IEOR 160 Project 3 Milestone 1 Report

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Control Scheme

To find the light, our robot does a scan of values for a cone area in front of it and find the highest light value in the range. Then, with the maximum light value, it find the angle of that reading and tells the Mover to move toward that angle, using a gain constant of ⅓. To make sure that the robot doesn't oscillate, the robot is programmed to turn no more than to the given angle so that it does not overturn in the time between successive scans. This process is repeated over and over until it reaches close to the light, which was determined by the experimental work we tested.

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
- Sensor
    - 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

The Navigator / Sensor / Mover code is in: http://htmlpreview.github.com/?https://raw.github.com/ieor140-team4/Project3/master/doc/essentials/package-summary.html

And the milestone 1 code is in: http://htmlpreview.github.com/?https://raw.github.com/ieor140-team4/Project3/master/doc/milestone1/package-summary.html