EE 491 Weekly Report   MAY1612   Week 13 (11/17/15-12/1/15)

Advisors: Mani Mina, John Pritchard   **Client:** Minnetronix

Members (roles):   Brandon McDonnell, Group Lead; Justin Long, Web Master

Timothy Dee, Key Concepts; Corey Wright, Communications

Project Title: Remotely Connected Electric Field Generator for Particle Separation in a Fluid

Weekly Summary

This week we met in the 201 lab on the second level of Coover hall to continue working on the minigen and amplifier circuit. During this time we tried to work through the amplifier gain change via the potentiometer. The op amp circuit was a complete failure even though the setup was checked and double checked. There appears to be some sort of internal parasitic problems with the circuit that we created. We check this circuit more conventional parts and were not able to recreate that success with the digital pot. The circuit is sound but the components do not seem to work well with each other. The output is almost always clipped and the gain is never where it should be. The resistance in the digital pot is never as it should be. We are now looking at different ways to create the same circuit including possible using a programmable digital gain amplifier that would not be as accurate but would work. By using several of these in parallel we believe that we could create a set of binary gains by turning on or off different PGAs for different values.

Meeting notes:

We met as a group in the same lab mentioned above. Brandon, Tim, Justin, and Corey were present. The work progressed well at first in the setup and initial testing but we hit a dead end trying to get the amplifier circuit to work. During this time Tim was refining the web interface before coming over to help on the amplifier. We ultimately could not get the circuit to work.

Pending issues

1. We have the type of amplifier circuit that we want narrowed down but need to find a commercially manufactured circuit that will fill our needs, ideally.
2. We will then connect the successful minigen and potentiometer programs to our web interface.

Plans for next week

Describe who will do what …..
1. All: Get the amplifier circuit to work better
2. All: Find a commercial PGA that will work for our circuit
3. Tim: Finish up the web interface
4. Justin: Possible touchups to the website including a group picture

Individual Contributions (this week)

Brandon McDonnell   (8 hr)
        -modeled op amp in lab
Justin Long   (10 hr)
        -worked on the website including bios
Tim Dee   (8 hr)
        -worked on the web interface
Corey Wright   (7 hr)
        -modeled op amp in lab

Total contributions for the project

Brandon McDonnell   (36hr)
Justin Long   (30hr)
Tim Dee   (45hr)
Corey Wright   (34hr)