
17	Chirag Sudam Patil	Soft Copy (Hand Made)	4
18	Jayesh Ravindra Patil	Soft Copy (Hand Made)	5
19	Durgesh Sandip Chavan	Soft Copy (Hand Made)	4



ACTIVITY - 2

WORKSHOP REPORT

Event: Microcontroller and Sensors Workshop

Venue: A.R. Patel School, Shirpur

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 14 October 2025

INTRODUCTION

The Energy Club of R. C. Patel Institute of Technology, Shirpur organized a one-day “Microcontroller and Sensors Workshop” at A.R. Patel School, Shirpur on 14th October 2025.

The workshop aimed to create early awareness among school students about electronics, automation, and embedded systems, emphasizing how microcontrollers and sensors form the backbone of modern technology.

This outreach initiative was part of the club’s ongoing efforts to promote STEM education, encourage curiosity about energy-efficient technologies, and demonstrate how innovation begins with fundamental concepts.

OBJECTIVES OF THE WORKSHOP

The key objectives of the workshop were:

- To introduce school students to basic electronic components and their applications.
- To provide an understanding of microcontrollers and how they are used to control devices.
- To explain the role of sensors in modern automation systems.
- To motivate students to pursue careers in engineering and technology.
- To provide hands-on learning through live demonstrations and practical sessions.
- To strengthen the connection between technical institutes and local schools by fostering collaborative learning.



PARTICIPANTS



The workshop witnessed active participation from students of A. R. Patel School, ranging from Classes VI to X.

A total of 85 students attended the event, accompanied by 4 faculty members from the host school. The sessions were designed to cater to varying academic levels – the morning session focused on foundational knowledge for younger students, while the afternoon session was application-oriented for senior students.

EVENT PROCEEDINGS

Inaugural Session

The session commenced with a warm welcome by Ms. Pragati Patil, who introduced the objectives of the Energy Club and highlighted the importance of early technical exposure for young learners. She also briefed students about how basic electronics relate to energy systems, automation, and sustainability.

Technical Sessions

Session 1: Introduction to Basic Electronics (by Mr. Nandlal Patil)

Mr. Nandlal Patil initiated the technical component of the workshop by explaining fundamental electronic components such as resistors, capacitors, LEDs, and switches. The students were shown real components and simple circuits to visualize how electricity flows and how sensors interact with microcontrollers.

Session 2: Understanding Microcontrollers (by Mr. Chinmay Chaudhari)

This session focused on introducing the concept of microcontrollers, their internal architecture, and their significance in embedded systems. Mr. Chaudhari demonstrated how microcontrollers are used in daily appliances such as washing machines, mobile phones, and automobiles.



He used interactive models and simulation videos to make the session engaging and easy to understand.

Session 3: Exploring Sensors and Their Applications (by Ms. Sanjana Sonawane)

Ms. Sonawane's presentation centered on sensors, their types, and their role in automation and smart devices. Students learned about temperature, motion, and proximity sensors, along with real-world examples like automatic streetlights and touchless taps.

Session 4: Interactive Quiz and Concept Recap (by Ms. Pragati Patil)

To reinforce learning, an interactive quiz was conducted covering all discussed topics. Students participated enthusiastically, demonstrating strong grasp and curiosity about the subject matter. Small prizes and appreciation were given to active participants to encourage engagement.





PRACTICAL SESSION



The afternoon session was conducted in the Atal Tinkering Lab, where students of Classes IX and X explored microcontroller-based practical setups.

Under the guidance of Mr. Suraj Borle and the technical team, students connected simple circuits using sensors and Arduino boards to observe how sensors detect changes and send signals to the microcontroller.

The practical demonstrations included:

- LED blinking using Arduino.
- Motion detection using PIR sensor.
- Temperature sensing and automatic fan control.
- Simple smart light control model.

Students actively participated in assembling circuits and testing the output, showing great interest in hands-on learning.

COORDINATION AND SUPPORT

The event was smoothly coordinated by Ms. Pragati Patil and Mr. Shreyash Pawar, who managed student attendance, faculty coordination, and feedback collection.



They ensured effective time management, session transitions, and availability of required materials in both classrooms and the lab. The Energy Club's student volunteers also played an essential role in assisting participants during the practical session.

