EE/CprE 4910 – sdmay25-26
Week 2 Report
09/19/2024 - 9/26/2024

Cost-Effective and Easily Configurable High Voltage Motor Controllers for Automotive Use
PRISUM Solar Car Club, Jonah Frosch
Nathan Neihart, Cheng Huang

Summary

The career fair on top of a number of minor issues prevented us from making major progress on software and acquiring hardware. However, small progress was still made on both the hardware and software fronts setting us up for a more successful week next week.

Accomplishments

- Fixed issues with ordering development board – Marek
- Setup required ST software for development – Bryce, Gavin
  - Started a cube project and an STM32CubeIDE project
  - Researched what is required to setup most ST motor controller projects
- Handled scheduling issues with advisors

Pending Issues

While we have just recently found times that work for communicating with our advisors, we still need to meet with them. It's become difficult to line up those times with times that best suit the rest of our team. So far, we've only been able to meet with them briefly in smaller subsections of our team.

A combination with tech issues on Gavin's side, struggle with ST support, and still not having the development board (due to it being in Detroit) has slowed progress on the software side of things. As some of these tech issues figure themselves out, progress will move quicker.

Individual Contributions

Member	Contributions	Week Hours	Cumulative Hours
Gavin Patel	Setup local software environment	3	6
Bryce Rega	Set up ST software and researched ST support	4	8
Marek Jablonski	Correcting dev board order, researching part choices and control theory	4	7
Jonah Frosch	Researched gate options and regen theory	3	6
Long Yu	Researched the marketplace and motors	3	7

Upcoming Week

- Reverse engineer software for other motor controller ST projects (with boards that they support) to determine what is required for this development board.
- Begin creating a high-level design of the software.
    - Which layers are dependent on the hardware? What is specific to the board? What is specific to the micro?
- Acquire the development board and ensure that there are no major hardware issues (power up the board).
- Design high level schematic of first draft controller including power inputs, power driver stage, and relevant protections.

Advisor Meeting Summary

No meeting this week. However, we were able to determine times for subsections of our team to meet with our advisors in person.

Hardware/Software Integration Diagram