EE-4735 Progress Report: Hallway Shuttle Bot

Shuttle Bot A

Noah Symanzik, Chad Pollock, Nathan Duprey

March 27, 2017



**1 Project Progress**

**1.1 Goals and Objectives**

**Hallway Shuttle Bot**

Using only an accelerometer chip for input, a mobile robot shall traverse the distance between two lines across a straight hallway. Given lines that are exactly 12 meters apart:

1. Starting at a Start line, drive to a Finish line and stop within ± 0.5 meter of the Finish line,

2. Pause for a few seconds,

3. Back up to the Start line and stop within ± 1 meter of the Start line.

**1.2 Tasks Accomplished**

Currently the team has checked out all hardware components for the shuttle bot. The team has written initialization code and implanted basic functionality for I2C, MMA8450Q, and UART (See Appendices). The MSP430 can send commands to the motor controller using UART. The I2C interface is able to send commands and this has been confirmed using an oscilloscope. Additionally, preliminary distance calculations and a tentative lookup table have been completed. Wrote function to calculate and set offsets.

* 1. **Remaining Tasks**

1. Acquire voltage regulator and voltage translator for accelerometer.

2. Write robot-controlling code.

3. Test and calibrate code for robot hardware.

**1.4 Questions or Concerns**

**References**

[1] Dimension Engineering, “Sabertooth 2x10 User’s Guide”, Sabertooth 2x10, Feb, 2007.

[2] Freescale Semiconductor*,* “3-Axis, 8-bit/12-bit Digital Accelerometer”,MMA8450Q, 2012 [Revised April 2012].

[3] R.M Kieckhafer, *Final Project Specification*, Mar, 2017, unpublished.

[4] Texas Instruments, “4-Bit Bidirectional Voltage-Level Translator for Open-Drain and Push-Pull Applications”, TXS0104E, June 2006 [Revised May 2008].