OUTCOMES AND IMPACT

The workshop concluded with positive feedback from both students and teachers. Key outcomes included:

- Enhanced understanding of microcontrollers and sensor technologies among school students.
- Development of hands-on problem-solving skills through guided practice.
- Increased interest among students in electronics and embedded systems.
- Strengthened community engagement between RCPIT and local educational institutions.
- Promotion of STEM-based learning and awareness of how energy and automation interconnect in the modern world.

CONCLUSION

The Microcontroller and Sensors Workshop was a resounding success, achieving its objectives of inspiring young learners to explore science and technology. Through a combination of theory, demonstrations, and practical sessions, the workshop provided valuable exposure to the field of embedded systems and sensor-based technologies.

The Energy Club plans to continue organizing similar outreach activities to promote technical literacy, innovation, and sustainability awareness in the community.

ACKNOWLEDGMENT



The Energy Club expresses its sincere gratitude to the management and principal of R. C. Patel Institute of Technology, Shirpur, and to the Principal and faculty of A.R. Patel School, Shirpur, for their support and collaboration in making this event a success. Special thanks to all resource persons, coordinators, and student volunteers for their dedicated efforts.



ACTIVITY - 3

WORKSHOP REPORT

Event: Hands-on Workshop on Microcontrollers and Sensors

Venue: M.R. Patel Military School, Tande, Shirpur

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 14 October 2025

INTRODUCTION

The Energy Club of the Department of Electrical Engineering, R. C. Patel Institute of Technology, Shirpur, successfully organized a Hands-on Workshop on Microcontrollers and Sensors at M. R. Patel Military School, Tande, Shirpur.

The workshop aimed to introduce students to the fundamental concepts of microcontrollers and sensors—two crucial building blocks of modern electronic and IoT systems. The session provided students with both theoretical understanding and practical exposure, enabling them to connect classroom learning with real-world applications.

This outreach initiative was part of the Energy Club's mission to spread technical awareness and promote STEM learning among school students in nearby rural areas.

OBJECTIVES OF THE WORKSHOP

The primary objectives of the workshop were:

- To familiarize students with the basic architecture and operation of microcontrollers.
- To introduce various types of sensors and their role in automation and IoT systems.
- To demonstrate real-time applications of sensors and embedded systems.
- To encourage students' curiosity and innovation through interactive learning and practical exposure.
- To promote technical awareness at the school level through student-led outreach initiatives.



EVENT OVERVIEW

The workshop was conducted under the guidance of faculty mentors and executed by active student coordinators from the Energy Club. It was designed as a three-hour interactive session consisting of conceptual discussions, demonstrations, and hands-on learning activities.

The workshop began at 10:30 AM with an inaugural introduction and concluded around 1:30 PM after the feedback session and closing remarks.

INAUGURAL SESSION

The session commenced with a warm welcome by Ms. Sanjana Sonawane, who greeted all participants and introduced the objectives and importance of the workshop.

In her address, she emphasized the growing role of embedded systems, IoT, and automation in modern technology. She highlighted how such initiatives aim to bridge the gap between school-level learning and real-world engineering concepts.

TECHNICAL SESSIONS

Session 1: Introduction to Microcontrollers

The first technical session was conducted by Mr. Chinmay Choudhari, who explained the working principles and structure of microcontrollers.

Key highlights of the session included:

- Basic architecture of a microcontroller.
- Difference between microcontrollers and microprocessors.
- Applications in daily life — such as home appliances, robotics, and automation.
- Demonstration of how microcontrollers act as the “brain” of an embedded system.

Students actively participated, asking questions about real-life applications like how microcontrollers control fan speed, motor movements, and temperature monitoring systems.





Session 2: Understanding Sensors and Their Applications

The next session, conducted by Ms. Sanjana Sonawane, focused on sensors and their importance in electronics and automation.

She discussed various types of sensors such as:

- Temperature Sensors (e.g., LM35)
- Ultrasonic Sensors
- IR (Infrared) Sensors
- Light Dependent Resistors (LDR)
- Motion Sensors

She also explained working principles, interfacing methods, and real-world examples where sensors are used – from streetlights and robotics to environmental monitoring and industrial automation.

Session 3: Interactive Quiz and Concept Reinforcement

To make the learning more engaging, Mr. Shreyash conducted an interactive quiz session covering both microcontrollers and sensors. The quiz encouraged quick recall and helped students reinforce the key concepts discussed earlier.

Following the quiz, he explained advanced sensor technologies such as gyroscope and accelerometer used in drones and mobile devices, giving students a glimpse into the world of aerospace and smart motion detection.

