



COIMBATORE INSTITUTE OF TECHNOLOGY

NEXERA 2K26- ROBOVERSE

MAZEDRIFT

OBJECTIVE

Teams must build an autonomous robot which can follow a Black line and keep track of directions while going through the maze. The bot has to analyze the path in the dry run and has to go through the maze from the starting point to the ending point in minimum possible time.

ARENA

The game field consists of an arena having dimensions 230 cm X 230 cm (lxb). It consists of the following:

1. The arena is composed of random paths made up of black Vinyl strips.
2. All the distances are shown in fig. 1 and fig. 2.
3. The Angle between two adjacent white lines in the path is 90°.
4. The width of all black stripes will be 30mm.
5. The figure below shows the sample arena. The actual arena at the competition will consist of alterations in the path.
6. A black box of 400 mm x 400 mm is present at the end zone of the arena to indicate the end position.

Note: The dimensions of the arena will be accurate to within 5% or 20 mm, whichever is less.

GAMEPLAY

The gameplay consists of two parts:-

1. The first part is the “Dry Run.” In this run, the bot must start from the ‘Start’ and find its way to reach the ‘End’ (black box Indicated in figure 1) of the arena. The bot has to give a signal by glowing a RED LED as soon



as it senses the Black box below it at the end. The bot has to follow an algorithm to find its path to reach 'End' and the bot can store the turns in its memory to explore the shortest path during the second part of the journey. There are no restrictions to cover all the checkpoints.

2. The second part is the "Actual Run." In this run, the bot has to restart from the 'Start' again and finds its way to the 'End' through the best possible path by following the path that was stored in the first run. The 'End Zone' has a black box of 400mm x 400mm (lxw) that indicates the end of the path for the bot. The timer will be set to zero as the "Actual Run" begins.
3. Bots must complete the dry run within three minutes; failure to do so will result in elimination.
4. **NOTE: GIVEN BELOW ARE ONLY FOR EXAMPLE ORGINAL ARENA WILL BE ANNOUNCED ON THAT DAY**

