EE/CprE 4910 – sdmay25-26
Week 3 Report
09/26/2024 - 8/3/2024

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

Summary

Shipping issues continue to plague the project, but progress was still made and research was still conducted. The team has checked in with an advisor and got together to discuss the approach to driving the motors and the bridge from software to hardware. This included investigating hardware options beyond the development board.

Accomplishments

- Fixed issues with ordering development board, again – Marek
- Setup ST-XCUBE-MCSDK for motor controller software – Gavin, Bryce
    - Used to generate motor controller examples to reverse engineer

Pending Issues

The board has been ordered and is shipping, but the arrival date continues to get pushed back and appears to be stuck in Detroit. If there are further issues that prevent the board from being delivered, we'll have to order elsewhere so this issue stops holding the project back.
Much of the time we've allocated to senior design has largely been used to tackle the increase in assignments rather than the actual motor controller research. We may need to reallocate our time or reevaluate our timeline.
A combination of the two issues above prevented us from working on most of what was listed for this week according to the last weekly report.

Individual Contributions

Member	Contributions	Week Hours	Cumulative Hours
Gavin Patel	Setup ST motor controller code generation	2	8
Bryce Rega	ST software, PWM, and mini advisor meeting	3	11
Marek Jablonski	Got a tracking number, discrete driver research	2	9
Jonah Frosch	More research + CAD file generation	3.1	9.1
Long Yu	More market research	2	9

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

There was a quick check-in with our advisors to go over what we've done in the last couple of weeks. They are really more interested in having a full meeting only when some of the "more interesting stuff" happens later on.

Hardware/Software Integration Diagram