RADIX – AUTONOMOUS 2

WATER ABRIDGED

Task Overview

The task is to drop the **White** coloured blocks inside a circle located at some specific distance from the track.

The autonomous robot has to pick the block and then drop it on mechanically driven aqua-robot which will sail through the water passage. The autonomous robot will reach the other shore through a defined path and will pick the block off the water robot and try to drop it inside the circle printed on ground. The drop and pick indication can be detected by the **White** coloured flags placed along the track of the autonomous robot.

Track specifications

To be revealed soon...

Sample Track

The autonomous bot will detect the **White** flag, pick the block and follow the black line till it detects another flag. After that, it'll drop the block on the aqua-bot which will take it through the water and autonomous bot will continue to follow the line till it detects yet another flag. This detection indicates the autonomous bot to pick the block from the aqua-bot. Then the autonomous bot detects another flag and searches for the position of the circle and will try place the block inside it.

Robot specification

1. The team has to make two bots, one autonomous and one aqua-robot (manually controlled water robot). In case you are not able to make the aqua-bot, you will be given one, at the cost of some points.

2. The autonomous bot must have the pick and drop mechanism.
3. Machine cannot be constructed using readymade Lego kits or any readymade mechanism. Violating this clause will lead to disqualification.
4. The robot 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.

Competition Structure

Stage 1-

Each autonomous robot will be tested for basic LFR, and pick-drop capabilities. The robots that are able to clear this stage will be allowed to proceed to the finals.

Stage 2-

Teams qualifying the prelims will battle it out on the main arena for the grand prize. **The arena will be revealed soon.**

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. Negative points for using our aqua-bot (manually controlled).
4. 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.

All the Best!

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