DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION
IEEE-DBIT RAS STUDENT BRANCH

Roboton Workshop

Date: 4th & 5th March 2025

Time: 9:00 AM to 5:00 PM

Venue: Seminar Hall, A Wing, Don Bosco Institute of Technology, Kurla, Mumbai - 400070

Speakers:

Priyanshu Sakharkar, Prathamesh Kurdekar, Zubia Sarang, Kartik Dandelia, Soham Ghadigaonkar

Support Team:

Pritika, Yukita, Samiksha, Ayush Gajbhiye

Objective:

The objective of the workshop was to provide participants with hands-on experience in designing and building a **gesture-controlled robot** using an **Arduino-controlled car** and an **accelerometer**. The key goals were:

- Introducing participants to **Arduino-based robotics and embedded systems**.
- Teaching the fundamentals of **robotic motion control and sensor interfacing**.
- Developing practical knowledge in **wireless gesture control using an accelerometer**.
- Encouraging participants to apply these concepts in **real-world automation projects**.

Outcome:

By the end of the workshop, participants:

- Successfully **built an Arduino-based robotic car**.
- Implemented **gesture control using an accelerometer on the second day**.
- Learned **Arduino programming**, motor driver integration, and wireless communication.

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- Understood the **practical applications of motion-controlled robotics**.

Description:

The **"Roboton Workshop"** was organized by the **IEEE-DBIT RAS Student Chapter** and took place on **4th and 5th March 2025**. It was attended by students from various engineering branches.

Day 1: Building the Robot

- The workshop began with an **introduction to robotics and automation**.
- Participants learned about **Arduino, motor drivers, sensors, and power management**.
- A hands-on session guided them through **assembling the robotic car**, including:
    - Connecting **DC motors** and **motor drivers** to the Arduino.
    - Powering the system using a battery pack.
    - Writing and uploading **basic movement control code**.
- By the end of Day 1, participants had a functional **robotic car**.

Day 2: Implementing Gesture Control

- The session started with an introduction to **accelerometer sensors** and how they detect **tilt and motion**.
- Participants interfaced the **accelerometer module with Arduino** and programmed it to control the bot's movement based on **hand gestures**.
- The final phase included:
    - **Calibrating the accelerometer** for accurate motion detection.
    - **Transmitting gesture signals** wirelessly to control the robot.
    - **Debugging and optimizing** gesture recognition for smooth navigation.

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- After successful implementation, a competition was held, where students participated in a timed race. The goal was to complete a predefined track using gesture-controlled robots. The top three teams that completed the track in the shortest time were declared winners.
- The workshop concluded with a **demonstration**, where students successfully controlled their robots using **hand movements**.

Photos of the Event:

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Event Poster:

Social Media Links:
Instagram - https://www.instagram.com/ieee_dbit/?hl=en
Website – https://ieee.dbit.in

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Participants:

Name	Year	Department
Swara Ghosalkar	FE	EXTC
Mohammed Hasan	FE	EXTC
Vinet Suryawanshi	FE	EXTC
Pratham Adavade	FE	MECH
Prajwal Gowda	SE	MECH
Jaydatt Sawant	SE	MECH
Tanish Kunder	SE	MECH
Aditya Pawar	SE	MECH
Sanket Prajapati	SE	MECH
Clive Dias	SE	MECH
Russel Ferreira	FE	MECH
Ralston Dsouza	FE	MECH
Shraddha Hebbar	FE	IT
Jenny Joy	FE	COMPS
Ivie Pendse	FE	IT
Ananya Shetty	FE	IT
Om Arolkar	FE	MECH
Mousam Patra	FE	IT
Siya Agivale	FE	EXTC
Huzan Mistry	SE	MECH

