DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI 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: Prathamesh Kurdekar, Zubia Sarang, Priyanshu Sakharkar

Support Team:

Pritika, Yukita, Samiksha, Ayush Gajbhiye

Number of participants: 60

Number of Boys: 40

Number of Girls: 20

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**.

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

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

Description:

The **"Roboton Workshop"** was organized by the **IEEE-DBIT RAS Student Chapter** on **4th and 5th March 2025**. It was attended by students from various engineering branches and focused on **building a gesture-controlled robot** using **Arduino and an accelerometer**.

Day 1: Building the Robot & Understanding Arduino

- The workshop began with an **introduction to robotics and automation**, emphasizing the role of **Arduino in modern embedded systems**.
- Participants were introduced to **Arduino hardware**, including **microcontrollers, sensors, motor drivers, and power management**.
- The speakers explained the **Arduino IDE** and guided students through **basic coding exercises**, such as:
    - **Blinking an LED** using the built-in LED pin.
    - **Reading sensor data** using analog and digital inputs.
    - **Controlling a DC motor** using PWM signals.

- Students then applied these concepts to **assemble the robotic car**, connecting **DC motors, motor drivers, and batteries** to the Arduino board.

- By the end of **Day 1**, every team had successfully built a **functional robotic car**, ready for gesture control implementation.

Day 2: Implementing Gesture Control & Competition

- The second day began with a **quiz competition**, testing students on **Arduino programming, sensor interfacing, and robotics concepts** covered on Day 1.

- Following the quiz, students were introduced to **accelerometers** and their role in detecting **tilt and motion**.

- Participants interfaced the **accelerometer module with Arduino**, programming it to **control the robot's movement using hand gestures**.

- The final implementation phase included:
    - **Calibrating the accelerometer** for precise motion detection.
    - **Transmitting gesture signals wirelessly** to control the robot.
    - **Debugging and optimizing** the response time for better performance.

- After successful implementation, students participated in a **timed race** where each team controlled their bot using gestures to navigate a **predefined track**.

- The **winners of the workshop were decided based on both the quiz scores and the race performance**.

- The session concluded with a **demonstration and prize distribution** for the top three teams.

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

Photos of the Event:

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

Event Poster:

Social Media Links:

Instagram - https://www.instagram.com/ieee_dbit/?hl=en

Website – https://ieee.dbit.in

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

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

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

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

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

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

Winners of the Workshop:

1st Prize: Sumit Botle (SE EXTC), Harsh Ankush Angre (SE Mech), Aditya Namdev Pawar (SE Mech), Ayush Pankaj Mali (SE Mech)

2nd Prize: Sanket Prajapati, Clive Dias (SE Mech), Ralston Dsouza (FE Mech), Russell Ferreira (FE Mech)

3rd Prize: Jai Salunkhe, Raman Sharma (SE EXTC), Anant Deshmukh (SE EXTC), Deepak Sakha (SE EXTC)

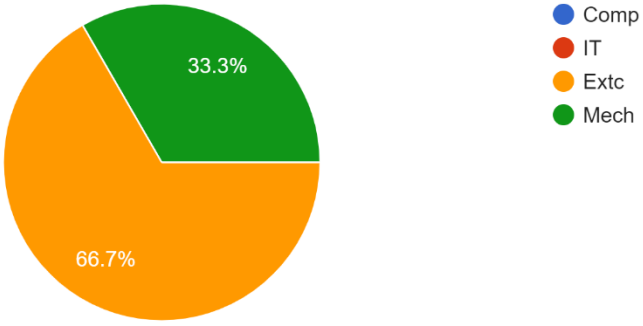
DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

Feedback:

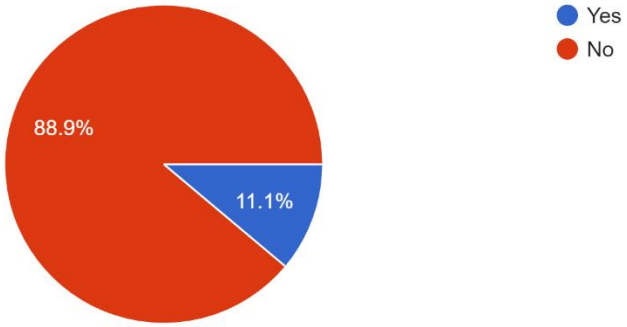
Branch

18 responses



Are you an ieee member?

