

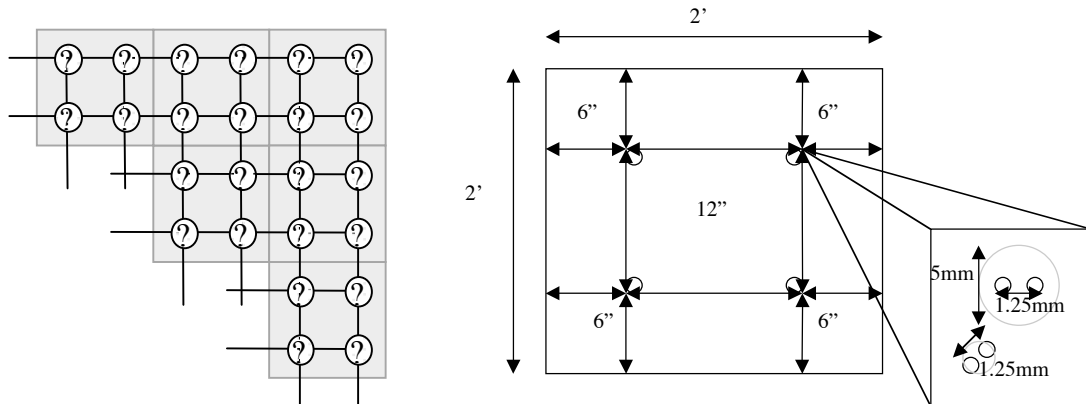
Roboticon 2005 Challenge 2: MANIC MAZE

Goal

Your goal is to traverse a maze. Scores will be based upon both the successful completion of the entire maze as well as the length of time your robot takes to complete the maze. If no teams complete the entire maze, the robot that reaches the furthest point will be considered the winner, regardless of the time it took to reach that point.

Layout

The maze will be composed of a series of square pieces that may be arranged in any fashion. Each node on the grid will contain a LED, which may be either on or off. There will also be a black tracking line for your robot to follow. Using the tracking line and the LEDs, your robot will determine its path.



Rules

If your robot passes over an illuminated LED, it must:

- Activate the node. We will provide a snippet of sample code to do this in either NQC or Java. If your team chooses to use another programming tool, it will be up to your team to write equivalent code (or “port”) the code to that language.
- Turn **clockwise** until your robot finds the path again.

If no LED is illuminated, the robot must continue straight ahead on the path.

Game Over

The game ends when any of the following conditions occur:

- The time limit expires
- The robot loses the path and does not properly recover
- The robot stops moving for 1 minute
- The robot fails to activate an illuminated node
- The robot activates a non illuminated node
- The robot fails to make a required course correction

- The team decides to self-terminate their run
- All rules and decisions are at the judge's discretion

Activation

An illuminated node must be activated. To do this, the robot must first stop over top of the node so that the light sensor is pointing directly at the LED. It must then run the activation function or method, which will cause the robot to quickly flash its light, until the node deactivates and becomes dark. The robot must also make some kind of auditory beep. This will inform the node that it has been deactivated, causing it to turn off and causing a new node to turn on in its place. The robot must remain overtop of the node until the sequence is complete. Then, the robot will continue on its new path.

Scoring

There will be two trials which taken together will represent the position of your team. The team with the lowest rank will win the challenge. Rank will be calculated by taking the greatest number of nodes traversed and in the event of a tie, the lowest time taken to complete the path. After the end of each challenge, the ranks will be added together to represent the total rank.

Code Example

If you are using NQC, you will need to use these two lines of code to activate and deactivate the sensor:

```
SetSensorType (SENSOR_2, SENSOR_TYPE_LIGHT);  
SetSensorType (SENSOR_2, SENSOR_TYPE_NONE);
```

If you are using leJOS, you will need to use these two lines of code instead:

```
Sensor.S2.activate();  
Sensor.S2.passivate();
```

Please note that you will need to change SENSOR_2 or S2 to the number of the sensor port that your robot will be using.