SUMO CHALLENGE: MICROMOUSE REGULATIONS

Micromouse 31/10/2015

1. Aim of the game

The purpose of the robot ("the mouse") is to find the quickest (which not always mean shortest) possible route through a maze.

2. Robots

2.1 Maximum dimensions

Width - 25 cm
length - 25 cm
height - no restrictions
weight - no restrictions

The robot cannot exceed permitable dimensions in any moment of the run. Please note and consider dimensions of the maze and the space needed to turn.

3. Maze

During the competition there will be used modified (smaller than classic) version of the maze. The labyrinth will consist of 81 (9x9) squares with dimensions 180x180 mm, which are separated by a wall of at least 50 mm height and a thickness of 12 mm (hence the width of the passageways is about 168 mm). Maze walls are white and ground is black. The outside wall shall enclose the entire maze.

The starting and destination point are located in opposite corners of the maze The starting point is located at the coordinate (1,1) and is surrounded by three walls. The only departure from this field is aimed at "North" (assuming that the destination is the "North-West"). The destination point is made up of four fields (the coordinates (8,8), (8,9), (9,8), (9,9), with no walls or joints inside. There is only one entry to the destination point.

Labyrinth of the competition will be possible to pass by the right- or left- hand rule. Both routes don't have to (and probably will not) be equivalent. Certainly, none of these routes will be the shortest route to the destination point. Robots with algorithm, which remembers maze configuration are favored.

4. Competition schedule

After the start of the event, maze is available to players who are free to test their robots. On the time determined in a schedule, the final phase starts. With the start of the finals maze can be reconfigured. During the final phase, players have the right to one attempt to solve the maze. Then robot has a specific time at which it can explore the maze. The length of this time will be determined and communicated to the players after the registration. It is suggested that after starting of the final phase, players should determine their starting order on judges' list.

5. The way to pass the route

The robot is set at the starting point. Before the start robot operator has time to calibrate the sensors and choose the algorithm of solving the maze. After the judge's command the robot starts to explore the maze to find the destination point. When robot gets to destination point it is possible to further explore the maze to find another, more optimal route. The robot can return to the starting point and start the next run or be set there by the operator after it has reached the destination point. If the robot gets stuck or block it is possible to touch the robot, but any such interference causes adding the five penalty seconds to the final time. It is not allowed to destroy the labyrinth, as well as jumping over and moving the walls.

6. Restrictions

The robot has to be fully autonomous. Any form of communication with the robot (apart starting) is not allowed. If robot is started remotely, the remote controller has to be put in a visible place after starting. Operators can not set in robots memory any information about maze configuration. Any repairs or modifications must be done under the supervision of a judge.

7. Judge's tasks

Each attempt in finals is supervised by a judge. The time is measured with a stopwatch. Penalties for touching are added to the final time. To avoid cheating, judge may ask the player to set the robot anywhere in the maze to test the behavior of the robot.

8. Remarks

It is forbidden to use in the competition off-the-shelf constructions being in the official sale. If the robot is a modified version of the commercial construction, please contact the organizers to agree on the rules of participation. If a participant fail to inform organizers before the competition, the robot will be disqualified during the competition.

The referee decides in every situations which is not included in the Regulations.

The robot is considered as the integrated whole - no items (excluding batteries) can be used in another robots.

The Organizers have the right to make minor changes in the Regulations until the start of the competition.