



IEEE WIE x Rotary Bangalore West



Oct, 2025- Nov, 2025

StemSetGo!

A Four-Week IoT Outreach Initiative by IEEE WIE x Rotary
Bangalore West

OVERVIEW

The IEEE Women in Engineering (WIE) BMS Institute of Technology and Management Student Branch, in collaboration with Rotary Bangalore West, successfully organized “STEMpire: StemSetGo!”, a four-week IoT Outreach Initiative at Sai Shankara Vidya Shala, Sadenahalli, Bangalore.

Conducted across October and November 2025, the program aimed to introduce middle school students to the world of engineering, innovation, and Internet of Things (IoT) through structured sessions combining conceptual learning, hands-on experimentation, and project-based outcomes.



The initiative served as a bridge between classroom curiosity and real-world application – empowering young learners to imagine, innovate, and build. The event witnessed consistent participation from Classes 8 and 9, guided by an enthusiastic team of mentors from IEEE WIE and volunteers from BMSIT&M.



OBJECTIVES:

The STEMpire – StemSetGo! initiative was designed with the following key objectives:

- To introduce school students to fundamental engineering and IoT concepts through engaging and practical sessions.
- To cultivate scientific curiosity and inspire creative problem-solving among young learners.
- To bridge the gap between academic learning and real-world technology applications.
- To provide an interactive learning environment emphasizing teamwork, mentorship, and innovation.
- To promote STEM education accessibility through collaboration between academia and community organizations.

Week 1 – Ignite

Introduction to Engineering & Ideation

Date: 13th October 2025

Time: 2:00 PM – 4:00 PM

Location: Sai Shankara Vidya Shala, Sadenahalli, Bangalore

Organized by: IEEE WIE Execom and Volunteers

Objective:

To initiate interactive engagement with students and spark their interest in engineering and innovation. The first week was dedicated to creating a foundation for understanding how technology impacts society and setting the tone for upcoming hands-on sessions.

Activities Conducted:

- A vibrant discussion on engineering in everyday life encouraged students to share their views on how technology solves real-world problems.
- Students were divided into teams of 8–10, each assigned a mentor and given an IoT-based project title such as Smart Dustbin, Smart Weather Station, or Smart Plant Watering System.
- Interactive ice-breaking games and team-building activities helped students connect with their mentors and peers, building enthusiasm for the program ahead.
- Mentors introduced the problem statements and explained how each team would approach their projects in subsequent weeks.

Outcome:

Students displayed remarkable curiosity and engagement. The informal yet focused approach made them comfortable sharing ideas, setting a solid foundation for active participation in the coming weeks.



Week 2 – Explore

Getting Hands-On with Components

Date: 25th October 2025

Time: 9:00 AM – 12:00 PM

Location: Sai Shankara Vidya Shala, Sadenahalli, Bangalore

Organized by: IEEE WIE Execom and Volunteers

Objective:

To provide a hands-on introduction to IoT systems and familiarize students with the essential hardware components, sensors, and microcontrollers used in real-world IoT projects.

Activities Conducted:

- Mentors began with a recap of Week 1 concepts, reinforcing the connection between problem statements and component functionality.
- Students explored IoT components including resistors, LEDs, sensors (DHT11, PIR, Ultrasonic, Moisture), and microcontrollers like ESP32/Arduino.
- Each team interacted directly with components relevant to their project, learning their purpose, connections, and applications.
- Demonstrations illustrated how sensors collect data and how actuators respond – laying the groundwork for upcoming assembly sessions.

Outcome:

By the end of the session, students developed a clear understanding of IoT fundamentals and the role of each component. The confidence they gained from hands-on practice paved the way for the technical build phase.



Week 3 – Build

Assembling and Implementing IoT Projects

Date: 29th October 2025

Time: 2:00 PM – 4:00 PM

Location: Sai Shankara Vidya Shala, Sadenahalli, Bangalore

Organized by: IEEE WIE Execom and Volunteers

Objective:

To guide students through assembling their IoT circuits, integrating sensors and microcontrollers, and understanding how data flows through the system.

Activities Conducted:

- Mentors reviewed previous learnings and assisted teams in assembling their IoT circuits.
- Students connected sensors, actuators, and microcontrollers, learning the logic behind each connection.
- Real-time debugging sessions were conducted, teaching students how to identify and fix issues.
- Mentors emphasized the workflow of each project – from sensor input to data processing to actuator output.
- Teams worked on presentation aspects such as labelling components, preparing charts, and practicing explanations for the exhibition.

Outcome:

Week 3 was the turning point – every team completed a working prototype. Students demonstrated both technical and teamwork growth, confidently articulating how their projects functioned.



Week 4 – Showcase

Project Exhibition and Valediction

Date: 1st November 2025

Time: 9:00 AM – 12:00 PM

Location: Sai Shankara Vidya Shala, Sadenahalli, Bangalore

Organized by: IEEE WIE Execom and Volunteers

Objective:

To provide a platform for students to present and demonstrate their completed IoT projects, reflecting their learning journey and creativity.

Activities Conducted:

- The session was structured as a Project Exhibition, attended by faculty members, Rotarians, IEEE representatives, and guests.
- Each team presented their project's concept, functionality, real-world relevance, and demonstrated live working prototypes.
- Projects included Smart Dustbin, Smart RFID Lock, Smart Weather System, and Smart Plant Watering System, among others.
- Evaluation was based on innovation, presentation, teamwork, and functionality, followed by appreciation for standout teams.
- The session concluded with motivational words from guests and mentors, commending the students' dedication and enthusiasm.

Outcome:

The final week symbolized the spirit of STEmpire – transforming curiosity into creation. Students showcased growth not just in technical ability but also in confidence, communication, and teamwork.



Impacts and Outcomes

- Inspired over 50+ school students to explore STEM fields through practical, mentor-guided learning.
- Enabled students to build real IoT prototypes and understand end-to-end workflows.
- Enhanced digital literacy and technical confidence among young learners.
- Fostered a collaborative learning environment connecting academia, community, and social service.
- Strengthened IEEE WIE's and Rotary's mission to empower through education and technology.



Conclusion

The **STEMpire: StemSetGo!** IoT Outreach Program stands as a testament to the power of collaboration and education-driven impact.

Through four weeks of consistent mentorship, innovation, and hands-on exploration, the initiative not only introduced students to IoT and engineering but also ignited a genuine curiosity to pursue technology with purpose.

The success of this program reinforces the shared commitment of IEEE WIE and Rotary Bangalore West to make STEM education inclusive, engaging, and impactful.