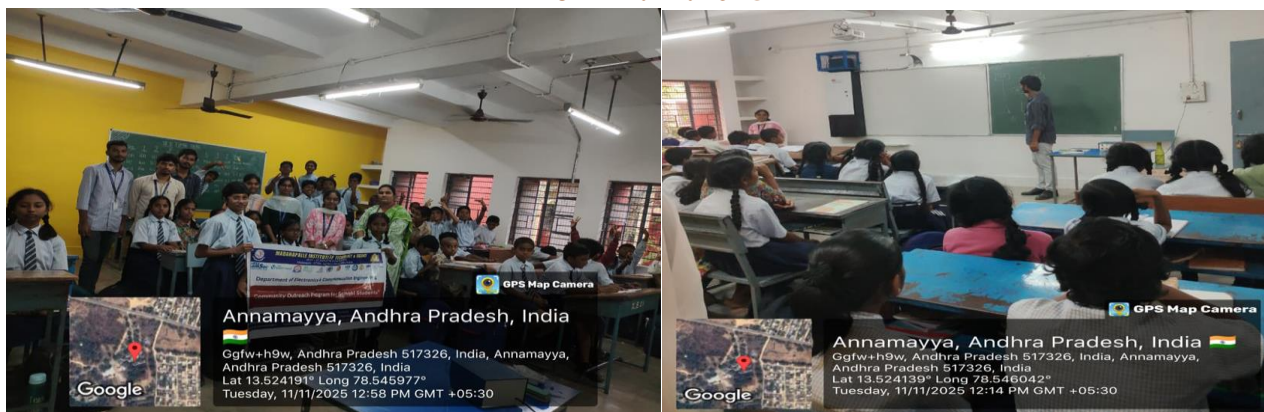


A Report on Community Outreach Program on "Hands-on Experience on Electronics Sensors and Actuators" Organized by Department of Electronics & Communication Engineering in association with MITS IEEE Student Branch on 11.11.2025



Report Submitted by: Dr. Kumar C, Assistant Professor, Department of Electronics & Communication Engineering.

Number of participants: 45

Mode of Conduct: Offline

Report Received on 04.12.2025.

The **MITS IEEE Student Branch**, collaborating with the **ECE Department**, successfully conducted the "Hands-on Experience on Electronics Sensors and Actuators" Outreach Program on **November 11, 2025**. The event took place at the **ATAL Tinkering Lab** within the **Navodaya Girls High School** in Valasapalle. The goal was to bridge the gap between theoretical science and practical technology, sparking curiosity in modern electronics among school students.

The program's success hinged on the **dedicated MITS IEEE student volunteers**. They began by providing clear explanations of **Basic Electronic Components** (resistors, LEDs, transistors etc.,) and introducing the **breadboard** as a vital prototyping platform. This mentorship prioritized clarity, ensuring students intuitively grasped core concepts like voltage and resistance.

The program quickly transitioned to the **hands-on experience** phase. MITS mentors guided students through carefully curated, beginner-friendly experiments designed for **tangible results**. Students used individual kits to assemble basic circuits, including **LED flashers** and **light-activated switches (sensors)**. The emphasis was on **direct, personal experimentation**; students were encouraged to **exercise the experiments with their own hands**, connecting components and troubleshooting under supervision. This direct engagement was transformational, fostering a sense of creation and problem-solving. The students **rejoiced by doing this**, reinforcing the magic of making electricity perform a function. This strong, positive reinforcement is **vital for motivating young women to pursue careers in STEM**.

Execution relied heavily on the support of the MITS administration. We extend profound gratitude for permissions and essential logistics to: **Dr. C. Yuvaraj** (Vice Chancellor, I/c), **Dr. P. Ramanadhan** (Principal), and **Mrs. U. Vijaya Lakshmi** (International Relations Coordinator & Students' Counsellor), **Dr. S. Rajasekaran** (HOD/ECE). The collaborative spirit between the student body, the ECE department, and college management remains the bedrock for such meaningful community outreach programs.

SDG Icon	SDG Goal (Number & Title)	Connection to the Event Activities
4	Quality Education	Direct Contribution: The program provided high-quality, free, hands-on technical education to school students, moving beyond theoretical teaching. By focusing on practical application of electronics, it ensures inclusive and equitable learning opportunities for all participants.
5	Gender Equality	Specific Focus: The event was held at a Navodaya Girls High School. By specifically targeting and engaging young women in STEM fields (Electronics, Sensors, Actuators), the program directly helps break down gender stereotypes and empowers women and girls to take up technical roles.

8	Decent Work and Economic Growth	Indirect Contribution: By fostering foundational skills in electronics, programming, and engineering problem-solving, the program helps equip students with the technical competencies required for future innovation and high-value jobs, thereby supporting economic productivity.
9	Industry, Innovation, and Infrastructure	Indirect Contribution: Exposing students to sensors and actuators—the building blocks of automation and technological infrastructure—cultivates an innovative mindset. It encourages future engagement with local industry and the development of sustainable infrastructure.
17	Partnerships for the Goals	Direct Contribution: The event was a successful collaboration (MITS IEEE Student Branch + ECE Department + Navodaya Girls High School) involving academic institutions and local schools. This partnership model is key to mobilizing resources and knowledge sharing for educational purposes.



Outcome Points

1. **Enhanced Practical STEM Skills:** Participants successfully transitioned from theoretical knowledge to practical application by actively assembling and troubleshooting basic electronic circuits (including LEDs, motors, and sensors) with their own hands, significantly enhancing their fundamental understanding of electronics.
2. **Increased Engagement and Enthusiasm:** The hands-on nature of the program visibly boosted student morale and generated genuine excitement ("rejoiced by doing this"), successfully demystifying complex engineering principles and fostering a strong, positive interest in STEM fields among the young school students.
3. **Promotion of Gender Equity in Technology (SDG 5):** By specifically targeting students at the Navodaya Girls High School, the program directly encouraged young women to engage with technical concepts like sensors and actuators, actively supporting gender equality and future participation in engineering disciplines.
4. **Effective Knowledge Transfer and Mentorship:** MITS IEEE Student Branch volunteers demonstrated strong leadership and pedagogical skills, serving as effective mentors and role models, successfully simplifying complex electronics fundamentals for the younger audience.
5. **Strengthened Community and Institutional Collaboration (SDG 17):** The event successfully demonstrated the value of collaboration between academic institutions (MITS ECE Dept. and IEEE Branch) and the local community (Navodaya School), serving as a model for future educational outreach initiatives supported by MITS management.