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Ayush Mali	SE	MECH
Harsh Angare	SE	MECH
Aditya Pawar	SE	MECH
Sumit Botle	SE	EXTC
Deepak Sakha	SE	EXTC
Anant Deshmukh	SE	EXTC
Jai Salunke	SE	EXTC
Raman Sharma	SE	EXTC
Saha Anu	SE	EXTC
Yashvi Jain	SE	EXTC
Dhruv Tare	SE	EXTC
Saeesh Gidh	SE	EXTC
Aryan Puranik	SE	EXTC
Kripa Dewoolkar	SE	EXTC
Mrunmai Paktekar	SE	EXTC
Daniel Sebastian	SE	EXTC
Kartik Nyalapelli	SE	EXTC
Sneha Pawar	SE	EXTC
Harshali Gokhale	SE	EXTC
Pushkar Mahale	FE	EXTC
Ayush P	FE	IT
Pramit Kulkarni	FE	COMPS
Ayush Borle	FE	EXTC
Saarth Gandre	FE	EXTC

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Simone D'sa	FE	IT
Ocina Serrao	FE	EXTC
Denver Gracias	FE	COMPS
Neha Haldankar	FE	EXTC
Aradhya Pawar	FE	EXTC
Parth Pawar	FE	EXTC
Abhinav Borse	FE	EXTC
Swanandi Chavan	FE	EXTC
Malcom Monserrate	FE	COMPS
Adam Davis	FE	COMPS
Amey Dalvi	SE	EXTC
Francis Penmadan	SE	MECH
Shaikh Umair	SE	MECH
Momin Umair	SE	MECH
Kapil Labde	SE	EXTC

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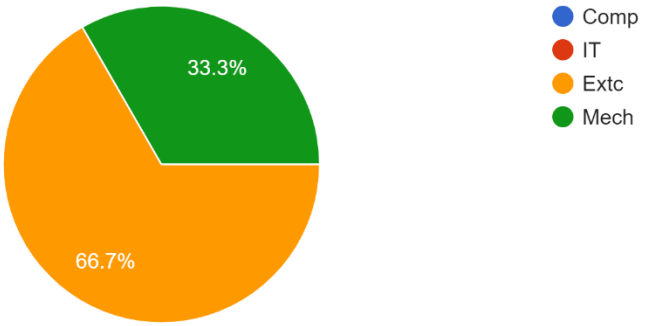
Feedback:

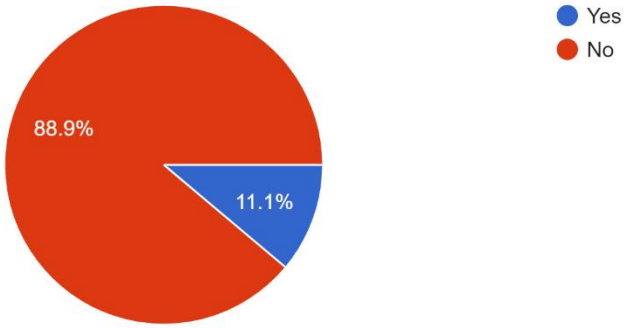
Branch

18 responses



Are you an ieee member?

