

LABYRINTH BUG, OCT. 17, 2011

ENGINEERING²: JOSEPH O'BANION, TIMOTHY RAST, LAURA KARTASHEV

Problem Definition

► To create an autonomous robot which will be able to navigate itself through a flat, maze-like enclosed space to a singular objective within the confines of the enclosure.

Dates	Project Schedule
10/16/2011	Hand in project proposal
12/9/2011	Research similar projects and suppliers
1/24/2012	Project proposal update
2/7/2012	First Project Report
3/6/2012	Second Project Report
3/12/2012	Demo project prototype to Club
6/11/2012	Presentation at the Engineering and Computer Science Forum

► Resources will include (but not limited to):

- People: Timothy Rast, Joseph O'Banion, Laura Kartashev
- Hardware: 2 18V DC motors w/ built in encoders, battery, drive train (2 wheels), 3 Ultrasonic sensors, , micro-controller.
- Software: Arduino Programming Language, Interface materials
- Other: maze structure

Competitive Analysis

For maze-solving robots (referred to by many as 'maze-solving robot mice') there is not that much competition for sales. However, this doesn't mean that profits will be high if we were to choose to mass-produce our design. Robots like this are loved by hobbyists who have a knack for electronics, and so are able (and want to) build their own. Some of these hobbyists get into competitions over their respective builds, and so events like the Annual All Japan Micromouse Competition have come along. Regional events are not far off, taking place all around the world. Reviewing the competition, if any one of these groups try to mass produce any of their micromouse robots, the chance of success for our robot would be slim. But with this skill, we may in the future be able to build much faster and smarter robots and algorithms which would have a chance against these competition giants.

Potential Applications

- In the Military, it would provide a solution for finding paths in closed military engagements, being able to navigate its way around to a given destination point without risking human life.
- It can be use to navigate housing crawl-spaces to find openings or holes in the infrastructure.
- It can be applied in an enclosed bomb-squad operations where a safe rout is needed to be found to the bomb or hostages.

Future Improvement Ideas

For future improvements, we would like to include in our robot the ability to have memory storage so that the robot can remember where in the maze it has been.

