



IIT Bhubaneswar

MAZE SOLVER CHALLENGE

INTRODUCTION:

Are you racking your brains to come out of mazes? Use your Tech skills to build your own Thomas to become the maze runner!

Build your own autonomous robot within the allotted parameters, and aim for the fastest possible speed to outrun other robots on the track and arrive at the objective as quickly as possible.

The challenge is to build a small self-contained autonomous robot (Micromouse) to negotiate a maze in the shortest possible time. The Robot which will start on the START tile and reach the FINISH tile in the shortest time will be nominated as the winner.

Team Specification and Eligibility

Eligibility: Team from any recognized engineering college/Institute is eligible to participate. All Participants must bring their respective ID cards.

Team Specification: An individual may participate or construct a team of a minimum of 2 and a maximum of 6 members.

Team Name: Every team must have an appropriate name. Team's name can't be changed once submitted

Construction:

- Any robot kit or building material may be used if the robot fits the above specifications and if the design and construction are primarily the original work of the team.
- The robot must be controlled autonomously with no human aid. A MicroMouse shall not use an energy source employing a combustion process.
- A MicroMouse shall not leave any part of its body behind while navigating the maze.
- A MicroMouse shall not jump over, fly over, climb, scratch, cut, burn, mark, damage, or destroy the walls of the maze.
- The controller unit should be embedded in the robot and cannot be placed outside the robot.

Dimensions:

The following size limitations apply to each robot:

- Width – maximum 15 centimeters
- Length – maximum 15 centimeters
- Height – 15 centimeters



IIT Bhubaneswar

The Annual Techno Management Fest

WISSENAIRE

Power Source:

- The robot must be powered by a power source such as a battery fixed on the robot.
- The Robot cannot be powered by a stationary power source connected to the robot by a cord.

Arena:

- The COMPETITION FIELD consists of 16X16 SqF. The walls of the maze are 10 cm high and 1 cm thick (assume 5% tolerance for mazes). The maze comprises up to 14X14 SqF, for a total maze size of up to 196 SqF (assume 5-7% tolerance for mazes). The outside wall encloses the entire maze.
- The sides of the maze walls are white, the tops of the walls are red, and the floor is black. The maze is made of wood, finished with non – gloss paint. **WARNING:** Do not assume the walls are consistently white, or that the tops of the walls are consistently red, or that the floor is consistently black. Fading may occur; Parts from different mazes may be used. Do not assume the floor provides a given amount of friction. It is simply painted plywood and may be quite slick.
- The start line is located between the first and second squares. That is, as the mouse exits the corner square, the time starts. The destination goal is the four cells at the center of the maze.
- Small square zones (posts), each 1.2 cm x 1.2 cm, at the four corners of each unit square are called lattice points. The maze is so constituted that there is at least one wall at each lattice point.
- Multiple paths to the destination square are allowed and are to be expected. The destination square will be positioned so that a wall hugging mouse will NOT be able to find it.

Trials:

Every team will have maximum of 3 trial runs. After the trials are over, the fastest time achieved during those trials will be chosen for the team. One trial should not last more than 4 minutes.

N.B.:

A contestant may not feed information on the maze to the MicroMouse. Therefore, changing ROMs or downloading programs is NOT allowed once the maze is revealed. However, contestants can:

- Change switch settings (e.g. to change algorithms (for example from left-turning to right turning – again, entering data on maze size or content is NOT inclusive of this rule.)
- Replace batteries between run
- Adjust sensors
- Change speed settings
- Make repairs



IIT Bhubaneswar

The Annual Techno Management Fest

WISSENAIRE

Scoring:

Fastest reaching robot to finish line, will be considered as winner. Maximum 3 trials will be given to a team. Best time out of 3 trials will be considered. No human touch is allowed once robot activation button is pressed.

CONTACT DETAILS:

Nandini and Manish

Event Coordinator

Wissenaire' 23

Contact no: 9949593615, 7780149869

E-mail: 20ee01054@iitbbs.ac.in, 21cs01060@iitbbs.ac.in