

sdmay19-32: Sound Effect Devices for Musicians

Week 9 & 10 Report

April 4 - April 11 & April 11 – April 18

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

These weeks are combined because they are close to the final testing stage. What was seen in these weeks is that the output from the oscillators through the mixer to the output amplifier keeps the desired signal coming through. They were all tested with the gui and work individually. Progress was made on the filter but it will not be included in the final system since it was made too late. It was realized was the PCBs may have been ordered too late to do any modifications if there is any mistakes with them. They will still be put together for the oscillator since it will save time instead of doing the perf board for each of the oscillators.

Pending Issues

- Need to combine all of the modules together with command line
- Need to put all the code onto a single Arduino
- Need to find a way to manage the power
- Need to finish filter.

Plans for Upcoming Reporting Period

- Filter will be complete
- Output amplifier will be complete
- Need to find a box for the circuit.

- Soldering will start on each module final setup
- Await for PCBs

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Tim Day	<p>Finished modifying the oscillator PCB. Ordered all of the PCBs and the components needs to put them together. Tested the oscillator output through the mixer to ensure signal integrity is not lost.</p> <p>Starting testing mixer in series with the output amplifier to test the output response. Created a circuit to step up the SDA and SCL voltages for the control line. This will allow the microcontroller to communicate with the mixer. Created a circuit to ensure the value going into the output amplifier has the DC offset of 2.5 Vpp.</p>	10 20	126
Eric Fischer	<p>Still attempting to solve digipot writability issue. Have a few more ideas to test and see if it solves the issue.</p> <p>Solved the issue with writing to the digipots. Ended up being a more elaborate way to code addresses for these specific digipots. Ran into another issue where the signal was essentially lost when connecting digipots into low pass filter circuit. Trying to figure out where the issue is developing and why it is occurring.</p>	8 8	90.5
Francisco Alegria	<p>Made the analog mod bay PCB, and worked on compiling and debugging code.</p> <p>Continued compiling and debugging code. Started to compile code with hardware. Most of the time spent debugging hardware with GUI/code.</p>	12 24	101

Blake Beyer	Rewrote DAC code to make it use less memory. Tested new code. Began building new oscillator. Debugged DAC hardware.	16	93.5
	Helped solve writing to digipot issue for filters.	5	
Travis Gillham	Explained my code to other members of the group and helped try and put it together.	8	81
	Helped assisting Eric with the filters.	8	