



Middle East Technical University

Robotics Society

18. International METU Robotics Days – 2022

Maze Solver Category Rules

A. AIM

- 1- The aim is that an appropriate sized autonomous robot arrives the target area as soon as possible after it starts from beginning.

B. TRACK

- 1- Walls of the maze are white, and they are 10 cm in height. Floor of the maze is made of black wood material.
- 2- The maze field (inside the maze walls) measure "260 cm x 260 cm". There is 5% error margin for specified dimensions.
- 3- The target area has "40 cm x 40 cm" field. Entry of the target area is remarked with "19+1 mm" width white band on the black floor.
- 4- Beginning has white floor and it is "20 cm x 20 cm". Its position is in one of the four corners of the track.
- 5- The maze's road width is 20 cm. There could be an 5% error.
- 6- Track floor may have 1 mm changes in terms of thickness due to painting, band, dust...
- 7- The maze has not only several solutions, but also dead-ends.
- 8- The target area cannot be reached by following only right or left walls.

C. ROBOT

- 1- Robots must be autonomous.
- 2- Robots' maximum width and length can be 17 cm. Error could be %5.
- 3- There aren't any boundaries for height and weight.

D. COMPETITION

- 1- Maze Solver Category's start time will be announced at the International METU Robotics Days schedule. All of the competitors have to hand over their robots at least 6 minutes before starting time. They can't innovate software and hardware after submission. If a competitor doesn't submit the robot 6 minutes ago from the race, he/she won't definitely compete.
 - 2- Every competitor has 6 minutes and this span mustn't stop. In this span, the shortest time which a competitor robot succeeds will be taken into consideration.
 - 3- In competition span, when the robot reaches the target area, the time will be saved. Afterwards, the robots which reach the white area again, may try to find the target area faster. The new time will start as the robot gets out of the white area.
 - 4- The whole of the robot must be in the white area in the beginning. Robots can start in any position in white area.
 - 5- Each competitor is able to interfere three times. Tries including interference aren't valid, and after intervention, the robot should be put in the beginning area with referee's approval. If the robot fails at the middle of the track, the referee help the competitor to pick up the robot. After the first interference, referees add 30 second to the best time the robot achieved. Likewise, after the second interference, referees add 60 second and after the third intervention referees add 90 second to the best score as punishment.
 - 6- Between the two tries, competitors can wipe wheels and arrange switches in that 6 minutes. On the other hand, they can't change any component on the robot.
 - 7- If robots drop any components, damage the track, jump or fly; they will be disqualified.
 - 8- It's a need to solve the maze to take part in ranking.
 - 9- To end the race, robots have to exist in the target area, which is "40 cm x 40 cm", completely.
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- **METU Robotics Society have the right to alter the rules if it's necessary.**
 - **As in all categories, General Category Rules are valid for the Maze Solver Category.**