



## National Robotics Festival – 2014

### Contest Outline: Battle of Speed

#### Objective:

Basic robotics starts with making a line following robot. And people acquire practical knowledge through this way of making a simple line following robot.

In this National Robotics Festival we want to accelerate this enthusiasm of basic robotics among the novice engineering students.

This battle of speed session will challenge your knowledge of basic robotics. Competitive and speedy challenges are waiting for your entry. Efficiency and speed will make you winner of this battle.

#### 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 path is consisting of 'L' turns, 'U' turns and other curvatures as well as intersections (cross-section).
3. Minimum radius of curvature of the 'U' turns is 20 cm.
4. The line is surrounded by 15cm of free space on both sides, except on cross-sections.
5. The lines at the cross-section are perpendicular to each other for at least 10cm.
6. Line is about 2.5 cm black tape on white background or vice versa.
7. Track surface and course may have unevenness.
8. The track will have a certain number of checkpoints (Red tape).
9. Actual track will be revealed on the day of the event. (if convenient it'll be disclosed on one day before of the event)

**Machine Specification:**

1. The dimension of bot should not exceed 20x20x20 cm (L\*B\*H). Non adherence to the dimensions will lead to outright ousting from the event with no exceptions.
2. The potential difference between any two points on bot must not exceed 20 Volts.
3. The robot can be fully powered only electrically either through power adaptor or batteries. IC engines of any form are not allowed. On or off board power supply is allowed.
4. Use of LEGO kits is strictly prohibited and using any such kit will lead to disqualification of the team.
5. Robot must not have any parts or features which can be used to interfere with the operation of other robots (e.g. Laser light, flash lighting, mounted screw or any other kind of technologies that can hamper others' performance.)
6. Robot 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**

1. Each team can have maximum 3 members. Members can come from different universities. But all them should have enrollment in undergrad curriculum.
2. Rounds can be modified on the basis of no. of entries etc.
3. Judges' and coordinators' decision shall be treated as final and binding on all. The co-ordinators reserve the right to change any or all of the mentioned rules as they deemed fit. Change in rules, if any, will be highlighted on the website and notified to the registered participants.
4. The following compartments could lead a team to be disqualified: (if necessary)
  - a) Evidence of non-respect to other teams and competitors.
  - b) Evidence of non-respect to rules.
  - c) Evidence of non-respect to competition judges.
5. Competition judges are not part of the competition committee; they are assisted by the Roborace Committee members, but remain completely free for their decisions. (If necessary)

**B-GAME**

1. Every team will be given only one chance to run their bot on the track.
2. Timer will start when robot starts from the starting point.
3. Robot must keep itself within the track, cutting of track may cause restart from last checkpoint.
4. Team members will be allowed only three times to touch or reset their robots position during the run. However, this will lead to a time penalty and timer will not stop during this course of action.
5. If the teams reset their robots position then they will have to start from the last checkpoint cleared.
6. Robot must cross all the checkpoints *sequentially*.
7. The robot should not damage any part of the arena.
8. The robot will be judged on basis of points. For calculating points based on time lapsed, a threshold value(max 10min) will be set and revealed on the day of the event. The points awarded will be governed by the relation
  - I. Points = (Thereshold Time -Time Taken ) \* 10
  - II. Completing each checkpoint 50 points
  - III. Arriving to the end of line 100 points
9. During the Round, only one of the team members are allowed in the arena.
10. The judges' decision on the criteria of innovation and design cannot be competed.

**Decision of Judges**

Decision of the judges will be the final and judges are having the full rights to take any decision egarding 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**

The competition (semi-finals, finals and award ceremony) 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.
- One winning team and One runners up team will be awarded with cash prize.
- 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.

## 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 & Abstract Submission:

1. Your team will have to get registered through this link[ <http://goo.gl/LYnuhI> ] before **February 3, 2014.**
2. Last Date of Abstract Submission is **February 4, 2014**
3. Submit your abstract (maximum one page) through mail [ [contact@esab.org.bd](mailto:contact@esab.org.bd) ] and write [Abstract Submission] - [Group Name] - [Battle of Speed] as subject in the mail.
4. Only Selected team will have to **pay BDT 700.00 (for ESAB member - BDT 500.00) as the registration fee.** (Payment method will be circulated via email).
5. Selected teams' name will be published online.

Bring the machines to life  
**National Robotics Festival -2014**  
[www.esab.org.bd/nrf](http://www.esab.org.bd/nrf)