sdmay19-32: Sound Effect Devices for Musicians

Week 5 Report

October 4 - October 11

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 we were able to all get a start on our schematics. The only modules that have not been started yet is the mixer, envelope, and overall power distribution. We have all agreed on having a digital interface connection our circuits. Within this new design each module should have a potentiometer that is adjustable through the digital interface. The noise module has been tested in the lab and is complete. The next step is to solder the parts onto a perf board to confirm that the module will function.

Pending Issues

- ➢ Need to start mixer.
- ➢ Need to start envelope.
- ➢ Need to start power distribution.

Plans for Upcoming Reporting Period

- ➢ Everyone should start testing their circuits.
- ➢ Everyone will see what Paco has created for the digital interface.
- ➢ Everyone should have solid footing on their circuit design.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Tim Day	Developed the noise module that is able to create white noise. This module uses the breakdown of the reversed biased BJT from emitter to base and amplifies it with a common emitter and operational amplifier. Completed the final circuit for this module and have the through hole components. Next step is to solder it to a perf board. Researched summing amplifiers to use in the mixer.	8.5	34
Eric Fischer	Determined resistor and capacitor values for both low pass and high pass filters. Will complete creating the circuit in Multisim to confirm values are correct. Need to determine which resistor/component will adjust the cutoff frequency and which will adjust the resonance.	3	15.5
Francisco Alegria	In the process of designing the internal hardware systems that allows all of the modules to communicate without external patching. The internal hardware will also need a software side, for that I have started researching how to program the microcontroller that will be used, since I have not used it before. Also, I started designing the software UI that will communicate with the hardware synthesizer via USB. (The software UI will help me visualize how to implement the hardware systems and UI.) Lastly, I have also been conducting tests on hardware I own, a synthesizer and a MIDI controller, to determine what MIDI and CV signals are being generated and sent to other modules for interpretation.	10	25.5
Blake Beyer		<1	10

Travis Gillham	Researched more about audio amplifiers and how they are different than normal amplifiers. Looked more into realistic casing options that we could use for the product and how we could implement them.	3	15.5