**ENGR 4020 Milestone 2[[1]](#footnote-1) [100 pts]**

**Demonstrate by 2/6/2020, 5PM**

**Milestone Report by 2/7/2020, 4PM**

**Demonstration after the Due Date: [75 pts]**

In this milestone, you must demonstrate navigation of the playfield with your robot.

**Tasks**

Your robot must start completely within the 12”x12”x12” starting cube. The robot should navigate to and come into contact with the back wall on the right side, then turn and contact the right base wall. Then, the robot should navigate to the left side of the playfield, touch the rear wall, and then contact the left base wall. The robot must return to the starting cube and stop with any part of the robot inside that cube.

Push buttons can be used to sense contact.

You may complete these tasks in reverse order (left side first, then right side) but the order of contact (back wall then base wall) must be preserved. It is ok to come into contact with the base wall first, but you must touch it again after touching the back wall.

You have exactly three ‘official trials’ before the due date to demonstrate operation to Dr. McPheron. The first two official trials are taken with no penalty, but requiring a third official trial will be a deduction of 10 points. You have unlimited official trials after the due date, but the penalty is a deduction of 25 points.

**Requirements**

1. Demonstrate the tasks outlined above. Demonstration after the due date will yield a deduction of 25 points from the total score.
2. Submit a milestone report. The milestone report must summarize the approach to the milestone as well as the performance and reliability in meeting the milestone. You must also submit a flowchart for the program’s actual structure, a copy of the .cpp file (with comments) and a diagram of the circuit used. This submission is on paper! This report must be put in your group’s design notebook, and the whole notebook turned in to Dr. McPheron.

1. Adapted from ENGR 450: Mechatronics by Matthew Stein, Roger Williams University [↑](#footnote-ref-1)