MONTHLY REPORT

EE 492 DEC1503

October 31, 2015

BLUETOTH AUDIO MIXER

Advisor: Josh Bertram

Client: Jay Becker

Clayton Hawken: Team Leader

Debbie Baeder: Team Communication Leader

Chad Stobbie: Team Concept Holder

Brian West: Team Webmaster

1. Monthly Summary

Throughout the month of October, the team met to discuss progress over the Audio Mixer's redesign. Major adjustments include reducing input options from three analog auxiliary channels to two analog auxiliary channels and one Bluetooth channel. The enclosure has been shrunk down to a smaller size, and accommodates for the improved power cord and LED light strip switch. The Audio Mixer can now communicate with any Bluetooth device, and output the user's desired audio signal.

2. Circuit Schematic Updates

- Chad has completed the modeling in Eagle for the final circuit. Main changes from the prototype include:
- The power supply now uses an efficient DC to DC converter for the +5V regulator. No more linear regulator with the giant heatsink. It still uses the linear regulator on the -5V output because it dissipates very little power.
- The power supply now uses a surface mount, all-in-one full wave rectifier IC, instead of 4 discrete, through-hole diodes.
- There is a second, unregulated 12V power supply for the LED strip.
- There is a new IC for the digital potentiometer.
- The LED strip can be controlled by the GPIO of the Raspberry Pi, just like the LCD was in the prototype. The LCD and the LED strip share the same logical output from the Pi, so they will be either both on or both off. In addition to the digital control, there is also a discrete switch that will be mounted in the back of the enclosure which will act as the "master" power switch for the LEDs.
- There is an on-board fuse holder, so we can have removable fuses. Before we just hardwired a fuse in series with the Line wire.
- The inputs and outputs from the PCB were completely re-designed. Instead of permanently soldering the wires though-hole, we now have a modular wiring harness system composed of Molex connectors and terminals. This will be much more organized.

3. Enclosure Updates

- Debbie has redrawn the enclosure in Inventor for the second prototype. Adjustments involve:
    1. Top: Screws will surround and secure the LCD screen to the acrylic panel. This allows for both stability and easy repair.
    2. Left: Two auxiliary ports instead of three, due to the updated Bluetooth capability.
    3. Right: No changes.
    4. Back: Power cord jack, and manual light switch. These changes were made to allow the client to turn off the accent lights, and to improve the professional look of the power cord.
    5. Bottom: The enclosure will now have a matching acrylic panel. All edges of the enclosure will be interweaved with a puzzle connection style at the corners.

4. Pending Issues

- *Create boot-up script for the RPI*
- *Review connections on the digital potentiometer*
- *Are the coupling capacitors necessary in the design?*
- *Implementation of the remote control*
- *Layout the PCB and order parts*
- *Build, troubleshoot and test*
- *Create final poster and presentation.*

5. Plans for the next few weeks.

Brian: Create boot-up script, and code documentation.

Debbie: Enclosure fabrication and LED light testing.

Clay: Reviewing documentation and preparation for presentation.

Chad: Start the PCB layout.

6. Individual Contributions

Clay: Implemented and tested Bluetooth functionality.

Debbie: Redesign AutoDesk Inventor drawings, and accent light ordered.

Brian: Implemented and tested Bluetooth functionality.

Chad: Circuit schematic redesign completed and tested. Added modular wiring harness.

MONTHLY HOURS FOR THE PROJECT: 52

Name	Hours
Clay Hawken	12
Debbie Baeder	10
Brian West	12
Chad Stobbie	18

TOTAL HOURS FOR THE PROJECT: 358

Name	Hours
Clay Hawken	84
Debbie Baeder	91
Brian West	90
Chad Stobbie	93