LFR (Line Follower Robot):

Aim

A line follower robotics competition in which the robot must be able to follow a line on the surface in the shortest possible time or vice versa. The arena may contain curve lines, sharp angles, triangles, circles, rectangles, dead ends, bridge, obstacles, cave and many more.

*** Registration Link is on the last page. Read the rule book thoroughly before applying.

Eligibility

1. The competition is open for any student of college to university level.
2. Participants must compete as part of a team and every team must have a team leader.
3. Registration Fee: 2000/=
4. Each team can have a minimum of 2 to a maximum of 4 participants. In case of extra participants, 2 more members can be added and 500tk per person has to be paid.

Give away for all participants

1. certificate
2. snacks
3. Lunch
4. T-shirt

Dimension and weight for Robot

1. Height: Maximum 15cm
2. Length: Maximum 25cm
3. Width: Maximum 25cm
4. Maximum weight 2.5 kg.

Requirements for the Robot

1. Maximum 12 Volt between any two terminals of the circuit. Each team must bring their own power supply for robot. No additional equipment/parts will be supplied in the competition.

2. Maximum Number of switches allowed is two. Such as the power switch and operations switch.
3. The bot is only allowed to calibrate and follow the line. Any extra gimmicks will not be allowed.

4. If a robot surpasses the designated maximum dimensions, the team will incur a penalty of 2.5 points for each centimeter exceeding the limit. For example, if a robot's length is 25 cm, height is 16 cm, and width is 26 cm, the robot will be considered to have 2 cm extra (0 cm over in length + 1 cm over in height + 1 cm over in width), resulting in a penalty of 5 points being deducted from their overall score.

Caution: No wired/wireless communication between the operator and the line follower is allowed. If found the team will be disqualified immediately

Rounds

1. Primary Round
2. Final Round.

Instructions

1. A limited number of teams will be selected for the Final round based on total points of the primary round.
2. During the Rounds, participants will engage in basic line-following challenges, and selections will be based on completion times.
3. In the Final Round, the qualified robots will encounter challenges like crossing a bridge and navigating through a cave.
4. Number of checkpoints will be 5 in the Primary round and 6 checkpoints in the Final round.
5. All teams must hand over the bots for inspections before the competition. The bots will be returned when the team name is called for their turn.
6. Team must place the robot at the front line and calibrate for run within 2 minutes after calling them to come to the arena. Otherwise team will be disqualified.
7. During these 2 minutes the team is allowed to calibrate, test run the bot, upload codes into the bot etc.
8. 5 minutes will be provided to each team in the Primary round and 7 minutes in the Final round to complete the tasks.
9. The winning team is determined based on points earned.
10. Each team has maximum 4 restarts for each round. Restarts come with penalties.
11. Only 1 member from the team is allowed in the arena during the main run.
12. Touching a bot while running will be counted as restart
13. No construction set such as MECCANO is allowed
14. Manufactured circuit board is allowed but Manufactured LFR is not allowed.
15. handmade sensor boards will be rewarded with bonus points
16. handmade Chassis/body will be rewarded with bonus points
17. No team can share their robots with other teams and can't bring extra bots

Arena Specification

1. The dimensions of the arena are roughly 14 feet by 12 feet.
2. The lines on the track have a width of 3 cm.
3. The arena may have contrasting black lines on white surfaces and white lines on black surfaces.
4. The arena may have a diverse set of curves, straight lines, bridges, caves, dashed lines and other geometric shapes.

Gameplay

1. Before the competition starts, each team has to submit their robot.
2. At the time of the race, only 2 members will be able to stay in the arena.
3. The bot must start from the starting point and reach the end point following the line.
4. Touching the bot during runtime is a compulsory restart. Restart is a must in case of a line loss.
5. There will be 5 checkpoints in the Primary round and 6 checkpoints in the Final round.
6. For both rounds the bot must cross all the checkpoints. If a restart occurs they can start from the previous checkpoint.
7. Participants are allowed to skip checkpoints but appropriate penalty will be provided depending on the checkpoint.
8. The Maximum number of restarts 4.
9. Each team will be given 5 minutes in the Primary round and 7 minutes in the Final round to complete the tasks.
10. Before the bot is set to run in the arena each team will get 120 seconds for calibration and taking more than 120 seconds will lead to time deduction from the actual runtime.

Points Distribution

General Factors	First Round (points)	Final Round (points)
Participation	100	100
Leaving start zone	10	10
Clearing a Checkpoint	50	50
Stopping at finish zone	20	20
Completing without a restart	20	20
Crossing bridge	30	30

Clearing the cave	30	30

Bonus

Bonus Factors	Points
Handmade sensor array	10
Handmade body	10

Penalty

Penalty	Points Deduction
Excess Dimensions	2.5 points/cm
Restarts	10
Excess Weight	10 points per 50 gm

Calculations

Score = C + T – P

- C: checkpoints cleared
- T:
  - Time measurement will be in seconds
  - 300 – time taken to finish   (first round)
  - 420 – time taken to finish   (final round)

- P: Penalty taken

*** All the other points mentioned will be taken cared of during the competition. ***

Attention

1. The event committee responsible holds the right to change any rule and announce it immediately based on the given circumstance.
2. Contestants will be responsible for their bot's safety.
3. Contestants will be responsible if any damage is done to other teams or venue by their bot or other devices.
4. Instances of disregarding the security rules put in place for the event will result in disqualification.
5. Any indication of showing disrespect towards the competition officials' event will result in disqualification.
6. Unruly behavior will result in disqualification.
7. The "TECHSURGENCE" organizing team members will not be held responsible nor liable for any incidents or accidents caused by participating teams or their equipment

Date of contest: Saturday, 7 October 2023

DeadLine

> **22th September 2023**

Registration

> **https://forms.gle/G9RXKsoQw7cyi6Fm6**

Whatsapp (message only)

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