

EE/ CprE / SE 491 - sddec20-25

Automated Lithium Ion Battery Characterizer

Week 3 Report

2/15/20 - 3/1/20

Client: Solar Car

Faculty Advisor: Nathan Neihart

Team Member Roles

- **Kyle Czubak:** Scribe
- **Ben Kenkel:** Meeting Facilitator
- **Joe DeFransisco:** Chief Engineer & Team Lead
- **Ryan Willman:** Safety Manager
- **Bryan Kalkhoff:** Report Manager
- **Connor Luedtke:** Test Engineer

Bi-Weekly Summary

We went through complete project scope change, and created version 1 of the design document based on our new scope. We have been able to start working on hardware designs for our battery characterizer.

Past Week Team Accomplishments:

We defined our project, and created version 1 of the design document.

Pending Issues:

- Op-amp has higher error than desired.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Bryan Kalkhoff	Researched potential microcontrollers/microprocessors. Researched precision op-amp design	12	48
Kyle Czubak	Looked into pi could be used for the project.	10	46
Ben Kenkel	Examined WiFi modules, researched I ² C	9	39
Ryan Willman	Research temperature measurement circuitry.	10	42
Joe DeFrancisco	Created rough diagram of the characterizer block. Researched precision analog circuits for ADC input stage.	12	47
Connor Luedtke	Researched/specing power supply/charging circuit	10	45

Upcoming Plans

Joe DeFrancisco

- Created detailed block diagram of entire system.
- Finalize current measurement circuitry.
- Read IEEE Standard 1679

Connor Luedtke

- Read IEEE 1679
- Work on power circuitry

Ryan Willman

- Finalize mounting of batteries for characterization.
- Finalize temperature measurement circuitry.

Ben Kenkel

- Read IEEE Standard 1679
- Determine CAN termination plan
- Determine CAN protocol

Bryan Kalkhoff

- Finalize voltage measurement with a good op-amp
- Narrow down microcontroller list
- Read IEEE 1679

Kyle Czubak

- Read IEEE Standard 1679
- Determine CAN protocol
- Work on putting a database on a pi.

Summary of Weekly Advisor Meeting

The main todos from the meeting were to create a detailed system block diagram and discuss communication protocols. We will also be moving forward with a raspberry pi to host the database and be the main controller of the test program.