

HALDIA INSTITUTE OF TECHNOLOGY
PRESENTS

PRAYUKTI-2018

ANNUAL TECHNO-MANAGEMENT FESTIVAL

APRIL 09TH -12TH, 2018



Track-O-Bot

Build. Code. Navigate your way to the finish line.

INTRODUCTION

Autonomous bots require to perform many interesting and complex things and in places where normal human exploration is limited or impossible. However, the most basic requirement for any autonomous robot is to navigate properly and reach its destination. In this event your bot will be tested to do just that, to navigate through a city plan containing crossings, dead end at walls and barriers.

Objective

The robot has to follow a black line over a white background as well as a white line over a black background or both and successfully reach the finishing point from the starting point without being manually controlled by any person. The entire path of the robot consists of obstacles. Depending on the level or round, the robot may have to indicate the obstacles and stopping positions by simply glowing different LEDs. A robot failing to follow the line, and wandering away or falling off the board in any of the rounds will have to start from the last detected checkpoints. Marks will be awarded for successful detection and crossings. Penalties will be imposed for touching barriers and not stopping in the finishing point

ROBOT SPECIFICATION:

1. The robot should fit into box of dimension 25cm X 25cm X 25cm.
2. The dimensions may however exceed after the beginning of the run.
3. The Bot must be fully autonomous, i.e. No manual intervention is allowed once the run is started.
3. LEGO kits or its spare parts or premade mechanical parts are not allowed.
4. Readymade gearboxes, sensors, metal detectors, development boards can be used but no other part of the robot should contain any readymade components.

Event Rounds

There are three rounds in this event.

- Round-1
- Round-2
- Round-3

Event Rules

- This is a tentative arena, the path to be followed will be curved and the arena will be subjected to change. But the overall dimensions will be same.
- A robot will be allowed a maximum of 3 restarts.
- Before starting the round, participants can test their bot in a separate arena (Given at the end of this Document).
- However, only 7 minutes time for calibration on the arena is allowed.
- If the robot fails to follow the line/falls of the arena or requests a restart , the robot has to start from its last fully passed and detected checkpoint.
- A team can consist of a maximum of five students.
- A single participant can be present in only one team.
- Each member of the team must bring their own college ID cards.
- Team will have to register themselves in the registration counter before they can participate in the event.
- Round 1 will be evaluated on scores. Team having higher scores than cut-off marks will be getting entry into next round.
- Wall turn i.e. wall detection can be skipped, with negative marks.

Arena Rules

- Width of the central line is 3 cm.

- Central line and background will have a sharp contrast. Central line will be black in colour on white background or vice versa or both.
- Each Team has to pre-register their bots to get verified with the bot dimensions and get a bot ID. This step is compulsory and any team skipping this step will be disqualified.
- Any kind of damage to the arena or any action leading to the discolouration of the arena will lead to immediate disqualification.
- The Arena consists of wall .
- The bot has to detect wall for bonus points.
- Round 1 and Round 2 arena is given below, the paths shown are tentative.
- Round 3 arena will be disclosed during the event.

SCORING

Scoring Points

+50
+30
+75
+100

Achievement

For each successful turn.
For each successful detection of crossing.
For successful Wall detection.
Bonus for stopping at the end.

-20
-30
-40
-100
-80

For first restart in each round.
For second restart in each round.
For final restart in each round.
For any hand touches.
For unsuccessful wall detection,

Practice Arena



pragyukti

tweaking the grey cells

Blue Lines represent walls

