Weekly report

EE 491 DEC1503

March 9, 2015

Modular 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

## Weekly Summary

This week we continued to design our concept plans, research component options, define the client’s interests, and develop back-up plans. We have our initial circuit design, and initial enclosure design under way. After researching the Raspberry Pi pin map to our mixer’s requirements we brainstormed the possibility of also using an Arduino for worst-case scenario.

## Team/Client Meeting Notes

* **Duration:**  30 minutes  **Members Present:** Jay and Team
* **Purpose and Goals:** General update, and poll for preferences.
* **Achievements:** 
  + *May Prototype:* A simplistic design that includes the basic functions and requirements. Three audio inputs by 3.5mm jacks are controlled by the Raspberry Pi, and the master channel. The individual channels will have their own label, and hard switch. The channel dials will alert the LCD screen to display the channel volume. The LCD screen will have the ability of backlight dimming, due to inactivity. The whole box will be powered by a custom power supply, and have a main power switch.
  + *Forecasting:* We asked Jay his opinions on our design, and the features we have brainstormed. Beyond the initial prototype, we want to attempt the following features during EE 492: Multiple output channels resulting in surround sound, left/right faders, an equalizer for audio quality adjustments, wall-mount capability, and signal indicators that a channel has an input instead of switches.

## Team/Advisor Meeting Notes

* **Duration:**  70 minutes **Members Present:** All.
* **Purpose and Goals:** Discuss mapping Raspberry Pi pins, and spring break plans.
* **Achievements:**
  + *Strategies for the PCB and Enclosure Fabrication:* Deciding on dimensions, and comparing the client’s preferences.
  + *Battery Back-Up:* Looking into a 9V or 12V
  + *Solid State vs Electromechanical Relays:* Weighing pros and cons of the outcome.
  + *Raspberry Pinout Map:*The following table shows our circuit’s requirements and the amount of GPIO pins it will take up on the Raspberry Pi B+ board.

|  |  |
| --- | --- |
| **Component** | **GPIO pins** |
| I2C | 2 |
| Shafter Encoders | 12 |
| Relay | 4 |
| LCD | 6 |
| *Total* | *24* |

## Pending Issues

* Finalize the pinout diagram
* Pick an Arduino for back-up
* Choose a bus jumper or single jumpers
* Figure out how/where to get our enclosure fabricated, and look at previous design projects’ methods.

## Plans for Spring Break

Brian: Programming development. Backup battery circuit.

Debbie: Draw enclosure in CAD. Find fabrication source. Compare MAX MSP and Reaktor for user interface. Research fabricating angled top.

Chad: Generate simulations in Eagle. Start out PCB design.

Clay: Raspberry Pin map.

## Individual Contributions

Clay: Components selected.

Debbie: Documentation. Enclosure research and pencil sketch. Downloaded Autodesk.

Brian: Uploaded website to server. Raspberry Pi pin research, Raspberry Pi programming research.

Chad: Analog circuitry diagram for the mixer, relay drivers, and power supply

# Weekly hours for the project: 24

|  |  |
| --- | --- |
| Name | Hours |
| Clay Hawken | 6 |
| Debbie Baeder | 6 |
| Brian West | 5 |
| Chad Stobbie | 7 |

# total hours for the project: 102

|  |  |
| --- | --- |
| Name | Hours |
| Clay Hawken | 25 |
| Debbie Baeder | 26 |
| Brian West | 23.5 |
| Chad Stobbie | 27.5 |