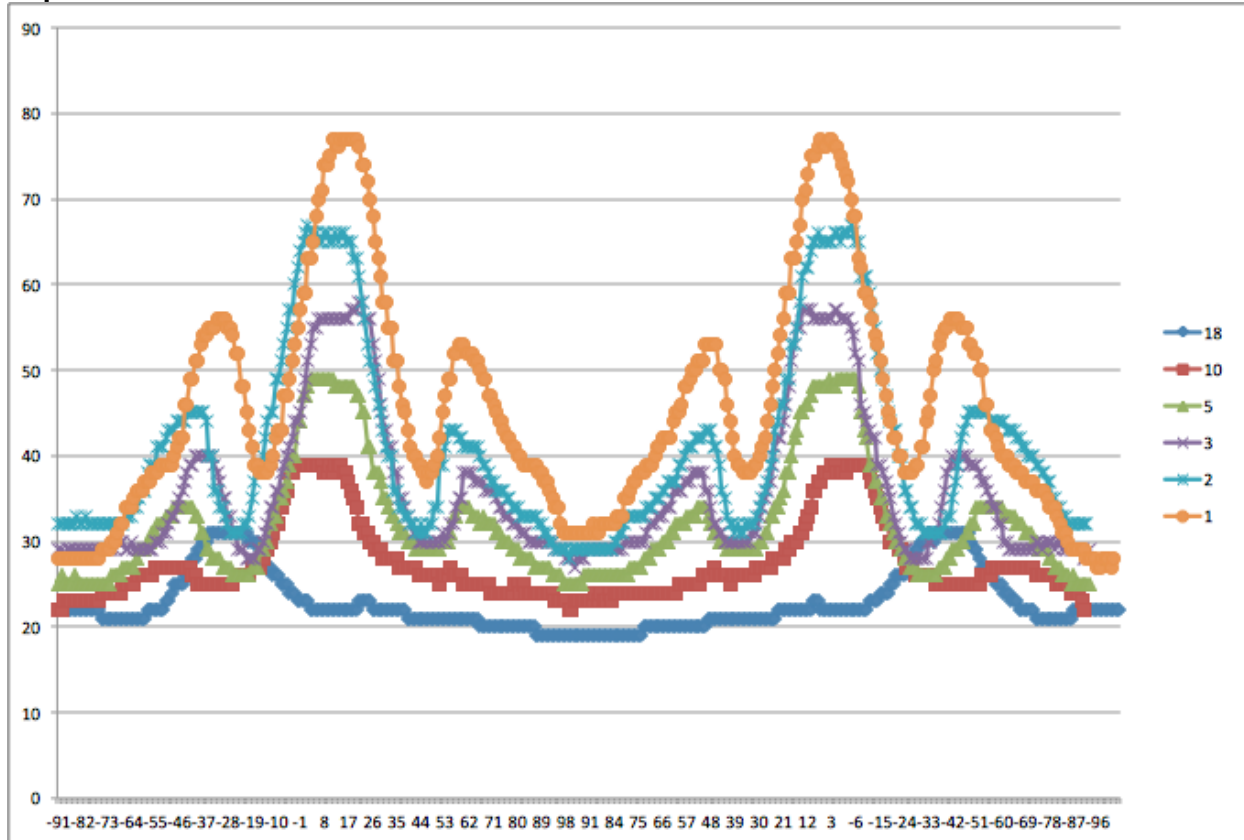


IEOR 160 Project 3 Milestone 2 Report
Nate Bailey - Program Design, Coding
Raymond Ma - Hardware Design, Project Writing