Session 4: Hands-on Practical Demonstration

The final and most awaited segment of the workshop was the hands-on practical session, conducted by Mr. Suraj and his technical team.





Key Activities:

- Demonstration of a simple microcontroller-based project.
- Live interfacing of sensors (temperature, light, and proximity) with Arduino boards.
- Explanation of how sensors send data to microcontrollers and trigger specific outputs.
- Real-time display of sensor readings on LCD and serial monitor.

Students were given the opportunity to observe and participate in circuit connections and programming demonstrations. This hands-on exposure helped them relate theoretical concepts to tangible outcomes.

COORDINATION AND MANAGEMENT

Throughout the event, Mr. Shreyash efficiently handled the overall coordination of activities. He managed attendance, participant engagement, and feedback collection while ensuring smooth communication between the technical team and the faculty. The Energy Club members collaboratively ensured that all necessary arrangements—such as kits, components, and AV equipment—were in place, enabling seamless workshop execution.

STUDENT PARTICIPATION AND FEEDBACK

The workshop witnessed enthusiastic participation from school students who showed genuine curiosity about electronics and automation.

Feedback collected at the end indicated that students found the workshop:

- Highly informative and interactive.
- Useful in understanding practical applications of theoretical science concepts.
- Motivating for pursuing technical fields and engineering careers in the future.

Several students expressed a desire to explore Arduino and robotics further through follow-up sessions.



LEARNING OUTCOMES

By the end of the workshop, participants were able to:

- Understand the basic functionality and role of microcontrollers in embedded systems.
- Identify different types of sensors and their applications.
- Observe how sensors interface with controllers to create automated systems.
- Gain practical exposure to IoT and real-time system design.
- Develop curiosity toward technology-driven innovation.

CONCLUSION

The Hands-on Workshop on Microcontrollers and Sensors was an inspiring and technically enriching experience for the students of M. R. Patel Military School, Tande, Shirpur.

It successfully bridged theoretical knowledge and real-world applications, providing young learners with their first exposure to electronics, embedded systems, and IoT concepts.

The Energy Club extends its sincere gratitude to the school management, faculty members, student volunteers, and the technical team for their support and cooperation in making the event a grand success.

Such outreach programs reaffirm RCPIT's commitment to community engagement, technical literacy, and youth empowerment through knowledge sharing.





ACTIVITY - 4

EVENT REPORT

Event: EVision 2K26 – Innovative Electric Vehicle Design Competition

Venue: Electrical Engineering Department

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 16 February 2026

INTRODUCTION

Electric Vehicles (EVs) represent one of the most transformative technologies of the 21st century, offering a sustainable alternative to conventional fossil-fuel-based transportation. With growing environmental concerns and the global push towards clean energy, fostering EV innovation among future engineers has become imperative. In this context, the Energy Club of the Department of Electrical Engineering, under the aegis of the ISTE Students' Chapter at R.C. Patel Institute of Technology, Shirpur organized EVision 2K26: Innovative Electric Vehicle Design Competition on 16 February 2026. The event served as a platform for budding engineers to conceptualize, design, and present creative EV solutions that address real-world mobility challenges.

EVision 2K26 was envisioned as more than a competition; it was a celebration of innovation, sustainability, and interdisciplinary collaboration. By bringing together students from various engineering disciplines, the event created a vibrant ecosystem of ideas and technical engagement that reflects the institute's commitment to practical, forward-looking education.

OBJECTIVES OF THE WORKSHOP

The EVision 2K26 competition was designed with clear and purposeful objectives:

- To promote innovation and creative thinking in the domain of electric vehicle technology among engineering students.
- To encourage students to conceptualize and design EV solutions that address real-world mobility challenges, including agriculture, campus transportation, and accessibility for differently-abled individuals.
- To develop practical engineering skills through simulation-based design approaches and prototype conceptualization.
- To foster awareness about sustainable transportation and clean energy technologies among the student community.



- To nurture interdisciplinary collaboration by bringing together students from different engineering branches.
- To provide a competitive yet supportive platform that motivates students to pursue research and development in EV technology.
- To recognize and reward outstanding innovative ideas that demonstrate potential for prototype development and real-world application.

EVENT OVERVIEW

EVision 2K26 was conducted on 16 February 2026 at R.C. Patel Institute of Technology, Shirpur. The event witnessed enthusiastic participation from students across disciplines, reflecting the broad interest in electric mobility and sustainable engineering.

