sdmay19-32: Sound Effect Devices for Musicians

Week 6 Report

October 11 - October 18

Advisors: Dr. Gieger & 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

Had a great conversation with our advisors about modifications that need to happen within our synthesizer. The first topic was modifying the white noise circuit design. On this circuit there were back to back amplifiers the second one cut off the gain of the first. The next topic was deciding to completely revamp our user interface to have it be entirely digital. This means we know have to find a way to control the device wirelessly so the user can modify the hardware using an iPad. The next topic was fixing the filters by reducing our expectations of a higher order filter down to a lower order. This reduction will allow us to track the center frequency with a voltage control coming from the digital interface.

Pending Issues

➢ Need to test modules in the lab.
➢ Need to have desired controls that can be adjusted for the digital interface for each module.
➢ Need to figure find specs for the oscillator.
➢ Need to start ordering parts.

Plans for Upcoming Reporting Period

➢ Start testing modules in the lab.
➢ Start figuring out the wifi connection from the ipad to the digital controller.
➢ Plan on ordering parts for tests.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Tim Day	Researched summing amplifier. Started designing the mixer module. Plan is to have the mixer be adjustable through the digital interface. Developing a method that will allow the digital control modify the output of the summing amplifier. Finished the circuit design for the white noise amplifier.	6	40
Eric Fischer	Discussed with group and determined that second order filter instead of fourth order is what we want. In the process of determining the resistor and capacitor values based off of the transfer function coefficients for second order.	3	18.5
Francisco Alegria	Researched how to control the device via WiFi. This will allow for direct control from an iPad without the need for an additional PC. New communication system design started. Found a new way to develop the user interface; new interface design started. This new method is more cost efficient, which can give the user closer access to modularity by providing their own interfaces to control the device as they see fit.	8	43.5
Blake Beyer		<1	10
Travis Gillham	Discussed with Dr. Chen about the current circuit and how it could be changed. Figured what was actually needed for the circuit and what components are needed.	4	19.5