sdmay19-32: Sound Effect Devices for Musicians

Week 8 Report

October 25th - November 1st

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

Unfortunately, during this week a computer broke down which had the only saved files of our old digital user interface. Even though we do not plan on using this design anymore we are trying to remember what all was on that device to revitalize our new approach. The mixer circuit design is being looked at to see if the output voltage should be continuously update so that it remains at the line level. The schematic for the filters has been created that should be able to sweep across the audible hearing range. The oscillators arrived at the end of the week and the first test to create a sine wave on hardware. Research is continuing if the output should be for headphones and if the output amplifier should be adjusted for this.

Pending Issues

- Need to come up for final idea for Mixer.
- Need to test the hardware designs for all the modules.
- Need to update the user interface.
- The envelope module design needs to start.

Plans for Upcoming Reporting Period

- Plan for mixer is done.
- Testing has started on all modules.
- Filter is completed.
- Plans for the digital user interface is complete.

Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Tim Day	Redesigned the mixer circuit. Trying to decide if I want a circuit that will continuously keep the output of the amplifier at 2.5Vpp or to have it where the user will be able to adjust it where one can be shut off entirely.	4	49
Eric Fischer	Simulated the low pass filter and was able to adjust the cutoff frequency from 200 Hz to 3.5k Hz. This does not cover the entire audio range, so I calculated resistor values using w0 = 1/RC. In process of determining how to implement these values to give adjustable cutoff from 20 Hz to 20k Hz.	4.5	31.5
Francisco Alegria	Computer broke down. In process of recovering data and redoing past work. Not many new developments.	3	54.5
Blake Beyer	Further tweaked triangle to sin converter to get more accurate sine wave. Tested on breadboard. Continued research on filters.	4	24
Travis Gillham	Researched circuits for a headphone amplifier. Also researched Audio Amplifier products that could be used instead of designing an audio amplifier circuit. Along with this I also continued to research other options for casing that we could use.	4	36.5