sdmay19-32: Sound Effect Devices for Musicians

Week 9 Report

November 1 – November 8

Advisors: Dr. Geiger & Dr. Chen

Team Members

Tim Day — *Analog Engineer*
Eric Fischer — *Test Engineer*
Francisco Alegria — *Chief/ Musical Engineer*
Blake Beyer — Digital Engineer
Travis Gillham — *Integration Engineer*

Summary of Progress this Report

This week everyone in the group has been working on testing and fixing up mistakes that were in the circuit schematics. The design and testing for the avalanche noise generator is complete. The mixer design has one more hurdle till the circuit design is complete. Fixing this will allow for better control on the attenuator swing. The filter circuit design is complete and now it is currently being tested in the lab. The code for wifi communication for controlling the potentiometers is currently being developed. The oscillator design has been updated to accommodate a new chip. This will allow for less total harmonic distortion. The audio amplifier has been updated to a class D audio amplifier.

Pending Issues

➢ Need to have the completed circuits for all modules.
➢ Need to finish the design for the mixer.
➢ Need to test the mixer.
➢ Need to start the design for the envelope.

Plans for Upcoming Reporting Period

➢ Finish design for mixer.
➢ Testing on all of the modules.
➢ All the parts for testing have been decided.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Tim Day	Tested the white noise generator on the PERF board. Presented the concept for the mixer to our advisor. Worked on creating a better design for the mixer that will allow for a full voltage swing on the attenuator.	4	53
Eric Fischer	Presented my findings to our advisors and received feedback to make the capacitor values smaller to utilize a more majority of the digital potentiometer's resistance range., rather than just a small percent of the range. I looked into this, still have to do final simulation then I can build the circuit on breadboard and test.	4	35.5
Francisco Alegria	Started redoing the code to communicate with the hardware via Wi-Fi, and to control digital potentiometers. Working on making a full system block diagram.	3	57.5
Blake Beyer	Started oscillator redesign using AS 3340. Made small tweaks to tri to sine to minimize total harmonic distortion.	5	29
Travis Gillham	Discussed with Geiger about options of using audio amplifiers rather than designing a circuit. Research and looked more into Class D audio amplifiers. Discussed with Professor Chen about the specification of audio amplifiers and what specifications are needed for our project.	5	41.5