NIT MEGHALAYA

RULEBOOK
LINE FOLLOWING ROBOT(LFR)

COGNITIA 2022

Task

To design an autonomous bot that follows the black line and finishes the track with maximum accuracy in minimum time. Events will be conducted in two phases i.e. Prelims and Finals.

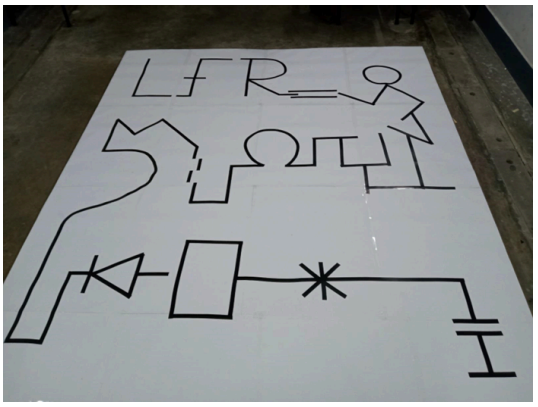
"Conquer Test Cases"

Robot Specifications:

1) Maximum Dimension of the robot should be 20 cm x 20cm x 10cm (l x b x h).
2) The chassis of the bot should be made with hardwood.
3) Motor speed should not exceed 100 rpm to 200rpm.
4) The power supply must be on-board.
5) Max Battery Rating: 12V, 1.2A.
6) The robot must only be powered by electricity. The usage of an IC engine is prohibited.

Track Specification:

1) Black tape as a black line on a White arena (For contrast).
2) Sample Arena for Final Round



Robot Control, Batteries & Power:

1. All power supplies must be on board.
2. No extra time will be provided for this once the robot is put inside the arena.
3. The robot must be powered electrically. Use of an IC engine in any form is not allowed. Onboard batteries must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).
4. Max Battery Rating: 12V, 1.2A.
5. Change of battery will not be allowed during the match. If allowed, it will be considered as a breakdown.
6. The teams are suggested to have at least one extra battery ready and charged up during competition so that on advancing to the next level, they won't have to wait or suffer due to the uncharged battery.

Game Rules:

During the course of the robot in the arena's pathway

1. Events will be conducted in two phases i.e. Prelims and Finals. The teams for the finale will be selected on the basis of their performance in the Prelims. The track for the finale will be disclosed 30 minutes before its commencement. If any member of the registered team is found damaging or making changes in the track, then the team will be disqualified.
2. Each team participating will be awarded 1000 points at the beginning of the competition.
3. Points will be deducted according to the time taken by the bot to complete the track.25 points will be deducted per 30 seconds.
4. Each team will be rewarded 2 free resets which provide them the opportunity to put back their bot on the line. (In case the bot gets confused and goes out of track).
5. For subsequent resets, 100 points will be deducted per reset.
6. The team gaining the maximum points will be declared the winner.

2 Rounds

ROUND-1: Prelims

Bot Should Follow a black line to reach its destination difficulty Level of Obstacles will be easy.

ROUND-2: Final

Bot Should Follow a black line to reach its destination difficulty Level of Obstacles will be Hard.

Team Formation and Guidelines:

1. A team can have a minimum of three and a maximum of six personnel. Participants from the same or separate institutes may participate. Students from NIT Meghalaya must form a team composed of only NIT Meghalaya students.
2. Team Name: Every team must have its specific name. The organizers retain the right to refuse entries from any team whose name is improper, insulting, or contradictory. If a team's name is altered, organizers must be notified.
3. Team Leader: At the time of registration, each team must designate a team leader. All critical discussions between the LFR event organizers and registered teams will be handled by their team leader. At the time of registration, the team representative must provide valid contact information (phone number, email address, etc.).

General Guidelines:

The quickest and the most balanced autonomous bot will win.

1. Whenever the call for your turn is announced, you should be ready with your robot.
2. The specified robot specification must be followed. Any deviation from the specifications can result in a point deduction or disqualification.
3. No responsibility will be held by RAT organizers for any late, lost, or misdirected entries.
4. The robot must not be constructed from Lego components or any other ready-made kit; if such a robot is found, the respective will be disqualified.
5. No test practice will be allowed in the arena.
6. Illegal conduct may lead to disqualification.
7. The decision of the organizers or judges shall be treated as final and binding on all.
8. Certificates of Participation will be awarded to all teams who participate in the event but not to teams that are disqualified for violating any of the competition regulations.

Prizes

1st Position	2nd Position	3rd Position
10K	7K	5K

1) The prize money will be awarded to winners via NEFT and will be processed within 30 working days after receiving the prize money from our sponsors. The winners will have to mail the following information (immediately after the announcement of results) to robotics.club@nitm.ac.in , strictly in the following format".
2) Subject: Competition Name, Team ID - your position (example- Robo Rumble, PB239- 1rd Position)
3) Body of mail:
    a. Account Holder's Name
    b. Account Number
    c. Bank name and Branch name.
    d. IFSC Code

Registrations:

1) Start preparing your bots for the competition. Register for the event using the link below.

2) The last date for registration is **27 Oct 2022**.

An important Note:

These rules may change at any time, even without explicit notification to teams. However, the document uploaded here is to be followed as the latest problem statement for all the rules and design specifications. Any change can be observed in the name of the document which will contain a higher version (v2.0, say) if updated. The teams acknowledge that they have a responsibility to read, understand and abide by the rules and Techfest, NIT Meghalaya reserves the right to prevent any team from competing at any time for any reason (including but not limited to the reasons specified elsewhere in this document). However, we shall inform all registrants in case an updated version comes up (all the registrants till the date of revision). In case of any queries, participants are encouraged to contact Techfest, NIT Meghalaya.

For queries (Info):

Heads of Events
Lalith Datta Konda - Final year- Electronics and Communication Engineering - b19ec029@nitm.ac.in
Shashank Kumar - Final year- Electronics and Communication Engineering - b19ec010@nitm.ac.