EE 491 Weekly Report   MAY1612   Week 11 (11/3/15-11/10/15)

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 newer 201 lab on the second level of Coover hall to continue working on the minigen and digital potentiometer. While in this lab we had a skype call with our industry contacts at Minetronix, John Pritchard and Adam. During this time we worked through the two raspberry pi devices to show each of the minigen and potentiometer working. We were able to successfully get the potentiometer to work correctly and can give a voltage out varying from 0V to 3.3V over 128 steps which John approved of. We also have the program able to return data about the voltage that is should be generating. The minigen is still having problems creating the 3.3V sine wave that we want. We have narrowed the problem down to improper register writing in one specific bit, bit 23 of the frequency register, and will need to fix that portion. At this time we are able to get half of the frequencies to work correctly. We also did some preliminary testing on an op-amp circuit that we built in lab.

Meeting notes:

We met with our industry contacts via skype and showed them the working portions of our project. They had a number of questions for us which we were able to answer or explain as needed. This meeting also clarified a few small questions we had going forwards as it pertains to the final implementation requirements. The frequency range has been modified from a hard 10 KHz to 1 MHz to a 10 KHz to 2 MHz preferred setting. This will mainly affect which op amp we purchase based on the gain bandwidth and not affect the overall design.

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 need to get the minigen to create the proper waveform and have it be variable based on programed input.
3. 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: Further work on the minigen and actually get it to write to its registers properly
2. All: Find a commercial amplifier that will work for our circuit

Individual Contributions (this week)

Brandon McDonnell   (4 hr)
    -modeled op amp in lab, met with John
Justin Long   (3hr)
    -worked on the website including bios
Tim Dee   (3.5hr)
    -worked on the minigen/pi circuit
Corey Wright   (3hr)
    -modeled op amp in lab, wrote the lab report,

Total contributions for the project

Brandon McDonnell	(23.5hr)
Justin Long	(18hr)
Tim Dee	(32.5hr)
Corey Wright	(23hr)