

## 2002, 2003, 2004 RULES of MICROMOUSE

Micromouse Contest is a contest in which contestants enter their robots to compete for intelligence and speed while the robots negotiate a specified maze. A robot participating in this contest is termed a micromouse.

### 1. Rules for the Micromouse

1-1. A micromouse shall be self-contained. A micromouse shall not use an energy source employing a combustion process.

1-2. A micromouse shall not have any hardware or software added, deleted, replaced or modified by the operator during the contest. It is however permissible to make minor repairs. In some contests, battery changes using batteries of exactly the same specifications may be permitted when deemed necessary.

1-3. No part of the micromouse should be left in the maze.

1-4. A micromouse shall not jump over, climb, scratch, damage or destroy the walls that constitute the maze.

1-5. The projection on the floor of the micromouse must be contained within a square each of whose sides is 25 cm. The above condition must be satisfied even when the shape of the micromouse changes during the course of the run. There are no restrictions on the height of a micromouse.

### 2. Rules for the Maze.

2-1. The sides of the maze walls shall be white, and the top of the walls shall be red. The floor shall be black. The track of the maze shall be made of wood finished with non-gloss black paint.

2-2. The maze shall be composed of multiples of an 18 cm x 18 cm unit square. The maze shall comprise 16 x 16 unit squares. The walls constituting the maze shall be 5 cm high and 1.2 cm thick. The outside wall encloses the entire maze. (See Fig.1)

2-3. The start of the maze shall be located at one of the four corners. The mouse shall begin negotiating the course in a clockwise direction. The destination of the maze shall be the 4 unit squares located at the center.

2-4. Small square zones, 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 a lattice point, except for the destination square. (See Fig.1)

### 3. Rules for the contest

3-1. The minimum time required by a micromouse to run from the start to the destination shall be recorded as its official time. In a micromouse contest, the contestants are evaluated on the running time as well as on the process in which it achieves the shortest running time and its independence. The criteria for evaluation and the rules for awarding prizes are determined at each contest.

3-2. After the maze is disclosed, the operator is not to feed any information on the maze into the micromouse. In addition, the operator is not to revise the maze-related information or eliminate it partially by operating a switch, etc., during the contest.

3-3. Each run is to begin from the starting point, and is to end when the micromouse returns to the starting point, stops for more than 2 seconds, or is approved to discontinue its run.

3-4. If a micromouse returns to the starting point and begins another run automatically, the micromouse must first stop for at least two seconds at the starting point.

3-5. The operator shall not touch the micromouse during the run unless instructed by the tournament committee chairperson to do so or is given permission to discontinue the run. The tournament committee chairperson is to accept an operator's request to discontinue a run if an apparent malfunction is found in his/her micromouse's run. For cases in which a request to discontinue is made for any other reason, permissions shall be granted on the condition that all memory of the maze is erased.

3-6. Each contesting micromouse shall be subject to a time limit of 10 minutes. Within this time limit, the micromouse may try up to 5 runs. For those contests deemed necessary, the time limit may be shortened to 7 minutes with 5 runs, or 5 minutes with 5 runs.

3-7. A micromouse is considered to have completed the maze when the entire lower portion of the body up 5 cm above the floor level has entered the destination square. The measurement of the running time, however, will be from the time the micromouse passes the start sensor until the time it passes the destination sensor.

3-8. The illumination, temperature and humidity of the room in which the maze is located shall be those of an ambient environment. Requests to adjust the illumination shall not be accepted.

3-9. The tournament committee chairperson reserves the right to ask, as he deems it appropriate, the operator for an explanation of his micromouse. The tournament committee chairperson also reserves the right to stop a run, declare disqualification, or give instructions as he deems appropriate.

[Appendices]

(1) The contestant is not permitted to load programs or to replace ROM during the

contest. It is also prohibited to give instructions regarding execution of a program by connecting a micromouse to a development unit or console box, independent of the main unit, during a competition.

