

Week of Sep 7

Week of Sep 14

Week of Sep 21

Week of Sep 28

This week I've figured out that I'll need new current sensors with a better sensitivity, the sensors I have are for a very large scale application. I've found the new current sensors I want, but they are an 8-pin soic which is very small and difficult to use with 120v lines. I'm going to continue looking for a breakout board to make this easier for me. I've also been making other parts of the hardware more permanent.

Week of Oct 5

I'm having an issue where the power supply is not reacting to changes in power fast enough. I think the voltage is dropping for a quick second and forcing a reset on the chip. This only happens when a relay is turned on/off, or when a powered device is turned on/off(which is odd because the 120v line should be filtered from the power supply...?).

Week of Oct 12

I'm waiting for my new current sensors to arrive. Spent some time debugging processor issues, where the relays activating would drop power to the microcontroller, which would force a reset. I think I have fixed it finally, the power and ground are both filtered now, to prevent fast changes in power.

Week of Oct 19

This week I implemented my new current sensors, these new current sensors have a .12V/a sensitivity. This should be enough to capture the range of amperage of normal house devices. I had to unsolder much of my 120V lines to implement these new sensors, naturally this took a while. Along with the hardware changes, I've also implemented the new current sensor code. These sensors will return 2.5V +- 2.5V to the DAQ. My code will capture the high and low of the signal, to indicate the current draw on an AC signal. The high and low will go through some adjustments and finally come out as a number representing the power being used at that time. This routine will run every few seconds, to make sure the power is accurate. I plan to add more adjustments and an actual wattage calculation soon.

Week of Oct 26

This week I implemented the WIFI antenna, it is a 802.11 antenna that I took off an old Linksys router, I got some LN2 adapters and attached it to the box. Later this week on Saturday me and Dario are planning to meet up and implement the wifi boards into the powerstrip box. The wifi boards will communicate to the powerstrip boards via a 2-wire serial connection. I am thinking that we will mount the wifi boards in the back of the powerstrip box to keep them separated from the rest of the circuitry.

### Week of Nov 3

We successfully got communication between the webpage and the outlet box, we created a serial communication scheme between the wifi boards and the outlet control board. I will be working to change my code to meet the scheme this week, we still have to make the communication structured and fancy, but for now it is working. I'm also still working on the wattage readings from the current sensors.

### Week of Nov 9

We successfully have communication between the wifi board and the powerstrip both directions, we are able to issue commands and receive responses now. I made a big number of code changes including changes to match the wifi implementation, readability, and organizational changes. This week I will be continuing to document my design and implementation. Also, now that my processor is using more power, I think I need to beef up my power filters, I've been seeing issues when there is a large jump in power usage. I will need to get a few different cap sizes and implement a power filter that can respond quickly, yet have enough charge to keep the board going for a bit.

### Week of Nov 16

I am still preparing documentation and working on the final report for CS4710. I'm swamped with other work from other classes at the moment.