Weekly Report 4

Sddec24\_04

**Weekly Summary**: This week we focused on creating questions for our meeting with our project contact. We were able to get more information on the schematic that was provided as it differed from the recommended datasheet. It was explained that some of the design decisions were made with the idea of being compatible with both RTDs. We also discussed possible approaches to our problem and considerations of measurement error.

**Past week accomplishments**

**Team Member 1(Justin):** This past week we met with Dana and I was able to get some questions I had answered. I also continued to read through the data sheet for the MAX chip and gain a better understanding of what RS485 communication is and how it works.

**Team Member 2(Tony):** Met with Dana and he was able to answer some questions I had about his circuit board so I could get a better understanding of how the circuitry itself works. Figured out that there is a potential problem with the values of certain capacitors dependent on the type of RTD being used, that may cause inaccurate temperature readings. Found voltage regulators that will most likely be required for our circuit board (Linked at end of document).

**Team Member 3(Sam):** This week we were able to meet with Dana and have him answer questions about the schematic that he provided with us. He pointed to resources based on Modbus communication and websites with further information. I was able to get a better understanding of RS485 and the set up being used for the MAX chip. Created plots of the temperature equation and verified with Dana where we should be most accurate in our measurements.

**Team member 4(Michael):**  Met with Dana to talk about interaction between board and micro controllers and setup of the existing circuit. Discussed some specifications and ranges of interest. Continued reading into RS485 and modbus documentation. Also began looking into microcontrollers for board.

**Pending issues**

**Team Member 1(Justin):** I need to review C programming for communicating with the microcontroller we decide to use for our test device as well as Python.

**Team Member 2(Tony):** Review C programming language and Python as these are the two most likely languages we will use with our MCU.

**Team Member 3(Sam):** I plan to review C the most and try to understand our block diagram plans.

**Team Member 4(Michael):** Continue looking into micro family that will be used, along with continuing readings on modbus and C/Python languages.

**Individual contributions:**

| **Name** | **Hours this week** | **Hours Cumulative** |
| --- | --- | --- |
| **Tony Haberkorn** | **2** | **9** |
| **Samuel Estrada** | **2** | **9** |
| **Justin Garden** | **1.5** | **9** |
| **Michael Hurley** | **2** | **9** |

**Comments and extended discussion**

<https://www.digikey.com/en/products/detail/traco-power/TSR-1-2450E/12171283?s=N4IgTCBcDaICoGUBKACAjAWjAFgKwAYBREAXQF8g>

(5VDC 1A voltage regulator)

<https://www.digikey.com/en/products/detail/texas-instruments/LM3940IMP-3-3-NOPB/308000?s=N4IgTCBcDaIDIFkDMBOALABgJIIAoFokA6JAegDkB5XAIRAF0BfIA>

(3.3V 1A LDO voltage regulator)

<https://www.digikey.com/en/products/detail/texas-instruments/TPS7A2433DBVR/11502221?s=N4IgTCBcDaICoAUDKB2AgmALAZmwEQCEA1AJRAF0BfIA>

(3.3V 200mA LDO voltage regulator)

**Plans for the upcoming week:**

The team plans to meet in person to create a basic block diagram of our test device. We will also discuss what each of us should be working on outside of meeting with the group and Dr. Neihart. We were able to set goals and expectations for our project for both this semester and for next semester.

**Summary of weekly advisor meeting:**

Dr. Neihart was able to meet this week and we were able to catch up on the progress that was made during the past two weeks. He was unable to meet last week so we presented the datasheets and conclusions drawn from reading and discussion with Dana.