

Workshop on Line Following Bot and Practical Demonstration

**Date:** 15 September 2025

**Organized By:** Electrical Engineering Department

**Theme:** Robotics, Drones, and Futuristic Technologies

The Electrical Engineering Department organized a **comprehensive and highly interactive workshop** titled “*Line Following Bot and Practical Demonstration*” on **15 September 2025**. Held under the thematic umbrella of **Robotics, Drones, and Futuristic Technologies**, the workshop aimed at equipping students with hands-on knowledge of autonomous systems, sensor-based robotics, and the real-world functioning of intelligent machines.

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## 1. Objective of the Workshop

The primary objective of the event was to:

- Familiarize students with the **fundamentals of autonomous navigation**.
  - Provide exposure to **real-time robotic behaviour**, from sensor input to motor actuation.
  - Cultivate problem-solving, innovation, and technical confidence among budding engineers.
  - Inspire students to explore **robotics, drones, embedded systems, and AI-driven technologies** as future career paths.
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## 2. Inaugural Session

The workshop commenced with an encouraging address by the **Head of Department & Society Mentor, Mr. Gajendra Singh Rawat**.

He highlighted:

- The rapid evolution of robotics in modern industries.
- The importance of acquiring practical skills alongside theoretical knowledge.
- How workshops like this strengthen the foundation for advanced research and innovation.

His motivating words set a positive tone for the day, reminding students that timeless engineering excellence comes from disciplined learning and persistent curiosity.

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## 3. Insightful Lecture by Society Mentor, Mr. Lokesh Bhardwaj

The technical session was led by **Society Mentor, Mr. Lokesh Bhardwaj**, who delivered an exceptionally insightful and structured lecture.

His talk covered:

- Working principles of **Line Following Robots**.
- Roles of **IR sensors, microcontrollers (like Arduino), motor drivers, and chassis design**.
- Concept of contrast detection and logic behind path recognition.
- Real-world applications of line-following mechanisms in industries, warehouses, and automation systems.
- Common challenges like calibration errors, sensor noise, and speed control.

Mr. Bhardwaj's simplified explanations, real-life examples, and interactive teaching style made even complex topics feel approachable. His experience and clarity enabled students to visualize how theory transforms into technology that runs the world today.

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## 4. Practical Demonstration Session

A major highlight of the workshop was the **live demonstration of a functioning Line Following Bot**. Students observed:

- How IR sensors detect black-and-white contrast on track layouts.
- How a microcontroller interprets signals and takes decisions in fractions of a second.
- How motor speeds are adjusted to maintain smooth turns and precise navigation.

The demonstration allowed students to engage with hardware closely—checking wiring, controlling code segments, and experimenting with track variations.

This hands-on exposure deepened their understanding and boosted confidence in building similar projects independently.

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## 5. Role of Coordinators

The event was efficiently guided and supervised by the departmental coordinators:

- **Mr. Gajendra Singh Rawat**
- **Mr. Lokesh Bhardwaj**
- **Mr. Aviral Awasthi**

Their combined leadership ensured smooth execution—from planning and technical support to student engagement and demonstration safety. Their coordination exemplified the tradition of teamwork and academic mentorship within the department.

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## 6. Contribution of Student Coordinators

The backbone of the workshop's smooth functioning was the dedicated team of **Student Coordinators**:

- **Prince Sharma**
- **Dhruv Sharma**
- **Dhruv Pathak**
- **Nitin Joshi**
- **Aryan Kapoor**
- **Ankush Bhatt**

They handled responsibilities such as track setup, IR sensor calibration, demonstration management, hardware arrangement, registration desk, photography, and crowd coordination. Their enthusiasm and teamwork significantly contributed to the workshop's overall success.

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## 7. Student Participation and Learning Outcomes

The workshop witnessed enthusiastic participation from students across different semesters. Their involvement in discussions, live troubleshooting, and hands-on handling of robotic components demonstrated keen interest and readiness to explore futuristic technologies.

**Key learning outcomes included:**

- Understanding autonomous bot architecture.
  - Acquiring basic microcontroller programming insight.
  - Getting exposure to robotics hardware.
  - Recognizing applications in industries like automation, delivery systems, and drone navigation.
  - Developing teamwork, analytical thinking, and engineering discipline.
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## 8. Conclusion

The workshop concluded with highly positive feedback from students. Many expressed a desire for more advanced sessions on robotics, drones, and embedded systems. The event successfully

fulfilled its goal of inspiring young engineers to step confidently into the world of intelligent machines and automation.

The Electrical Engineering Department remains committed to organizing more such enriching, skill-focused, and future-driven academic activities.











































