

# IEEE

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## **2023 Micromouse of L.I. Competition Rules**

**The following rules will be observed for the May 12, 2023 Micromouse competition that will take place at NYIT, Old Westbury, N.Y. The rules are adapted from the 1986 Official Rules for North American Micromouse Contests.**

### **A. Objective**

In this contest the contestant or team of contestants design and build an autonomous robotic "mouse" that negotiates a maze of standard dimensions from a specified corner to its center in the shortest time.

### **B. Contest Eligibility Rules**

1.

#### **College Division**

All contestants must be an IEEE student member at the time of entry in the Micromouse contest. Any student who graduated anytime during the Spring 2023 semester is eligible to enter the contest. Up to two graduate students per team are also allowed as stated in Rule B.3 below, providing they meet all other requirements. Students who have submitted an application for membership (and have it accepted by their Student Branch Counselor) prior to entry in the contest, will be eligible to compete.

#### **High School Division**

Entrants must be enrolled in a public or private high school or home schooled at the time of the Competition. Entrants who graduated during Spring 2023 are eligible to compete. IEEE membership is not required. Up to one undergraduate college student is allowed per team as stated in Rule B.4 below provided that they meet all other requirements.

2. The Micromouse entry may be the effort of an individual or a team. In the case of a team it should be possible to demonstrate that each individual made a significant contribution and that they are all (except high school students) IEEE members.
3. The contestant(s) will make a brief presentation of their mouse design prior to the competition (5 minutes max) if time allows.
4. A team may consist of up to five people.

A college team of four or five people may include no more than two graduate students. A team of two or three people may have no more than one graduate student. A one person team consisting of one graduate student is not allowed.

A high school team may include one college undergraduate student. A one person high school team consisting of an undergraduate student is not allowed.

5. The number of mice that may be entered from each school is limited to three. Multiple entries from a school cannot be of nearly identical design. At the time of the Competition, all schools will compete with one entry before a school will be allowed to compete with their second entry, and so on. Order of competing will be determined at random.
6. All contestants must register their entry the contest by **April 15, 2023**. Late entries will only be accepted at the discretion of the Event Coordinator.

**COMPETITION REGISTRATION FORM FOUND AT THIS LINK. PLEASE FILL OUT AND CLICK THE SUBMIT BUTTON**

<https://forms.gle/HdDFEez6u69TvS4z9>

#### C. Rules for the Micromouse

1. A Micromouse shall be self-contained (no remote controls). A Micromouse shall not use an energy source employing a combustion process.
2. A Micromouse shall not leave any part of its body behind while negotiating the maze.
3. A Micromouse shall not jump over, fly over, climb, scratch, cut, burn, mark, damage, or destroy the walls of the maze. Sharp edges or protrusions on the Micromouse must be padded.
4. A Micromouse shall not be larger either in length or in width, than 25 centimeters. The dimensions of a Micromouse that changes its geometry during a run shall not be greater than 25 cm x 25 cm. There are no restrictions on the height of a Micromouse. Sample mouse photos below.
5. Any violation of these rules will constitute immediate disqualification

#### D. Rules for the Maze

1. The maze is composed of multiples of an 18 cm x 18 cm unit square. The maze comprises 16 x 16 unit squares. The walls of the maze are 5 cm high and 1.2 cm thick (assume 5% tolerance for mazes). The outside wall encloses the entire maze.
2. 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 maze floor may be constructed using multiple sheets of plywood. Therefore, there may be a seam between the two sheets on which any low-hanging parts of a mouse may snag.

3. The start of the maze is located at one of the four corners. The start square is bounded on three sides by walls. 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. At the center of this zone is a post, 20 cm high and each side 2.5 cm. (This post may be removed if requested.) The destination square has only one entrance. Maze photo below.
4. 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.
5. 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.

#### E. Rules for the Competition

1. Each contesting Micromouse is allocated a total of 10 minutes of access to the maze from the moment the contest administrator acknowledges the contestant(s) and grants access to the maze. Any time used to adjust a mouse between runs is included in the 10 minutes. Each run (from the start cell to the center zone) in which a mouse successfully reaches the destination square is given a run time. The minimum run time shall be the mouse's official time. In the College Division and in the High School Division, First prize goes to the mouse with the shortest official time and so on. There will be College Division Prizes and High School Division Prizes.

A high school team's time will be counted in the College Division time results for College Division Prizes and will also be counted in the High School Division time results for High School Division Prizes. College team's times will only be counted in the College Division times.

NOTE, again, that the 10-minute timer continues even between runs. Mice that do not enter the center square will be ranked by the maximum number of cells they consecutively transverse without being touched. All mice who enter the center square within their 10 minute allotment are ranked higher than those who do not enter the center square.

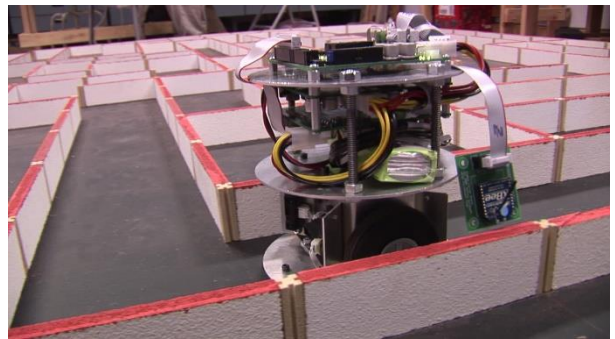
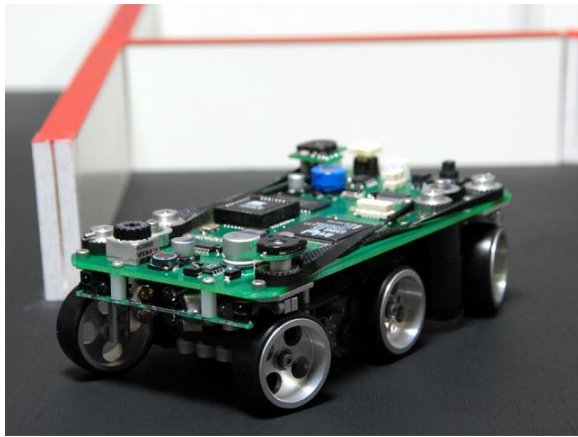
2. Each run shall be made from the starting square. The operator may abort a run at any time. If an operator touches the Micromouse during a run, it is deemed aborted, and the mouse must be removed from the maze. If a mouse has already crossed the finish line, it may be removed at any time without affecting the run time of that run. If a mouse is placed back in the maze for another run, a one-time penalty of 30 seconds will be added to the mouse's next run time.
3. After the maze is disclosed, the operator shall not feed information on the maze into the Micromouse. However, switch positions may be changed.
4. The illumination, temperature, and humidity of the room shall be those of an ambient environment. (40 to 120 degrees F, 0% to 95% humidity, non-condensing).  
BEWARE: Do not make any assumptions about the amount of sunlight, incandescent light, or fluorescent light that may be present at the contest site.
5. The run timer will start when front edge of the mouse crosses the start line and stops when the front edge of the mouse crosses the finish line. The start line is at the boundary between the starting unit square and the next unit square clockwise. The finish line is at the entrance to the destination

#### F. RULES QUESTIONS

Team Captains may submit questions to the Event Coordinator at [arshacker@aol.com](mailto:arshacker@aol.com). All questions and answers will be relayed to all persons who signed up for the competition information and as a result, received this Rules document. If you are a Team Captain, reading this, and did not sign up for competition information contact the event coordinator to be included on the information list.

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#### MICROVICE EXAMPLES



## THE MAZE

