Archit Enterprises

Team 20

Lab number 1

Prototype Descriptions

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Version 1.0

By signing below, each group member approves of this document and contributed fairly to its completion.

Raymond Tang, Andrew McMillion, Archit Rupakhetee, Tyler Lenig

On our honors, as students of the University of Virginia, we have neither received nor given unauthorized aid on this assignment.

Raymond Tang, Andrew McMillion, Archit Rupakhetee, Tyler Lenig

Contents

Prototype Description

The prototype for the Lab 1 risk-reduction testing was built using the provided HelloWorld class as a template to address the risks outlined in the Risk Analysis paper. From there, we explored various API functionalities to address issues with the robot. By the end of the testing session, the team had an evolutionary prototype to work with.

The prototype begins by printing to the screen, setting the wheel speeds, and then running a *for* loop to alternate wheel directions, causing the robot to spin in circles. After a button press on the brick, the robot goes through an acceleration *for* loop, exponentially increasing speed until its maximum motor rate was reached. This allowed us to test responsiveness of the motors (their torque and consequently how readily they can change speed and direction of rotation) and the functionality of *Thread.sleep()* and *for* loops, all while familiarizing ourselves with the LeJOS API.

This prototype was developed and tested iteratively with each function in mind. This allowed us to more accurately configure the constants involved with each motor while working with each risk on a case-by-case basis. We eventually finalized the prototype to be a slow moving, robot with synchronized wheels.