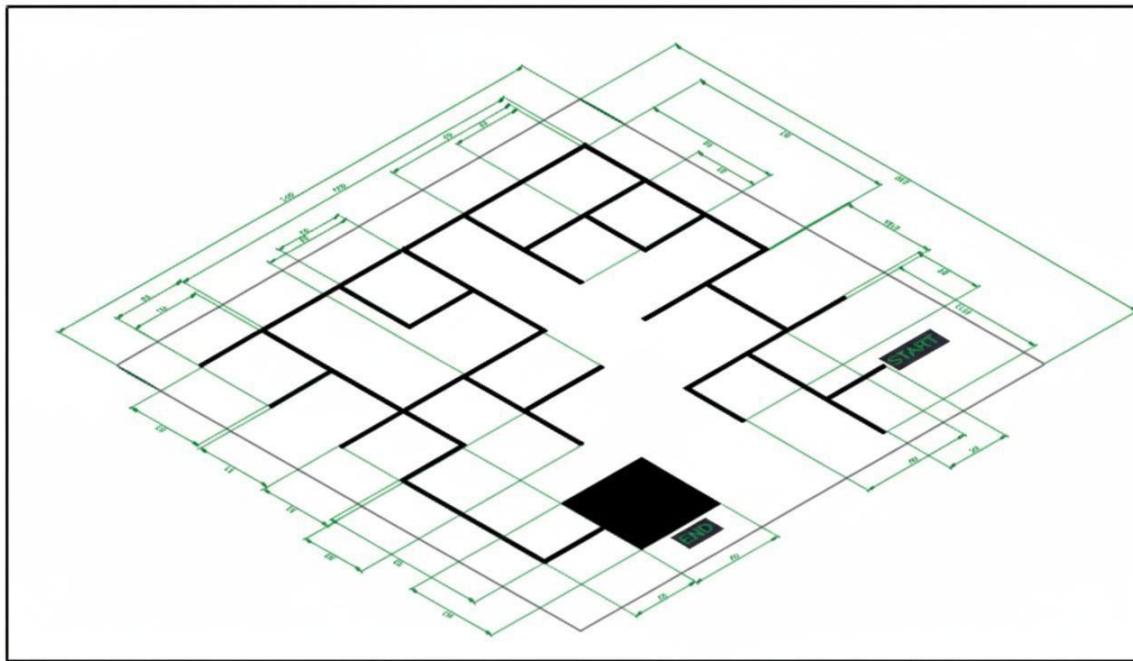
FIGURES

FIG. 1 TOP VIEW





FIG. 2 ISOMETRIC VIEW





CHECKPOINTS

- As shown in the Fig. 3, the checkpoints are represented using green circles (only for reference and not present in the arena).
 - Each checkpoint carries 25 points.
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BOT SPECIFICATIONS

1. The autonomous bot must fit into the box of dimensions 220 X 220 X 220 all in mm (lxbxh).
 2. Bot must be started by only one switch. However, a team may have an onboard switch.
 3. Bot must have a red LED that will glow once it reaches the end zone of the arena.
 4. During the run, the autonomous bot must not damage the arena in any way. It is not allowed to leave anything behind or make any marks while traversing the arena. Any bot found damaging the arena will be immediately disqualified. The final decision is at the discretion of the organizers.
 5. Bot must have an 'on board' power supply.
 6. When using the electric power supply, the potential difference between any 2 points must not exceed 24 V at any point of time during the game.
 7. The autonomous bot should not separate or split into two or more units. All bots/units which are touching each other or are in the starting point will be considered as one bot.
 8. The Machine cannot be constructed using ready-made 'Lego kits' or any ready-made mechanism. But they can make use of readymade gear assemblies. Violating this clause will lead to the disqualification of the team.
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GAME RULES

1. 2 minutes for calibration. Post-deposit coding is forbidden.
2. Only one autonomous bot per team.
3. No team member may touch the bot or enter the arena during a run.
4. Only one team member may be near the game field at the start.
5. Start is signaled by organizers.
6. Manual impulses to start are not allowed.



RESTARTS

1. Maximum of 3 restarts per match.
 2. During the dry run, restart from the last checkpoint.
 3. No additional dry runs after completing one.
 4. During the actual run, restart from the starting zone.
 5. Timer does not reset or pause during restarts.
 6. Hardware and sensor adjustment is allowed; feeding arena info is not.
 7. Significant weight reduction through hardware change is forbidden.
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GENERAL RULES

1. Only one team member handles the bot.
 2. Nothing except the bot may enter the arena.
 3. No laptops/PCs near the arena; external communications disabled.
 4. Organizers' time records are final.
 5. All disputes settled by organizers.
 6. Rule changes may happen anytime; teams are notified via website.
 7. Only one team is allowed in the arena at a time; others must wait outside and may not record the run.
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JUDGING

- 25 points per checkpoint crossed (counted once per checkpoint).
 - 20 points for completing the dry run successfully.
 - 30 points for taking the shortest path in the actual run.
 - 5 points if the bot glows its LED.
 - For every restart, a five-point penalty shall be imposed in actual run
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SCORING

Variable	Points
A	$25 \times (\text{Checkpoints covered})$
B	20 (if dry run completed)
S	30 (shortest path in actual run)
C	20 (actual run completed)
L	5 (LED glows)
P	5 (penalty points per offense)
Total	$(A + B + C + S + L) - P$

Table 1: Scoring Table

TEAM SPECIFICATION

- Max. 5 participants per team; cross-institute teams allowed.
 - All members must carry student ID cards.
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ELIGIBILITY

- All students with a valid student ID card are eligible to participate.

CERTIFICATE

- Certificate will be provided for all participants on that day itself

THANK YOU ❤️