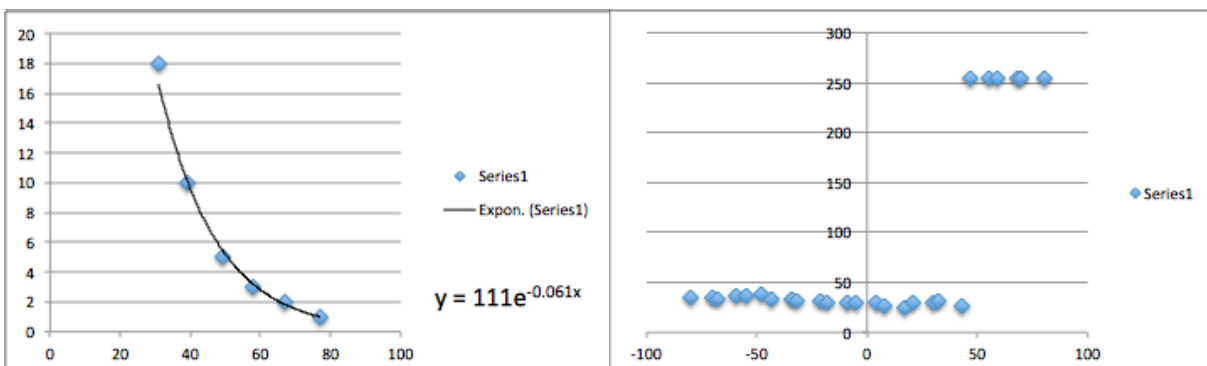
Hours

(2 x 2 hours + 1.5 hours) x 2 people = 11 hours

Experimental Work

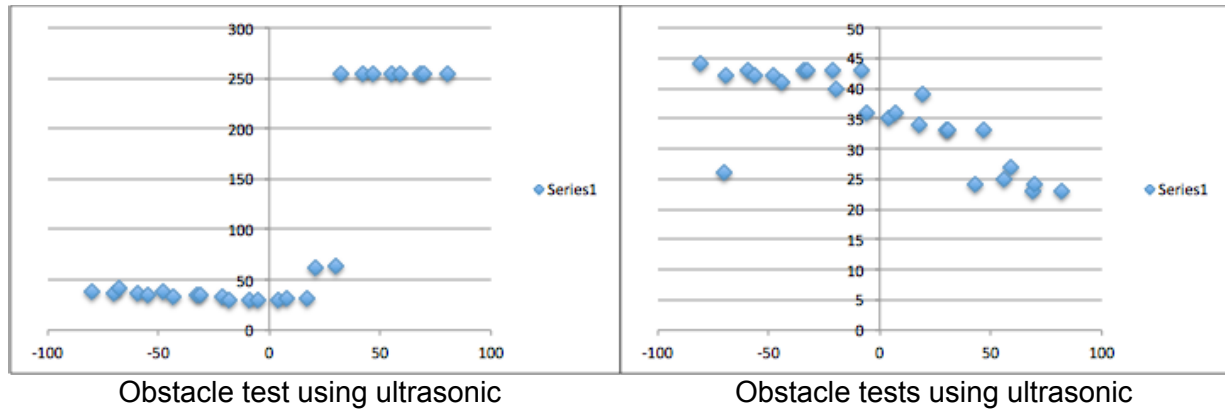


Light value as a function of angle test (at different distances from the light)



Peak graph of the highest point at each distance.

Obstacle tests using ultrasonic



Classes

The job of ObstacleDetector is to look to see if there is an obstacle in the path of the robot. Upon finding an object within the specified distance and angle thresholds (25 cm in front of the robot and within 15 degrees of the head), it calls any attached obstacle listeners' obstacle found methods. This means it sends the information back to the Navigator which then implements any obstacle avoiding algorithm.

Task Analysis

- Navigator
 - Takes input from the Sensor and passes it to the Mover.
 - Figures out when the robot is close enough to the light to stop and turn.
 - Controls the scanning / moving by having iterative scans between move commands
- Scanner
 - Finds both the angle and the distance to the light source
- Mover
 - Uses Pilot to steer towards light
 - Turns around when the robot gets close to the light
- ObstacleDetector
 - Uses an algorithm to detect objects
 - If one is detected, it passes that information to the Navigator to then initiate evasive action

Interesting/Challenging/Difficult

The most interesting part of this milestone was figuring out how threads and listeners work so we could stop the robot wherever in the moving algorithm we were when it detected an obstacle. The most challenging and difficult part of this milestone was getting the logic of our ObstacleDetector to work and communicate successfully with our other methods to produce smooth movement and obstacle detection

Code

Source Code:

<https://github.com/ieor140-team4/Project3>

Javadocs

<http://htmlpreview.github.com/?https://raw.githubusercontent.com/ieor140-team4/Project3/master/doc/essentials/package-summary.html>