भारतीय प्रौद्योगिकी संस्थान जम्मू
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Technunctus, IIT Jammu

MazeX: Maze Explorer

Overview:

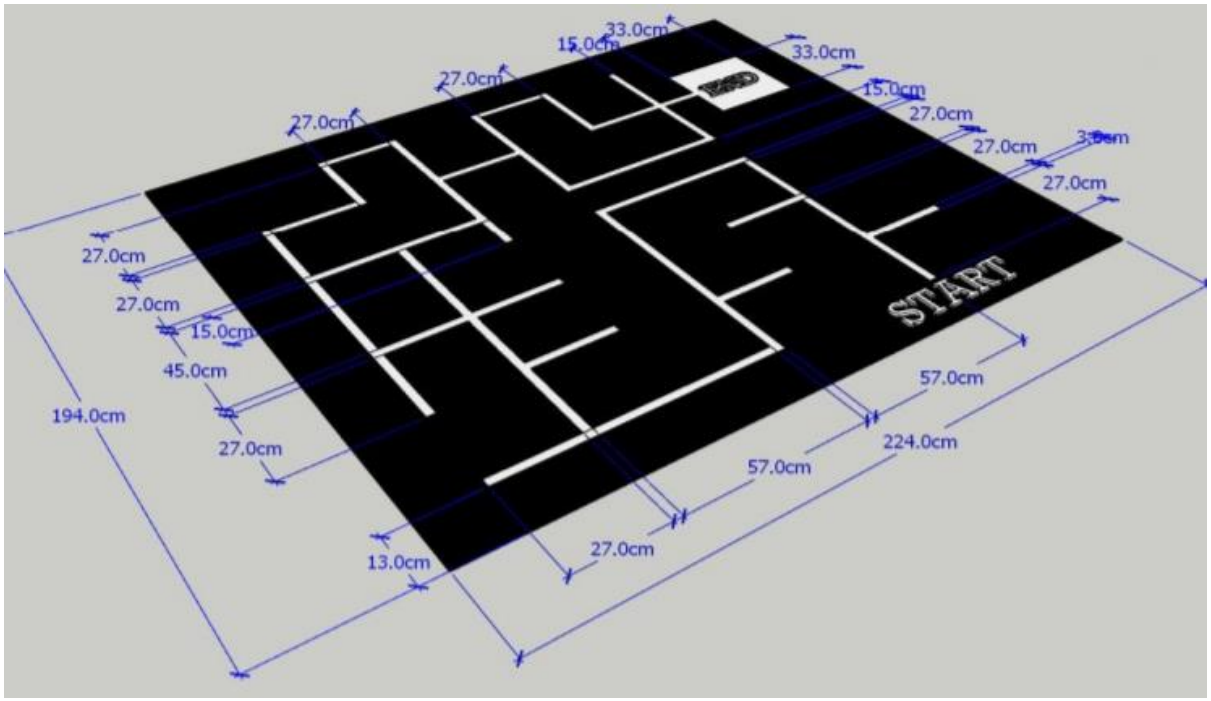
The teams have to build an autonomous bot that can traverse a maze, while keeping track of the directions. The bot has to analyse the maze in the dry run and traverse the maze in shortest possible path in actual run.

- The maze consists of white stripes of width 3cm over black background
- Angle between any two lines is 90°
- There will be 3 checkpoints between start and finish
- A white box of dimension 25cm x 25 cm will be present at the end of the arena
- Teams will be given 1 minute for calibration, 4 minutes for dry run and 3 minutes for actual run
- Any number of restarts is allowed in dry run, given the time limit of 4 minutes does not exceed. The bot has to restart from the last crossed checkpoint
- No restarts are allowed in actual run.
- Once the timer starts, it will not be reset
- The bot must start from the START position after calibration is complete. It must traverse through the maze, storing the turns in its memory and determine the shortest possible path for second part(Actual run)
- At the start of the actual run, timer will be set to zero and the bot has to start from START position again and reach the END through SHORTEST POSSIBLE path

General Rules:

- Only one bot per team is allowed. Teams may comprise of students from various colleges. One team can have maximum four members
- Laptops, Bluetooth modules or any devices that can communicate with the bot are not allowed inside the arena room
- Only one member can handle the bot at a time

Sample arena (Note: Actual arena will be different ;and START/END will not be printed on the arena):



Technical specifications:

- Maximum size of bot must be less than 25cm x 25cm x 25cm(lxbxh)
- Bot should not damage the arena in any way. Bot should not leave any pieces behind or leave any markings on the arena
- Bot should have On-Board power supply, voltage of which should not exceed 25V
- Bot should not be constructed using readymade kits or Lego kits

Violation of any of the above rules will lead to immediate disqualification.

The final decision in any matter rests with the organising committee, and they have the right to change any or all rules as they deem fit.

Scoring:

- A = (Number of checkpoints covered during dry run) * 20
- B = 30 if dry run is completed, else, 0
- C = 240 – time taken for dry run
- D = 200 if actual run is completed via shortest possible path, else, 0
- E = 180 – time taken for actual run
- P = Penalties (if any)
- TOTAL = (A+B+C+D+E)-P
- In case of a tie, determining factors will be (in order of preference):
    1. Total time taken to complete actual run
    2. Total time taken to complete dry run
    3. Number of checkpoints completed in dry run

  (Decision on penalties rests with the organising committee)

Prizes:

- Top three teams will get first, second and third prizes respectively
- First prize worth ₹ 8,000
- Second prize worth ₹ 5,000
- Third prize worth ₹ 3,000
- Note: Teams are eligible for any prize only if they complete the dry run within the time limit.