A total of 18 teams comprising 79 students participated in the competition, making it a high-energy and intellectually stimulating event. The teams presented innovative EV design concepts across a range of application domains including:

- Agriculture Mobility — EV solutions tailored for farming and rural applications.
- Transportation for Differently-Abled — Specialized mobility solutions ensuring inclusivity.
- Campus Mobility — Electric vehicles designed for efficient movement within educational or institutional campuses.
- Utility EV Applications — Multi-purpose electric vehicles for general utility and commercial use.

Teams were encouraged to use simulation-based design methodologies, lending technical rigor to their presentations. The event provided students with an opportunity to receive expert feedback on their designs and gain exposure to the latest trends in EV development.

The highlight of the competition was the prize distribution: two winning teams were selected and each received electric vehicle components worth ₹1,00,000 (Rupees One Lakh), enabling them to advance their designs toward physical prototypes and further innovation.

INAUGURAL SESSION

The event commenced with a formal Inaugural Session, setting an inspiring tone for the day. The dignitaries who graced the occasion and formally inaugurated EVision 2K26 were:

- Dr. J. B. Patil, Director, R.C. Patel Institute of Technology, Shirpur
- Dr. P. J. Deore, Deputy Director, R.C. Patel Institute of Technology, Shirpur
- Dr. S. A. Patil, Head, Department of Electrical Engineering

During the inauguration, the distinguished guests addressed the participants and faculty with motivating and insightful speeches.



They emphasized the critical importance of electric mobility in combating climate change and the growing global demand for sustainable engineering solutions. The dignitaries highlighted how events like EVision 2K26 play a crucial role in bridging theoretical knowledge with practical innovation, preparing students to meet the engineering challenges of tomorrow.

Dr. J. B. Patil, in his address, praised the initiative of the Energy Club and ISTE Students' Chapter in organizing such a technically enriching competition. He encouraged students to think boldly and pursue ideas that could contribute meaningfully to India's EV ecosystem. Dr. P. J. Deore and Dr. S. A. Patil reiterated the importance of interdisciplinary learning and sustainable engineering as pillars of modern technical education.

The inaugural session concluded with a formal lamp-lighting ceremony symbolizing the illumination of knowledge and innovation, followed by an interactive address to the participating teams.





COORDINATION AND MANAGEMENT

The seamless execution of EVision 2K26 was the result of dedicated coordination by experienced faculty mentors and enthusiastic student volunteers. The event was organized under the expert guidance of:

- Dr. Shailaja A. Patil, Head, Department of Electrical Engineering
- Dr. Mahesh B. Dembrani, ISTE Institute Coordinator
- Prof. Nilesh S. Mahajan, ISTE Department Coordinator and Event Coordinator
- Prof. Krunal J. Gandhi, Event Coordinator

The faculty coordinators were instrumental in planning the event structure, coordinating with participants, managing the judging process, and ensuring that all logistical aspects were handled efficiently. Their collective experience and proactive approach ensured that the competition proceeded smoothly throughout the day.

On the student front, the event was ably supported by student coordinators:

- Pragati Patil, Student Coordinator
- Shreyash Pawar, Student Coordinator

The student coordinators played a pivotal role in managing registrations, guiding participating teams, coordinating the schedule, and maintaining the overall flow of the event. Their dedication and organizational skills were commended by the faculty and participants alike.

The collective effort of the organizing team reflected the institute's culture of student-faculty collaboration, which was instrumental in the successful conduct of EVision 2K26.

LEARNING OUTCOMES

EVision 2K26 generated significant learning outcomes for all participants, reinforcing both technical competencies and broader professional skills:

- **Enhanced EV Technology Awareness:** Participants gained a deeper and more practical understanding of electric vehicle systems, components, and their real-world applications, moving beyond classroom theory.
- **Design and Simulation Skills:** The requirement to present simulation-based designs helped students strengthen their proficiency in engineering design tools and analytical methodologies.
- **Problem-Solving and Innovation:** By addressing specific mobility challenges – from agricultural transport to accessibility solutions – students exercised creative problem-solving and innovative thinking under competitive conditions.
- **Interdisciplinary Collaboration:** The participation of students from diverse engineering disciplines fostered teamwork and cross-disciplinary learning, simulating professional engineering environments.
- **Research Motivation:** Exposure to cutting-edge EV design concepts and expert feedback from faculty and judges inspired many participants to explore further research and development opportunities in the EV domain.



