

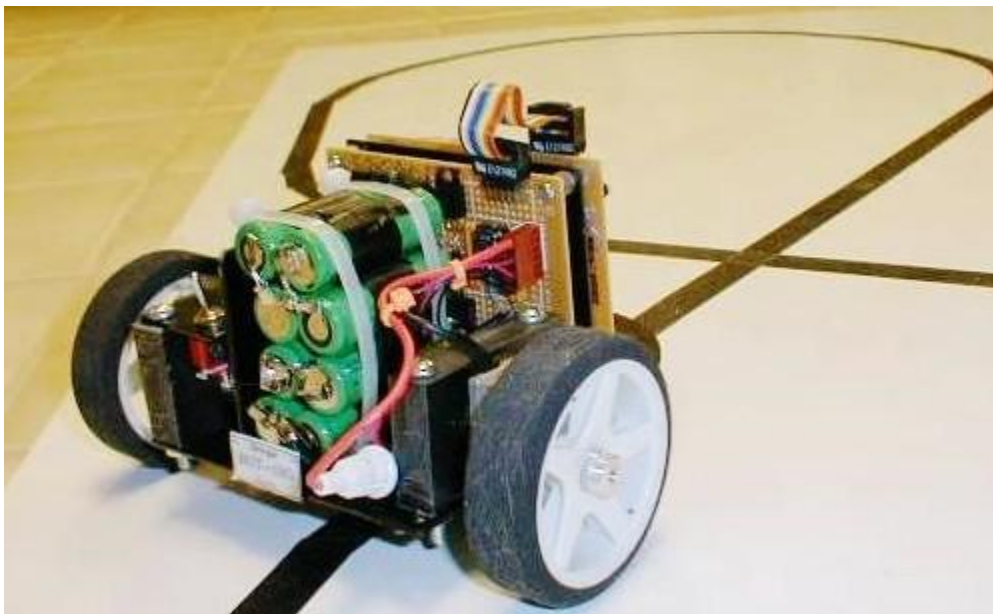
Follow Me

INTRODUCTION:

Line follower is a machine that can follow a path. The path can be visible like a black line on a white surface (or vice-versa) or it can be invisible like a magnetic field.

Sensing a line and manoeuvring the robot to stay on course, while constantly correcting wrong moves using feedback mechanism forms a simple yet effective closed loop system. As a programmer you get an opportunity to 'teach' the robot how to follow the line thus giving it a human-like property of responding to stimuli.

Practical applications of a line follower: Automated cars running on roads with embedded magnets, guidance system for industrial robots moving on shop floor etc.



ELIGIBILITY CRITERIA:

- Participants should be the **registered** members of this event in Dextra-2012.
- All students must have a valid registration card issued by ISF (Organizing Body) along with their identity card of their respective educational institute

TEAM SIZE

- Maximum of 3 members.

PROBLEM STATEMENT:

Design an autonomous robot capable of sensing black line and can follow it. The robot must always be within the line. The line will consist of various degrees of angles at the turns.

ROBOT SPECIFICATIONS:

- Robots must be autonomous.
- Weight should be no more than 1kg.
- Maximum dimensions of the robot can be 25*25*25 cm.

RULES:

- team may consist of a maximum of 3 members.
- Readymade Lego kits are allowed but no extra points will be awarded.
- The power supply for the vehicle should be contained on-board and should not exceed 30 V.

- Each contestant will be given a fixed time slot. Any delay whatsoever shall result in loss of points.
- The event consists of two rounds: - Elimination round and the Final round.
- For round 1 (elimination round) arena will be simple and basic.
- For round 2: Students qualifying round 1 will be allowed. The arena for this round will be difficult and your robot will encounter :
 - Sharp obtuse corners (greater than 90 degrees)
 - The line crossing over itself
 - Sharp acute corners (less than 90 degrees)
 - Gaps in the tape of up to 5cm
 - rounded corners (radius greater than 20 cm)
- Teams will be given 2 min. for calibration of the sensors before every round.
- Any robot that loses the line course has to start from the beginning in the case of first round while the timer still running.
- In the second round the robot that loses the line course must reacquire the line at the point where it was lost.
- When any robot crosses the start line before the referee's signal, the passage will be interrupted and resumed from the beginning.

JUDGING CRITERIA:

1st round :

- Line follower without microcontroller will get extra 20 points in advanced.
- The machine having self-made circuit on bread board or PCB will get 20 more points extra.
- The machine best in design and concept will get 10 point extra.

- The machine should start to move with 300 second in reverse counting and complete the whole path in minimum time; remaining seconds would be its score.

2nd round:

1. There will be no time limit in this round.
2. Points earned will be according to the distance covered and levels will be marked against the track.
3. Total 250 will be earned by completing the track and remaining 50 points will be on design and concept as in previous round.

DISQUALIFICATIONS:

- If the robot gets distracted from the track more than two times it will be disqualified.
- If any person of a team is found with any kind of unfair means then the team will be disqualified.
- Nudging/Pushing or any type of manual handling of the robot will lead to be disqualified.

TRACK DETAILS:

- The track will be of black colour on a white background.
- The width of the line will be 3cm constant throughout the track.
- There will be crossovers in the tracks at this condition, the bot should go forward.
- Distraction of robot with surrounding lights will be taken into consideration still participants are suggested to take care of that in there design.

GUIDELINES:

- Any team that is not ready at the time specified will be eliminated from the competition automatically.
- The team must adhere to the spirit of healthy competition. Judges reserve the right to disqualify any team indulged in misbehavior.
- Participants from different institutes may form a team.
- At any instant of time rules can be modified, if any technical issues occur in the arena (track).
- Damaging of any property (arena/systems) will lead to the disqualification.
- Participants should not have any objection on the predefined rules.
- Judges decision shall be treated as final and binding to all.

Event manager:

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