(2) In each of its runs, a micromouse may continue its probing even after it has reached the destination. The running time, in such a case, shall be measured from the starting time until the first time the micromouse reaches the destination.

(3) If a micromouse returns to the starting point and begins another run within two seconds, it is assumed that the next run has begun. However, this run will be considered invalid.

(4) Dimensions of Micromouse

The size of the lower structure of a micromouse is constrained by the size of the maze notwithstanding the provisions of Article 1-5.

(5) Structure of Maze

The precision with which the maze is made is that commonly used for similar structures, and there may be an element of error in the dimensions. As the maze is designed to be flexible, the design may produce gaps or difference in level of approximately 1 mm between sections of the walls or the floor. There are also nonuniform color, discoloring and smear.

(6) Type and position of the Sensors

Type: Transmission infrared sensors with horizontal Optical axis 1 cm above the floor.

(See Fig.1)

Position: Start sensor: At the boundary between the starting unit square and the next unit square.

Position: Destination sensor: At the entrance of the destination square.(See Fig.2)

(7) There are no walls or posts within the 4 unit squares which constitute the destination square.

Battery changes

\*Micromouse Contest-Expert Class(Preliminary race/Final)

The contestants will not be permitted to change batteries during the contest, including batteries of the same specifications.

\*Micromouse Contest-Freshman class

Battery changes will be permitted as long as the batteries are of the same specifications.

Fig. of Micromouse Contest Rule

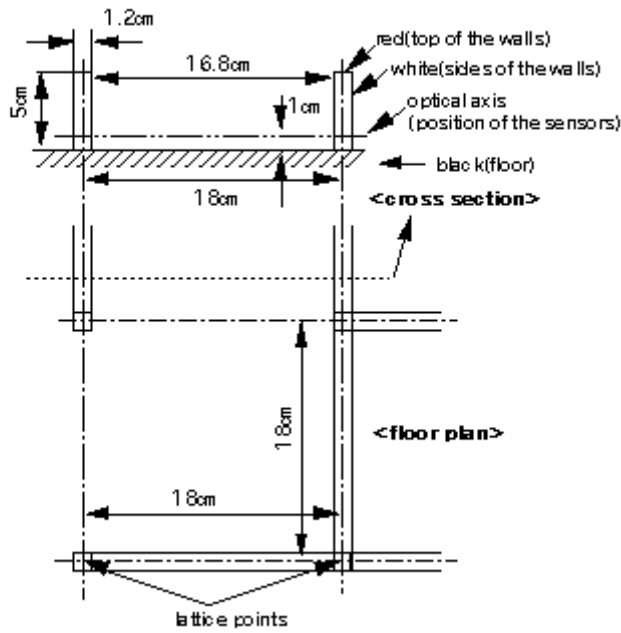


Fig.1 · Structure of maze (Micromouse)

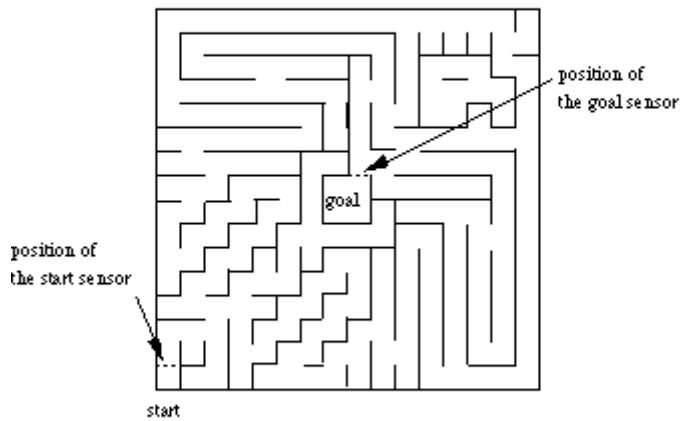


Fig.2 · Position of the start sensor and goal sensor  
The 10th (1989) Contest  
Micromouse contest(final) maze