Hybrid Start (Group 9)
ECEN 404 - 901

Update Log 6
Week of Feb 28, 2022 - Mar 6, 2022

- **Ryan Aultman** (Storage-to-Output):
    - Since the last update, I received my PCB for the sensing circuits and began soldering them. I finished both current sensing circuits, and integrated them with Janet. I soldered one of the two voltage sensors, and I'm waiting to solder the second until we're able to test the first (they are identical circuits, and all components are through-hole and are therefore easy to solder. As for the switching circuit, I was able to completely solder it on the perfboards. However, I melted the headers I was using in the process, making them unusable. I'm planning on desoldering the entire board and soldering a completely new perfboard.
- **Thomas Bergeron** (Digital Interface):
    - (Excused absence)
- **Janet Park** (Controls/Monitoring):
    - Over the weekend, Hunter and I were able to complete integration for the voltage sensor, as well as validation. Unfortunately, when integrating the switches, we encountered an issue in which the GPIO pins output a voltage of ~1.8V, rather than the nominal 3.3V for a digital high signal. Therefore, I plan to resolve this issue with my professor/TA throughout this week and during the Capstone Blitz. Furthermore, Ryan and I began integrating the voltage and current sensors, and were able to begin (and nearly complete) validation. However, there is a limitation with the ability to test the voltage sensors due to the need for an input AC voltage. Overall, I am nearing completion with sensor validation, and plan to resolve the remaining issues this week. We should be prepared for full system integration by March 6th.
- **Hunter Ruff** (Input-to-Storage):
    - I soldered connecting adaptors onto my 5V and 3.3V rails to easily connect and disconnect to pheripherials via jumper cable. Since last time, the integrated voltage sensor has been integrated with Janet's subsystem. We are trying to solve an issue this week with my battery charging switch where Janet's GPIO pins don't supply enough voltage to the switch coil. The buck converter is able to charge my Airpods but cannot supply power to any large load like the Raspberry Pi because once it reaches about 20mA of demand current, the voltage output of the buck drops severely with respect to the load. This is supposed to be designed to provide 3A, so I'll be debugging the circuit this week. I have solved the issue I was having with the linear regulator. Adding a large load capacitance solved the voltage and ripple issues I was having, but until I can eliminate the voltage drop issue on the buck I can't run tests with Janet.

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