F.I.R.E

Flame Imaging Robotic Extinguisher

DESCRIPTION

Teams have to build an autonomous robot which can follow black line path and has to identify candle flames in the maze and blow them off, over the course of completing the path with the help of computer vision (image processing). Teams are allowed to use any mechanism to blow off the candle but it shouldn't cause any harm to the arena. The team who completes the maze with maximum no. of points will win.

PARTICIPATION

1. The maximum number of participants allowed is 4 per team.
2. The members from different institutions or years can form a team.
3. Team members are supposed to produce their institute ID cards at the time of the event.
4. There is no age limit for participation.

EVENT STRUCTURE

The event consists of three different runs for each robot. The best of three runs will be considered for evaluation. A complete run is considered as reaching the end of the arena and successfully returning to the starting point following the correct path.

RULES

1. No team is allowed to test their robot on the final arena, For calibration purposes a sample arena will be given, carrying the exact properties.
2. If requested, 5 minutes will be given for the team in the beginning of first run for colour corrections and calibration, provided the robot should not move during the process.
3. Maximum time allotted per team is 20 minutes.
4. Time allotted per run is 5 minutes.
5. A timeout run will be accepted with a penalty of 3 points if it is within 3 minutes , 5 points for 3 to 5 minutes, and the run won’t be considered if it exceeds this limit.(eg: run of 7 minute will lose 3 points, and that of 9 minutes will lose 5 points, and that of 11 minutes will be discarded.)
6. The team members are not allowed to touch the bot during the course of the run. Doing so will attract a deduction in points awarded.
7. There is no limit in processing power used or resolution of camera used.

8. The robot MUST USE COMPUTER VISION methods to identify flame. Path following can be done using the same or different camera or sensors.
9. The participants will be provided with 220V, 50 Hz AC power supply, and any other kind of power supply that has to be arranged by the team itself.
10. It is advised to use on board power supply for the robot.
11. Decision regarding total number of flame spots in the arena is upto the event coordinator and his/ her decision will be considered as final.
12. If more no. of teams/participants doesn't turn up, the prize money would be waived by 50%.
13. Any final decision will be taken by organizing committee.

EVALUATION

1. Initially, a base point of 50 will be awarded per team.
2. For each extinguished candle +5 points will be awarded.
3. 2 points will be deducted when robot deviates from the path or crashes with any candles.
4. A restart or touching the robot during the course of the run will take 4 points and robot will be allowed to be kept only at a previous flame point. During this process the timer will be stopped.
5. Time taken for run will be considered only in case of a tie in points earned. The primary objective of the robot should be detection and extinguishing of as many candles as possible.

BOT SPECIFICATIONS

1. The robot should fit in a box of dimensions 200mm x 200 mm x 200 mm.
2. The robot should have a power switch.
3. No form of remote manual control will be acceptable.
4. During the run it must not damage the arena. Damaging the arena will lead to immediate disqualification.
5. Bot must have on board power supply.
6. The potential difference between any two points should not exceed 24 V.

PRIZES

- First Prize : 9000 INR
- Second Prize : 7000 INR
- Third Prize : 5000 INR

CONTACT INFORMATION

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