LINE FOLLOWING ROBOT (LFR)

Sci-Fi Fare 2026

“Turning Vision to Victory!”

Organized by: EEE Club, Department of Electrical and Electronic Engineering

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Common Rules

1. Students from the same or different institutes can form a team.
2. Participants can compete solo or in a team (maximum 5 members recommended).
3. The competition is open to all university, college, and school students.
4. Teams must register online before the deadline.

Competition Rounds

- **Primary Round (Elimination)**
- **Final Round**

A limited number of teams will advance to the Final Round based on Primary Round performance. The exact number will be announced on the event day.

Round Details

- Basic to intermediate line-following challenges.
- **4 checkpoints** in Primary Round | **5 checkpoints** in Second & Final Rounds.
- Each team gets **2 minutes** to place and calibrate the robot after being called (failure = disqualification).
- **Time limit**: 5 minutes (300 seconds) in Primary | 7 minutes (420 seconds) in Final.
- Maximum **3 restarts** per round.
- Only **one team member** is allowed inside the arena during the run.
- Touching the robot during a run = restart.

Arena Specification

- Line width: **2.5 cm** (black on white or white on black surface).
- Start & Finish zones: Black squares, **30 cm × 30 cm**.
- Distance between adjacent lines: Minimum **20 cm** (center to center).
- Minimum angle: **30°** (acute angles allowed).
- Curved line radius: Minimum **15 cm**.
- Line gap (straight break): **10 cm**.

Final Round Special – Advanced Track

Final Round features an Advanced Track with:

- Multiple paths, branches, junctions, and decision points.
- Shortest Path Requirement: Robot must follow the shortest/optimal path to the Finish Zone.
- All Checkpoints Mandatory: Must pass all 5 checkpoints in correct sequential order (no skipping).
- Includes cave/tunnel section (max 3.5 feet).

Robot Specification

- **Height**: Maximum 25 cm
- **Length**: 15 cm – 25 cm
- **Width**: 15 cm – 25 cm
- **Weight**: Maximum 2 kg (including batteries)
- **Power**: Maximum 24V between any two terminals
- Must be **fully autonomous** — no wired or wireless remote control/communication allowed (violation = immediate disqualification).

Additional Restrictions:

- Readymade complete LFR kits are **not allowed**.
- LEGO or MECCANO sets are **not permitted**.
- Maximum **3 switches**.
- Teams must bring their own power supply.

Gameplay

- The robot starts in the Start Zone and must **stop** the Finish Zone.
- The robot must cross **all checkpoints** in order.
- If multiple paths exist, the robot can choose any (but cannot skip checkpoints).
- Skipping a section (checkpoint to checkpoint) = penalty + restart deduction.

Scoring System (Most Important)

Total Score (S) = A + T - P

- **A** = Points earned from checkpoints (details will be announced on event day).
- **T (Timer Bonus)** = Total allotted time – Actual time taken → Primary: 300 seconds | Final: 420 seconds → **Timer bonus is only counted if all checkpoints are completed**.
- **P** = Penalty points (restarts, rule violations, skipping sections).

Higher score wins. Speed + accuracy + reliability — all three matter.

Penalties (details finalized on event day):

- Each restart after the first few → penalty points
- Skipping sections, going out of track, etc.

Disqualifications

A team may be disqualified for:

- Disrespecting judges or organizers.
- Using remote control / communication with the robot.
- Violating safety rules or causing damage.
- Misconduct toward other teams.
- Using prohibited materials (LEGO, readymade LFR, etc.).

Other Conditions

- The organizing committee reserves the right to modify rules if necessary.
- All decisions by the judges are **final**.
- Teams are responsible for their robot's safety and any damage caused.

Demo Track

Will be published Soon…..