18 responses



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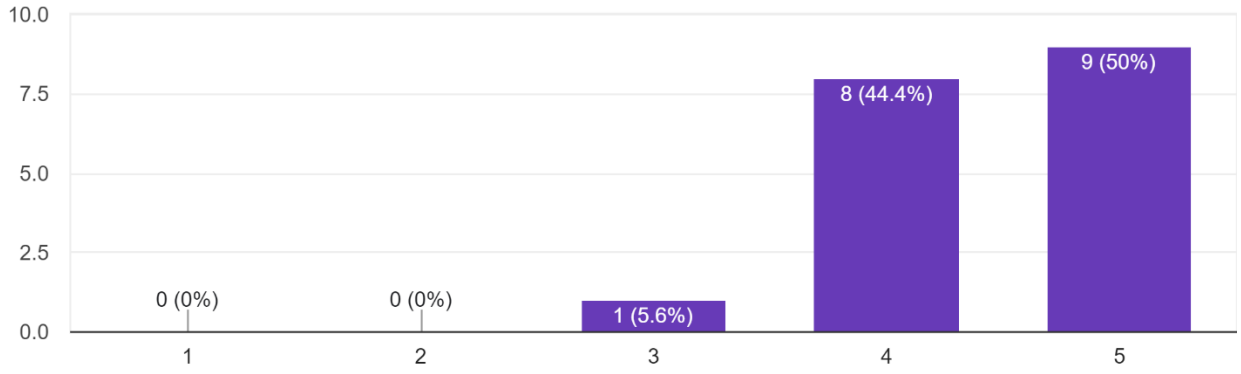
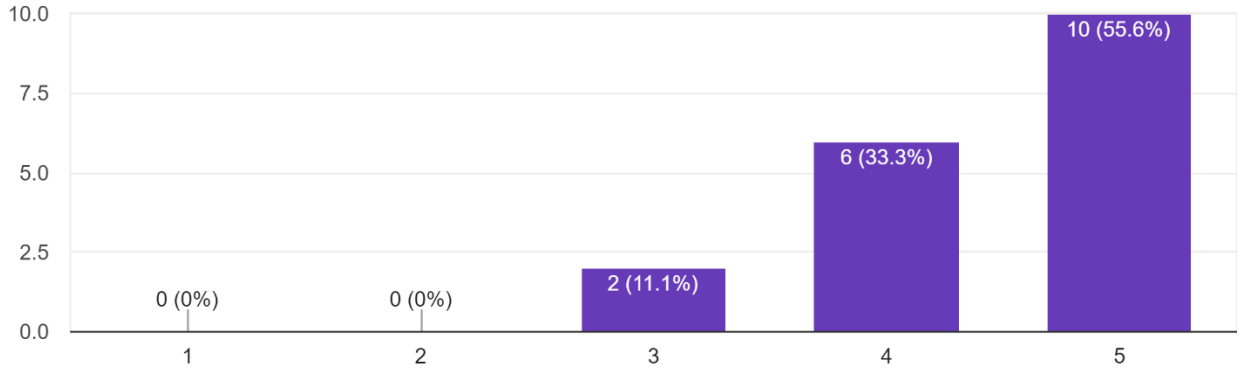
Rate quality of workshop

18 responses



Teaching experience

18 responses



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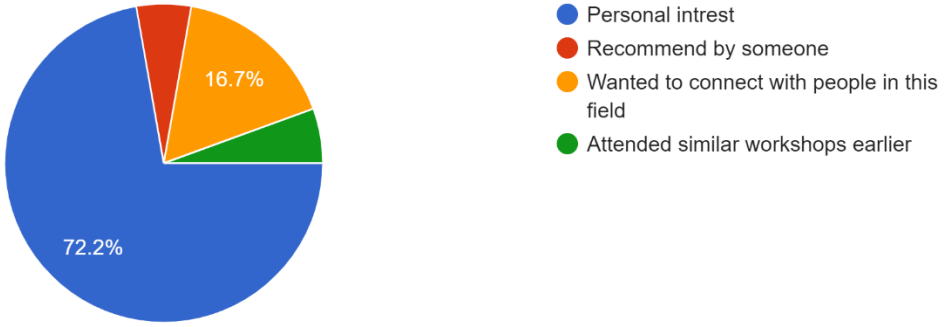
Reason for choosing this workshop

18 responses



Comments:

1. The workshop was great , have learn new things and the peer mentors are helpful and supportive , overall the workshop was fun with hands-on experience.
2. Very interesting and I learn lot's of things which make me use in my further semester
3. Improve devices quality
4. Please elaborate the codes more
5. Workshop was really good, enjoyed being a part of it.
6. More Robotics Workshop
7. Overall the workshop was good.
8. Longer session would be nice. And fusion too
9. Very encouraging mentors,they help us lot and give chance to participate in real life application such as robotics
10. great workshop

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Conclusion:

The **"Roboton Workshop"** provided students with **a complete understanding** of Arduino-based robotics, from hardware assembly to implementing wireless gesture control. The structured approach, with **robot construction on Day 1 and gesture-based automation on Day 2**, allowed participants to grasp both **mechanical assembly** and **sensor-based control techniques**. The workshop fostered technical skills, **encouraging students to explore advanced robotics applications** in automation and IoT.

Report Prepared by: IEEE DBIT reporting team

Name of the Student: Dhruv Tare

Post of the student: Reporting Head

Name of the Student: Pritika Mediboina

Post of the Student: Joint Reporting Head