Xplore Midpoint Memo

To: CSE321 Course staff
From: Cristian Pompey
Date: 11/21/2022
Re:

Introduction

This memo will detail the progress and current issues from the Xplore implementation. Xplore is an omnidirectional robot that will have the capabilities of exploring a room using a depths-first-seaerch like algorithm. This robot will be implemented in a set of development stages where only an initial stage will be developed for the sake of this class project. The initial stage that will be implemented for this class project will consist of the robot being fully assembled, being able to move in either direction, and measuring the distance between an object and the robot.

Progress

At the time of the publishing of this memo, Xplore's chassis has been fully assembled, the driver's for the ultrasonic sensor, dc motor, and matrix keypad have been developed. The following tasks still need to be completed and will be in the near future;

- Testing Drivers
- Determine whether to use dot matrix display
- Test omnidirectional movement
- Testing ultrasonic sensor noise
- Upgrade firmware
- Write main algorithm

Known Issues/Potential Problems

Though progress has been promising, there are still some issues that may take longer to figure out solutions. These include the following

- Unable to upload programs to NUCLEO using full profile API's
- "Neck structure" for ultrasonic sensor attached to servo
- Object distance measurements from ultrasonic sensor noisiness.

These issues are either actively being brainstormed, or require a dependency that hasn't been implemented yet. An example of this includes the ultrasonic sensor noisy measurements. The ultrasonic sensor driver program needs to be successfully uploaded to the NUCLEO in order to test how noisy the measurements may be.

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