

Guidelines for Fastest Path Following Robotics Competition

Objective

The primary objective of the competition is to design and build an autonomous robot capable of following a predefined path as quickly and accurately as possible.

Participation

- The participants must be the undergraduate students of *nec*.
- The team must register online for participation.
- Team size: 1-4 members.

Robot Specifications

- Size: maximum dimension: 30 cm X 30 cm X 30 cm (LBH).
- The robot must only use on-board power supply.
- The maximum voltage difference between any two points must not exceed 24V.
- The robot must not be connected to any other devices externally, i.e., it should be completely autonomous.

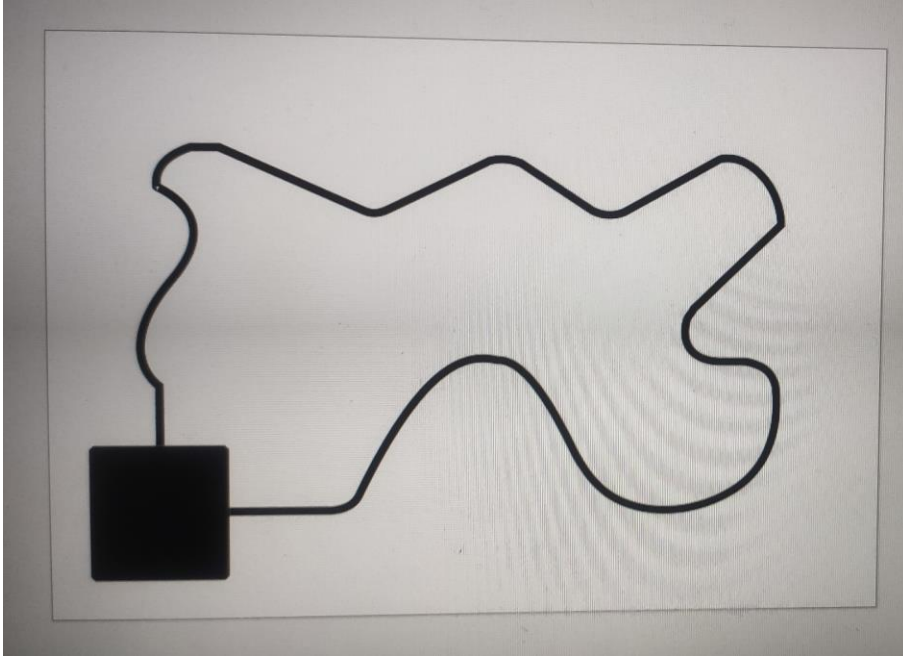
Path Design

- The track will be black and the background will be white.
- Width of the track: 1.5 – 2.5 cm.
- Length of the track: around 400 - 500 cm.
- Path may have straight sections, curves and turns.

General Rules

- **Course Time:** Time is measured from the time the robot crosses the starting time until the time it crosses the finish line.
- **Time Limit:** A maximum of 5 minutes is allowed for a robot to complete the course.
- **Timekeeping:** Time shall be measured by an electronic gate system or by a judge with a stopwatch, based on the availability of equipment. In either case the recorded time shall be final.
- **Autonomous Operation:** Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.
- **Course Rules**
 - ✓ Every line follower robot must pass course at least 1 time and at most 3 times.
 - ✓ Referee will choose the best result.
 - ✓ **Losing the Line:** Any robot that loses the line course (but not wanders off of the arena surface) must acquire the line at the point where it was lost, or at any earlier (e.g., already traversed) point. Otherwise, robot will lose one attempt.

- ✓ A robot that wanders off the arena surface will lose one attempt.
 - ✓ There will be multiple checkpoints in the arena.
 - ✓ A checkpoint is white line specified on the track.
 - ✓ A checkpoint is crossed if the robot completely crosses the end point.
 - ✓ Only one participant can enter the arena.
- Any team not ready on time will be eliminated from the competition.
 - The path will look like as below:



Practice Sessions

Participants may have practice sessions on a similar path before the actual competition to familiarize themselves with the environment.

Declaration of Winner and First Runner Up

- A robot is declared winner that completes the path at the shortest time.
- First Runner Up will be awarded for the robot that completes the path at the second shortest time.
- If all robots fail to reach the final point in specified time (5 minutes), the robot nearest to the final points will be declared winner and first runner up.

Awards

- Winner will be awarded NRs. 20,000/-
- First Runner Up will be awarded NRs. 10,000/-
- Other participants will get Certificate of Participation.

Note

- The project exhibition organizing committee has right to change the guidelines as per necessity.

Contact Persons

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