18 responses

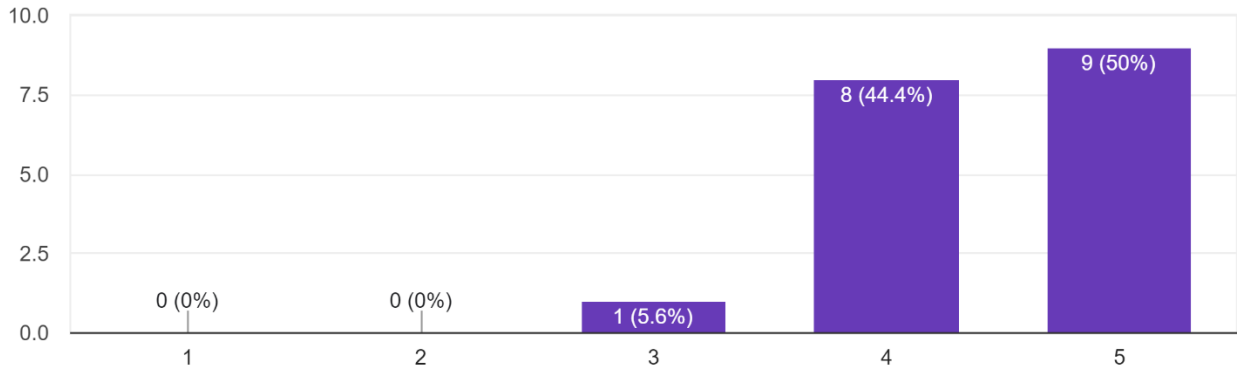


DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

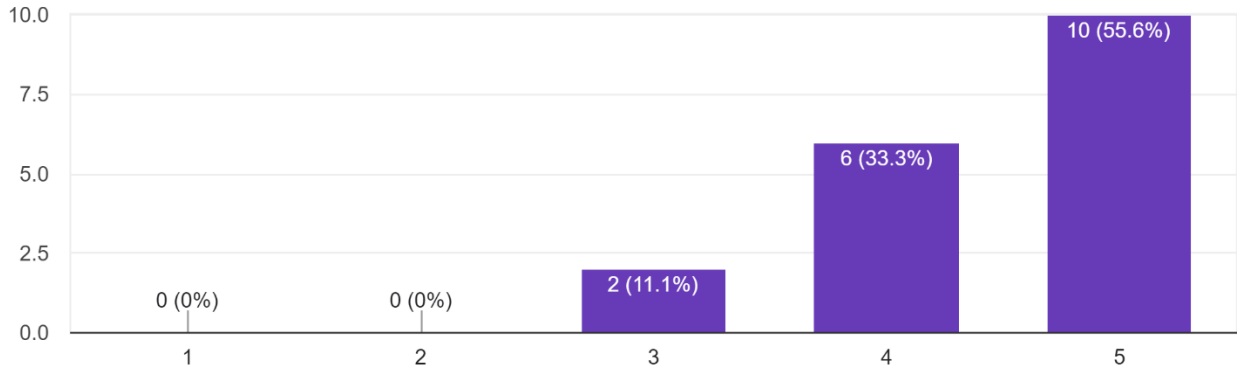
Rate quality of workshop

18 responses



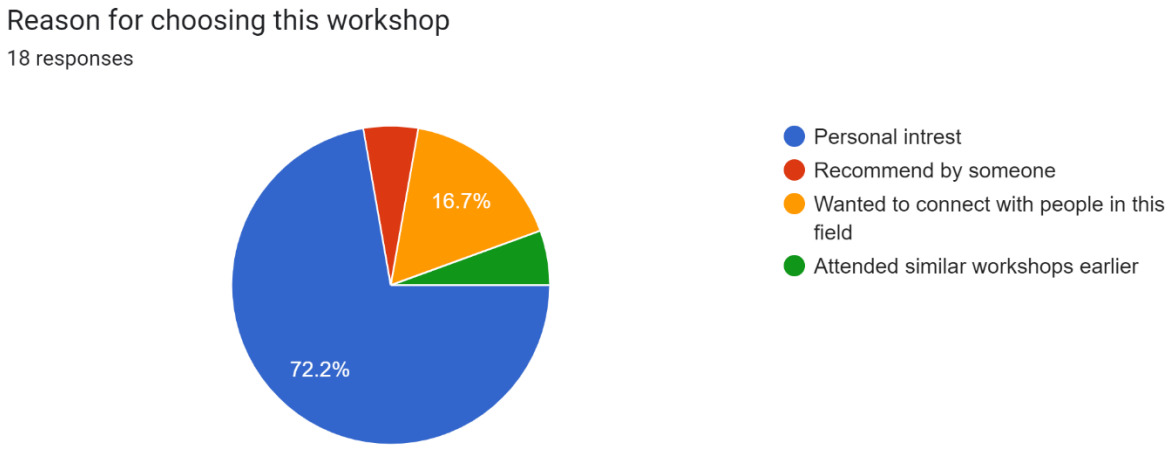
Teaching experience

18 responses



DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH



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

DON BOSCO INSTITUTE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION IEEE-DBIT CSI STUDENT BRANCH

10. great workshop

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