sdmay19-47: NSF Lab furnace control system
Week 3 Report
September 17 - September 26

Team Members
Nick Brylski — *Systems Engineer*
Christopher Pohlen — *Software Engineer/Gitlab Moderator*
Adam Matthews — *Embedded Software Engineer*
Kevin Lang — *Hardware Engineer*
Jeremy Hartl — *Hardware Engineer/Report Manager*

Summary of Progress this Report
We successfully communicated with the Omega Temperature Controller (OTC) using a computer via an RS-232 cable. This verified the command and communication methods on the Omega controller User Manual. We were able to set temperature values for 6 zones, read temperature settings, and read measured temperature using a thermocouple.

Additionally, we created a design flowchart that describes our planned design thinking process. An image of our flowchart is attached.

Pending Issues
We have not successfully used the Arduino to communicate with the OTC. This can possibly be resolved through use of the Softwareserial library to create a virtual serial port. We also may do away with the RS232 shield once we have obtained an RS232 chip from Dr. Tuttle.

Plans for Upcoming Reporting Period
Our first goal for this period is to program the Arduino to send commands to the OTC. Simultaneously, we want watch and affect this interaction with an external device. Once we get a Softwareserial port open, we will use PuTTY to watch the programmed interaction between Arduino and OTC. We will program a set of higher level functions for the Arduino to run, such as setZoneTemp(zone, temp) to set the temperature in a particular zone, then send commands over PuTTY to run those functions. This is the first step toward enabling a connection between a user interface and the OTC.

Our second goal is to begin research on UI programming languages. Areas to research are GTK and Python. The choice of screen, with or without an embedded programmable processor, will likely affect choice of UI language. We will pick up a screen and RS-232 board chip from Dr. Tuttle this week for experimentation.

Additionally, we will complete an initial project plan. This will solidify our proposed project schedule and set hard dates for task completion.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Nick Brylski	- read through manual for omega - temperature controller to understand its manual and rs232 operation - debugged rs232 circuit w/ putty made - flowchart for design plan	4	15
Christopher Pohlen	Began working with the others on the Project Plan	2	11
Adam Matthews	- Contributed to design thinking flowchart - Successfully interfaced with OTC, soliciting temperature values and setting set points	4	16
Kevin Lang	- Contributed to the creation and writing of the project plan - Researched more about the CN 616 machine and how to communicate with it using RS 232	3	11
Jeremy Hartl	- Created and submitted status report - Worked on design plan and the flowchart for the design plan	4	14

Gitlab Activity Summary
Nothing to report.