- **Communication and Presentation Skills:** Presenting technical designs to a panel of judges and peers developed participants' ability to articulate complex engineering concepts clearly and confidently.
- **Sustainability Mindset:** The competition reinforced the importance of sustainable engineering practices, encouraging students to incorporate environmental responsibility into their design philosophy.

Overall, EVision 2K26 contributed meaningfully to the holistic development of student engineers, equipping them with skills and insights relevant to the rapidly growing EV industry.

CONCLUSION

EVision 2K26 — Innovative Electric Vehicle Design Competition was a resounding success, achieving its objectives of promoting innovation, sustainability, and practical engineering engagement among students. The event brought together 79 students across 18 teams, all driven by a shared enthusiasm for electric mobility and sustainable engineering solutions.

The competition provided an exceptional platform for participants to showcase their creativity and technical acumen, while receiving mentorship and recognition from distinguished faculty and institutional leadership. The prize of EV components worth ₹1,00,000 awarded to the winning teams stands as a concrete investment in the future of student-led innovation.

The success of EVision 2K26 is a testament to the collaborative spirit of the Department of Electrical Engineering, the Energy Club, and the ISTE Students' Chapter at R.C. Patel Institute of Technology, Shirpur. The event has set a strong precedent for future competitions and reinforced the institute's commitment to nurturing the next generation of engineers who are equipped to address real-world challenges through innovative, sustainable, and technology-driven solutions.

It is hoped that EVision 2K26 will inspire continued engagement in EV research and development among students, and that the winning teams will go on to transform their designs into functional prototypes that contribute meaningfully to India's clean mobility journey.





ACTIVITY - 5

WORKSHOP REPORT

Event: Hands-on Workshop on Arduino and Sensors

Venue: KVTR CBSE SCHOOL, Shirpur

Organized by: Energy Club, R. C. Patel Institute of Technology, Shirpur

Date: 26 February 2026

INTRODUCTION

In an era increasingly shaped by automation, smart devices, and interconnected systems, foundational knowledge of electronics and embedded technologies has become more relevant than ever. Recognizing the need to cultivate early interest in these areas, the Energy Club of R. C. Patel Institute of Technology (RCPIT), Shirpur, organized a Hands-on Workshop on Arduino and Sensors for the students of KVTR CBSE School, Shirpur.

This outreach initiative reflects the Energy Club's ongoing commitment to extending quality technical education beyond the college campus and into the wider community. By bringing students face-to-face with real components, live circuits, and working demonstrations, the workshop aimed to ignite curiosity and lay the groundwork for future exploration in science and engineering.

The event was conducted under the guidance of experienced faculty mentors and executed by dedicated student coordinators from the Energy Club, ensuring a balance of academic rigour and student-friendly delivery.

OBJECTIVES OF THE WORKSHOP

The workshop was designed with the following key objectives in mind:

- To introduce school students to the fundamental concepts of microcontrollers, sensors, and embedded systems.
- To demonstrate the practical applications of IoT and automation in everyday life and industry.
- To bridge the gap between theoretical science education and hands-on engineering practice.
- To provide students with direct exposure to Arduino programming and sensor interfacing.



- To inspire young learners to consider careers in technology, electronics, and engineering.
- To promote technical literacy and innovation-driven thinking at the school level.
- To strengthen ties between RCPIT and the local educational community through meaningful outreach.

EVENT OVERVIEW

The Hands-on Workshop on Arduino and Sensors was organized by the Energy Club of RCPIT under the guidance of faculty mentors. The event was designed as a comprehensive two-hour interactive session encompassing conceptual discussions, live demonstrations, and hands-on learning activities. The workshop commenced at 11:30 AM with the inaugural address and concluded at approximately 1:30 PM following a feedback session and closing remarks.

The primary objective of the event was to introduce school students to the fundamentals of sensor technology, and the Internet of Things (IoT) – thereby bridging the gap between classroom learning and real-world engineering applications.

INAUGURAL SESSION

The session was formally inaugurated by Ms. Sanjana Sonawane, who extended a warm welcome to all participants and set the context for the workshop. In her opening address, she underscored the growing importance of IoT and automation in modern technology and highlighted how student-led outreach initiatives such as this aim to nurture scientific curiosity and technical awareness at the school level.

