RADIX – AUTONOMOUS 1

Stop, Hold, Go!

Task Overview

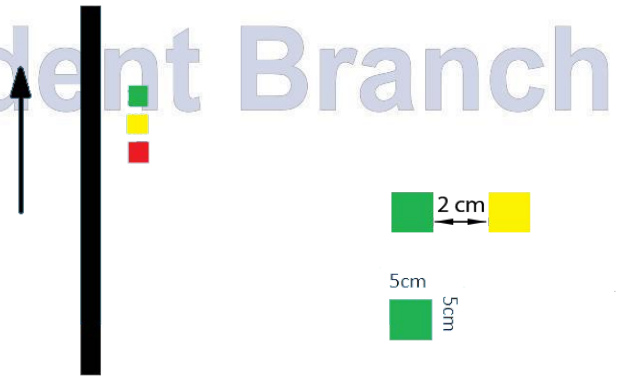
The autonomous robot has to detect the color of the patch on either side of the track and then, if the bot detects:

- RED color, it stops for 10 seconds
- YELLOW color, it stops for 2 seconds
- GREEN color, it rotates by 360° and follows the due course of track ahead.

Track Specifications

The track will be an ordinary LFR track of 2cm width with RED, YELLOW and GREEN patches on either side of the track. The autonomous bot will detect the color of the patch (i.e. red, yellow, green). It is to be noted that the colors would NOT necessarily be in the same order as given.
Each of the three patches would have dimension of 5cm x 5cm and the distance between two patches will be 2cm. And they will be around 8cm away from the track.

Sample Track



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Robot Specification

1. The bot must fit inside a box of dimensions 25cm x 25cm x 25cm during the whole course of line-following.
2. Machine cannot be constructed using readymade Lego kits or any readymade mechanism. Violating this clause will lead to disqualification.
3. In case the bot gets off the track, only two more runs will be provided. Also the robot will have to start afresh from the last checkpoint cleared.
4. The bot must not damage the track in any manner.

Power Supply and Propulsion

1. The machines cannot use an externally placed power supply but only on-board power supply. No external power supply will be provided. The on-board power supply used must be non-polluting and must satisfy the safety constraints determined by the judges.
2. In case the machines are using a non-electric power supply, the team must get it approved from the organizers beforehand via email. Organizers will not be responsible for inconvenience if approval is not sought.
3. Maximum permissible DC Supply Voltage that can be used is 24V.

General Rules

1. All the students enrolled in high school, undergraduate, postgraduate (excluding PhD.) program at any recognized institute (identity card will be checked) are eligible to participate.
2. Team must declare a name for their machine at the time of competition.
3. A team may consist of max 4 members. The members from different colleges can form a team.
4. If the robot goes off the track in its first attempt, it will be given 2 more chances. The teams can make some hardware changes during this period, like changing batteries, adjusting sensors, but no extra hardware can be added and no changes in the code can be made.
5. The teams may take their robots off the track twice while running for calibration and adjustments which would result in time penalties.
6. In case of a tie, the team which covers the track successfully in the least time will be declared the winner.
7. Rules are liable to minor changes which will be updated on the website.
8. In case any kind of dispute arises, the judge's and organiser's decision will be considered final and binding to all and no argument in this regard will be entertained. Judges and organisers have the right to disqualify any team if they feel the team is not playing with fair interest.

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Judgement Criteria

1. The extent to which all the specifications of the entire robot have been implemented.
2. Extent to which it performed in arena.
3. Finesse in algorithm and hardware fabrication.

Please regularly check the website for further updates on the competition and the change in rules and regulations, if any.

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All the Best!

#HappyTroika ☺

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