Details of Line Follower Robot Competition.

ETC Event 1

ETC Main Coordinators

Charlton Fernandes
charlton18fernandes@gmail.com
8975963972

Charlene Sequeira
charlene2494@gmail.com
9763711855

LFR:

Suhaas Pai
suhaaspai@live.com
7620265072

Jeronimo Misquita
jeromemisquita101@gmail.com
8806249436

Rahul Mascarenhas
rahulmasc@gmail.com
9604723022

Description

The Robotics Club in association with the Electronics and Telecommunication Department of PCCE are proud to announce the return of the Line Follower Robot Competition, with a lot more turns and twists in the tracks.

Students get a chance to showcase their programming skills amassed over/during the years of their engineering course. The competition is open for all BE/BTECH students. Each team will go through a qualifying round and the top teams will move on to the final round where the Winner and First Runners up will be decided.

Register today for fun and learning experience at the Line Follower Robot Competition!!

Scenario:

Gold Roger, the king of the pirates has hidden an enchanted treasure on a mysterious island, in the ancient black sea of the north. Being a notorious pirate yourself, you cannot resist, and dash across the Black Sea to the island to make the treasure forever yours. But beware of the many twists and turns along your path, for they may lead you astray, with no hope of finding your path once again.

If you are one of the lucky few that made it in time to the island, you must search for the treasure at once, flagging out every dead end you encounter. In the end only the bravest among all the mortals, who venture on this incredible journey will get a chance to take home the sparkling treasure.

Rules and Guide lines:

1. Only students with a valid college ID card will be allowed to participate in the competition and are required to verify the same on the day of the event.
2. Each student can ONLY be part of ONE team.
3. A team can have a maximum of **four members**.
4. A/C mains line will be provided.
5. No computer system will be provided; teams are required to bring their own laptops.
6. Your Line follower robot will be disqualified if it damages the track in any way.
7. A single robot cannot be used by two teams.
8. Same robot must be used by the team for all official rounds.
9. Any member of a team found indulging in un-acceptable behavior will attract disqualification for the entire team.
10. There are no restrictions on the types of sensors the participants can use, however the robot must be completely autonomous and clearly follow the line.
11. The magnitude of the voltage between any two points on the bot should not exceed 24v.
12. Decisions of the judges/coordinators are final.
13. Judges/Coordinators hold the right to change the rules and guidelines without prior notification.

TIME AND VENUE WILL BE NOTIFIED LATER.

Details of Rounds

All teams will be allowed to practice on the track, during the practice time allotted.

The event will consist of two rounds. The details of the rounds are as follows:

Round 1: Dash across the Black Sea

Day1 – 30th September 2014:

Track Specifications

- Minimum possible distance between two adjacent track lines is 8 cms.
- The track may consist of simple curves, L-sections, T-sections,dashed lines (4cm gap) and dead ends.
- No Restart checkpoints.
- Width of the line will be 2.5cms.
- The track will have awhite line on a dark green/black background.
- Each team has 3 official attempts .However participants can practice for as long as they want during the practice time provided before the official attempts.
- Each team has 5 minutes to complete each official attempt.
- The best of the 3 official attempts will be considered.
- This **round will not be timed** i.e. the time taken to complete the track will N**OT be factored into the total score.** However teams must complete an official attempt within 5 minutes.

Round 1 Tasks:

- The starting point will be a white square. Participants must traverse the track and may come back to the starting point to finish the task successfully.
- While traversing the track, participants must clearly indicate as many new dead ends encountered as possible with a led or a buzzer. Points will be given for every new dead end flagged in this manner.
- Additional points will be awarded for overcoming dashed lines and coming back to the starting position.
- The task ends, if you come back to the starting square or the 5 minutes allotted for your official attempt runs out. In both cases, the total accumulated points (which were obtained by flagging dead ends, overcoming dashed lines or coming back to the starting point) will be taken.
  The top 10 Participants with the highest points/score will then proceed to the next round.
- In case of a tie both teams will move on to the next round.

Round 2: The Island Adventure

Day 2 – 1st October 2014:

Track Specifications:

- Minimum possible distance between two adjacent track lines is 8cms.
- No Restart checkpoints.
- The track will have a white line on a dark green/black background.
- Width of the line will be 3cm.
- This **round will be timed** i.e. the time taken to complete the track **will be factored into the total score**.
- Each team has 3 official attempts .However participants can practice for as long as they want during the practice time provided before the official attempt.
- The best of the 3 official attempts will be considered.

Round 2 Tasks:

- The starting point will be a white square. **Participants must traverse the entire track and come back to the starting point to finish the task successfully.**
  The time taken to come back to the original point will be factored into the total score.
- While traversing the track, participants must clearly indicate as many new dead ends encountered as possible with a led or a buzzer. Points will be given for every new dead end flagged in this manner.
- Additional points will be awarded for overcoming dashed lines and coming back to the starting position.
- The task ends only if you come back to the starting square. **Failure to come back to the starting square will result in elimination.**
- Exact details of the scoring formula will be notified to the contestant on the day of the event.
- Top Two teams with the highest score will win the round and the contest.
- In case of a draw, the winner will be judged on the highest cumulative score of both rounds.

Resources:

1. Embedded C guide
   http://www.maxembedded.com/

2. Simple Line follower robot
   http://www.chaokhun.kmitl.ac.th/~kswichit/ROBOT/Follower.pdf

   http://www.engineersgarage.com/contribution/line-follower-robot

3. PID based Line follower robot
   http://www.extremeelectronics.co.in/avr-tutorials/line-following-robot-using-avr-atmega8/