She articulated the workshop's vision of making engineering concepts accessible and engaging for young learners, inspiring them to look beyond textbooks and explore the practical dimensions of science and technology.

TECHNICAL SESSIONS

SESSION 1: UNDERSTANDING SENSORS AND THEIR APPLICATIONS

Conducted by Ms. Sanjana Sonawane, this session provided participants with a thorough introduction to sensors – their types, working principles, interfacing methods, and real-world applications. The following sensor categories were discussed in detail:

- Temperature Sensors (e.g., LM35)
- Ultrasonic Sensors
- IR (Infrared) Sensors
- Light Dependent Resistors (LDR)
- Motion Sensors

Ms. Sonawane illustrated the use of sensors across a broad spectrum of applications, ranging from automatic streetlights and robotic systems to environmental monitoring platforms and industrial automation setups. Her clear explanations helped



participants appreciate how sensors serve as the primary interface between the physical world and digital systems.

SESSION 2: UNDERSTANDING ARDUINO AND ITS APPLICATIONS

This session was led by Ms. Pragati Patil, who introduced participants to the Arduino microcontroller platform and its pivotal role in electronics and automation. The session covered the architecture of Arduino boards, their programmability, and the wide range of applications they enable – from simple LED control to complex automated systems. Ms. Patil's session laid the conceptual groundwork necessary for the subsequent hands-on demonstration.



SESSION 3: HANDS-ON PRACTICAL DEMONSTRATION

The most eagerly anticipated segment of the workshop was the hands-on practical session, led by Mr. Suraj and his technical team. This interactive demonstration allowed students to witness the real-time application of the concepts covered in the preceding sessions. Key activities included:



- Demonstration of a microcontroller-based project built from scratch.
- Live interfacing of temperature, light, and proximity sensors with Arduino boards.
- Step-by-step explanation of how sensor data is read and processed by microcontrollers to trigger specific outputs.
- Real-time display of sensor readings on an LCD screen and serial monitor.

Students were encouraged to actively participate in circuit assembly and observe programming demonstrations first-hand. This tangible exposure significantly reinforced their understanding of how theoretical concepts translate into functional systems.

COORDINATION AND MANAGEMENT

The seamless execution of the workshop was largely attributed to the diligent coordination by Mr. Shreyash Pawar and Ms. Pragati Patil, who managed participant attendance, engagement, and feedback collection throughout the event. He ensured effective communication between the technical team and the faculty, maintaining the session flow and schedule.

The broader Energy Club team worked collaboratively to ensure that all logistical requirements – including electronic kits, components, and audio-visual equipment – were arranged and operational well in advance, enabling an uninterrupted workshop experience.

STUDENT PARTICIPATION AND FEEDBACK

The workshop witnessed enthusiastic and engaged participation from students of KVTR CBSE School, Shirpur. The participants demonstrated genuine curiosity, asking thoughtful questions and actively engaging during the hands-on session.

Feedback collected at the conclusion of the event reflected a highly positive response. Students reported that the workshop was:

- Highly informative and interactive, making complex concepts accessible and enjoyable.



- Practically useful in connecting theoretical science concepts to real-world engineering applications.
- Motivating and inspiring, encouraging interest in technical fields and engineering careers.

Several students expressed a strong desire to explore Arduino programming and robotics further, and many requested follow-up sessions on advanced topics.

LEARNING OUTCOMES

By the conclusion of the workshop, participants had achieved the following learning outcomes:

- A foundational understanding of microcontrollers and their role in embedded systems.
- The ability to identify different types of sensors and describe their applications.
- Insight into how sensors interface with controllers to create automated and responsive systems.
- Practical exposure to the principles of IoT and real-time system design.
- Heightened curiosity and motivation toward technology-driven innovation and engineering careers.

CONCLUSION

The Hands-on Workshop on Arduino and Sensors proved to be an inspiring and technically enriching experience for the students of KVTR CBSE School, Shirpur. The event successfully bridged the divide between academic theory and practical application, offering young learners their first meaningful exposure to electronics, embedded systems, and IoT concepts.

The Energy Club extends its sincere gratitude to the school management, faculty mentors, student volunteers, and the technical team for their wholehearted support and cooperation in making this event a resounding success.

Outreach initiatives of this nature reaffirm RCPIT's commitment to community engagement, the promotion of technical literacy, and the empowerment of youth through knowledge sharing and hands-on education.

