TOPBOT

Theme 2

JARVIS

Description

Put your design and engineering skills to design a line follower robot which is intended to follow a black coloured path. Call it a test of all the features of your Robot, viz. mechanical, electronics and coding.

The judging will be done on scored points and time to complete the run.

Details

You have to submit your abstract for the said requirements in your line follower robot . While preparing the abstract we assure you will learn everything needed to build this robot . A list of available components will be provided to you and same components will be given to build your robot. You are advised to carefully select the components and study about them.

Most innovative, cost effective and unique abstracts will be selected and selected teams will be invited to visit **IIIT Allahabad** to compete on-site with other participants. You will be given 2 days to build your robot , which should be same as mentioned in your abstract. DIY kits from our sponsor **electronicscomp.com**, will be provided to these participants for building the robot.

We assume you will be already familiar with parts and components being used as you are already provided with the list of available components.

Be careful in selecting right components for your bot. Select minimum components so as to reduce the cost of building your robot, but don't compromise the functionality and features of your robot.

How to apply

STEP 1:
Make a team of 3 students and get yourself register at https://tobbot.xyz
STEP 2:
Download abstract template for your theme from website by clicking on your theme.
STEP 3:
Submit your completed abstract by sending it to https://submissions.topbot.xyz before 10-20-2017.

Guidelines

Make a line follower robot that will be controlled by you and your task is to complete the run over the given track in minimum time, scoring maximum points and avoiding all penalties. Your robot will be autonomous i.e you can't control it by remote or any other means once it enters the track.

Note:

For fair competition, we stick to some rules and regulations and some guidelines for designing and building your bot.

Track Description

- The main colour of the track will be black on a white background.
- At some locations the track might be divided into two parallel tracks. You will have to follow any one of these tracks as specified by us on the spot.
- The track may have some breakages of the background colour not more than 5cm in length. Your vehicle is supposed to come to a halt only if the breakage is more than 5cm.
- Your vehicle should stop at the finishing line wherein it will encounter more then 5 cm of white colour.

Vehicle Specifications

- Vehicle should not be greater than the defined dimensions, i.e. **30 cm x 20 cm (lxb)** .
- You can use any microcontroller. But using at least one microcontroller is must.
- Vehicle can contain maximum 4 wheels.
- Vehicle can contain maximum 24 v DC power supply.

Track Specifications

- Width of the Black line will be 15 mm.
- Total length of the track will be 25 m.
- Turning radius will be minimum 15 cm.
- The Track will be straight on either side of the starting and finishing line for at least 60 cm.

Scoring and judging criteria

- The event consists of two rounds
    1. Abstract Submission Round (online)
    2. Final Round (onsite)

- The abstract submission round is the qualifier for the final round. Marks scored in this round hold no weightage in the finals.

- Judging for the finals:

1. Each team will be allowed to go around the track thrice, and the best score out of the three will be considered.
2. The total score will be out of 1000 points, which will be allotted among various tricky sections of the track.
3. Each tricky section will carry some points. Depending on how well your vehicle navigates that section, you will be awarded the points.
4. Track leaving penalty: For each time your vehicle leaves the track, 50 points will be deducted.
5. Manual intervention penalty: For each manual intervention, 50 points will be deducted.
6. Time penalty: The fastest bot will serve no penalty. All other contestants will be awarded time penalty according to the formula:
   Penalty = 10 * Time difference from leader (In seconds)

Final Score = 1000 – Time penalty – Tricky penalty – Track leaving penalty – Manual intervention penalty