

CS 4910 – Software System Development and Design II: Implementation and Testing

Project Progress Report

Project Information:

Team Members:

Anthony Kirkland
Macallister Armstrong
Lorand Mezei
Jeremy Evans

Client:

Allin Kahrl, Department of Engineering Design, Manufacturing and Management Systems

Advisor:

Colin McCreery, Faculty Specialist I, Department of Computer Science

Report Date:

02/19/2021

Team Activity Report:

What has your team done since your last report. Indicate team meetings with a brief description of what was discussed, and a breakdown of any other activities your team engaged in since your last report.

Since our last progress report, we began attempting to create a debounce algorithm to accurately read values on the Analogue to Digital Converter (ADC). However, after our meeting with Allin, we decided to go another route. We will be using the Thermocouple Amplifier Max31855 Breakout Board to convert the analogue signal from our thermocouple to a digital signal. The board automatically debounces the analogue input, and so this effort was no longer necessary. We used this time to get all members up to speed on environment set up and flashing, running a variety of test programs, and testing serial output to console.

Client Interaction Report:

We met with our client, Allin Kahrl, on February 19 to discuss what we have done so far. We are expecting Allin to provide hardware for the LED/thermocouple test bed and thermocouple amplifier in a week or two. We discussed using the SPI (Serial Peripheral Interface) protocol to communicate with the thermocouple amplifier, and tentatively decided on libemb for a library to parse commands and arguments. We will create test programs using libemb in the coming weeks.

Milestone Review:

Briefly describe the phase of your project that you are currently working on. What is the planned date of completion for this part of your project? Are you ahead of schedule, on schedule, or behind schedule?

We had completed Phase 1 as of February 3. Our next milestone was to implement a debouncing routine for the potentiometer, which wanted to complete by February 13. However, after discussing with Allin, this was not necessary. See above. In phase 3, we will be testing the parsing of commands and options to invoke C functions using libemb.

Issues (or stories):

We have a couple of documentation issues still in progress regarding PID theory and implementation and environment set up. We also have a to do for adding Allin to our repo, and an issue for writing a test program that uses libemb to route command line arguments and options to the proper C functions, with the proper arguments. This testing will likely last until we have all the hardware we will need, unless it proves too trivial.

Problems and Risks:

Switching from reading from the ADC memory to communicating over SPI with the thermocouple amplifier may prove tricky. We are hoping that not having to implement a debounce algorithm will outweigh the learning curve.