International Autonomous Robotics Challenge- 2015

Contest Outline

Objective:

The event focuses on solving a line maze via line following, one of the very basic yet extremely important concept of robotics, and calculate the shortest path in the maze. In addition to that bot has to travel by following a path bordered by a continuous wall. The event will test your analytical and coding skills, and will bring out the genius in you. Participants from various countries would participate in a country specific qualifying round, and the winning teams from the countries would be given entry to the Grand Finale (Final Round) of the iARC to be held during Techkriti'15. Any International team which missed the opportunity to participate in the national qualifying round of iARC, can also participate through the open-round, which will be held during Techkriti'15, in India.

Objective-National Round:

You will have to prepare an autonomous bot which can solve a line maze via line following and return in shortest time (shortest path in the traversed area) to the start point. Both start and the end points will be marked big black dots.

Objective-Final Round :

You will have to prepare an autonomous bot which can solve a line maze via line following and return in shortest time (shortest path in the traversed area) to the start point. The line maze is referred to as the first part of the arena. Then in the second half of the arena the bot has to travel by following a path bordered by a continuous wall on one side by using the principle of wall following. The farthest part of the bot from the wall should not cross the line which would be at a distance of 400mm from the wall. The transition between the first and second part of the arena is marked by a big black dot. Both arenas will be connected and robot needs to reach the finish point in one go.

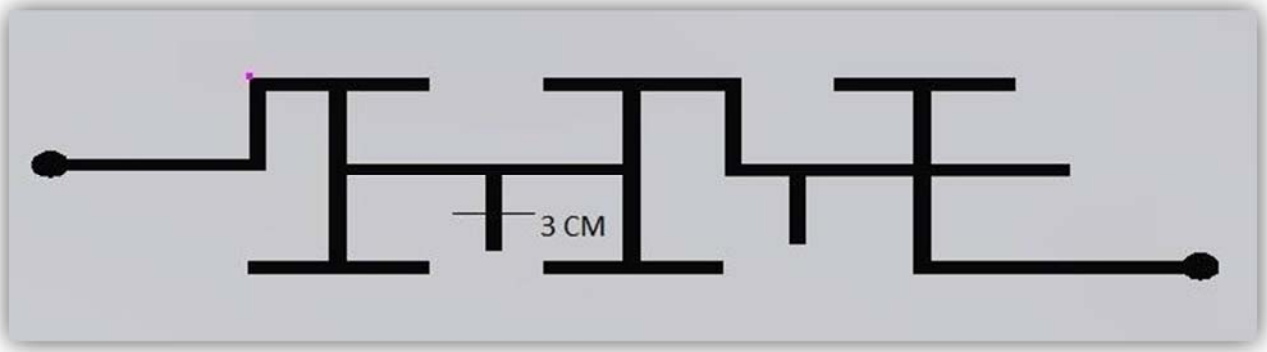
Gameplay:

The motive is to design a wireless line-follower robot being autonomous that is capable of completing the Arena successfully in minimum time.

Arena Specification

1. The Robot must follow a line from beginning to its end.
2. The lines at the cross-section are perpendicular to each other. The distance between two cross-sections is at least 10cm.
3. Line is about 3 cm black line on white background or vice versa.
4. The starting and ending point will be denoted by two circles, each of 10 cm radius and will be of same color as the line.
5. Track will be on PVC banner.
6. Track surface and course may have unevenness.
7. Actual track will be revealed on the day of the event.

Sample Arena:



**The maze for line following shown in the figure is just for the purpose of illustration and would be different in the event.

Machine Specification:

- During the whole event the bot must fit within a square of 200X200X200 (l X b X h)mm.
- The Robot must be stable and able to move on its own. A bot not fulfilling these criteria will be disqualified.
- The bots should be able to follow the line according to event specifications.
- Power supply of the robots should be on-board, off-board power supply is not allowed. The voltage difference between any two points on the bot must not exceed 24 volts.
- Robots must be able to operate under any lighting conditions. (You should take necessary measures to isolate the sensors from external lighting like camera flash)

Rules:

A-GENERAL

- Each team can have a maximum of 3 member.
- A team may consist of students from different universities.
- No damage should be made by a bot to the arena or to other team's bots during the competition in any manner.
- Bots should not be disassembled until the results are declared.
- When a team is called for a match, they must report within five minutes.
- Maximum 20 teams will be chosen for the Bangladesh round final depending on the timing in the university round.

Robot Control:

- You can start the robot at the beginning of the trial and no human intervention is allowed thereafter. If human intervention is necessary, the ongoing trial will come to an end. Teams may go for another trial if they have sufficient time left.
- The judges can ask for an explanation of any mechanism on the bot and there would be an immediate disqualification of defaulters of any kind.

Decision of Judges

Decision of the judges will be the final and judges are having the full rights to take any decision regarding results. Advisors of this competition have the superior power on judgment.

Changes to Rules and Deadlines

Contest organizing team reserves the full rights to change the rules & regulations and also the deadlines as well.

Contest Location

*ESAB Unit Face of your University will arrange the university rounds on university campus.
**The final and award ceremony of the competition will take place in Dhaka City.
*No TA-DA will be provided for any event.

Assessments and Awards

- Works submitted must meet content requirements and reflect the theme and mission set by the Competition Organization Committee. They have to be reflective of the concept.
- Three teams will be awarded the opportunity to participate in the final round of iARC on Techkriti'15 in IIT, Kanpur.
- One winning team will be awarded with round trip travel cost.
- Other shortlisted contestants will issue shortlisted certificate for contestants who have completed but did not receive any of the above awards and certificate for contestants whose works are not completed for some reason.

- Certificates of Excellence will be awarded to the top three teams.

Consent

By entering this competition you are giving your consent with agreement that you read all the rules and regulations and you are agreed with these.

Registration:

1. Your team will have to get registered through this link [http://goo.gl/aC0mi1] before February 12, 2015.
2. No abstract is required
3. Selected teams' name will be published online.
