Weekly Report 2

Sddec24\_04

**Weekly Summary**:

This week's focus was on getting the datasheets and background information on the project we need to move forward. This consisted of looking at the schematic files that were shared with us and identifying the parts used. We have formed more questions to ask our contact Dana for our meeting next week. We have requested additional information such as the part number for the RTD. Going through the schematic and datasheets led to a clear understanding and path for our projects next steps.

**Past week accomplishments:**

**Team Member 1(Justin):**

Contacted Dana to clarify a couple questions we had as a team as well as start discussion about when we will be meeting next. Also started reading through the ModBus communication packet given to us by Dana to start learning and understanding how we will be communicating with the existing system.

**Team Member 2(Tony):** Did research on RTDs to learn more about the different types, how they work, and how to use/gather data from them. Started looking at options for necessary parts that need to be purchased in order for us to complete our design.

**Team Member 3(Sam):**

This week I was able to find datasheets for the MAX31865 Chip that is our RTD-Digital converter. I went through the datasheet getting a basic understanding of the methods used. I also found the datasheet for our microcontroller and read through the basics. I refreshed the microcontrollers setup and interface on previous projects that I have used it on.

**Team member 4(Michael):** Read through the MAX31865 Datasheet along with Sam to understand how data is fed into the microcontroller. Looked at some RTD data sheets to understand the general conversion rates and tolerances.

**Pending issues:**

**Team Member 1(Justin):**

I don’t have a great understanding of how the ModBus communication works.

**Team Member 2(Tony):** Read and understand the MAX31865 datasheet as well as understand the ModBus communication protocol. Choose a final model to purchase for a 120VAC to 24VDC converter and RS-485.

**Team Member 3(Sam):**

I'm wanting to understand the ModBus communication as well. The packet that was given to us has some valuable information but I think sitting with Dana and talking through it will help. Hopefully I will be able to ask more questions in the coming week.

**Team Member 4(Michael):** Fully reading through the MAX31865 datasheet to understand how the measurement is made and how to drive the measurements on 100 and 1k ohm RTDs. Also understanding how the data is received and read by the microcontroller after being sent by the MAX chip.

**Individual contributions:**

| **Name** | **Hours this week** | **Hours Cumulative** |
| --- | --- | --- |
| **Tony Haberkorn** | **2** | **5** |
| **Samuel Estrada** | **2.5** | **5** |
| **Justin Garden** | **2.5** | **5.5** |
| **Michael Hurley** | **2** | **5** |

**Comments and extended discussion**

**Plans for the upcoming week:**

After speaking with professor Neihart we seem to have a pretty clear goal for the coming week. The path forward consists of getting a very good understanding of the MAX chip and figuring out how the chip does its conversion. There are a few pages within the datasheet that go over the equations being used as well as an internal block diagram. We are also going to be researching the basics of the RS485 protocol to have an understanding of the way our data is being communicated.

**Summary of weekly advisor meeting:**

We were able to meet with Professor Neihart and gain a better understanding of the schematic shared. Sitting down with him we presented the files and datasheets we've collected over the week and he helped us narrow down what we should be focusing on for the week. We discussed how understanding the MAX chip will be most of the challenge in our project since we are trying to emulate the RTD for our tests.