491 Weekly Status Report S2-3

10/11

Group 15

Project: Cryen

Client: Dr. Randall Geigar

Advisor: Dr. Chen Degang

Team:
- Justin Shaver - Meeting Facilitator
- Thomas Frye - Scribe
- Will Pigg - Lead Hardware
- Chandler Davis - Lead Software
- Daniel Bohlke - Test Engineer
- Caleb Hendrickson - Test Engineer

Weekly Summary

The team was focused on building the groundwork for each of the key components of our design. Each team member has been assigned to work on a component. Some of the components will have multiple team members assigned, for example, the GUI and applying the effect waveforms will both have two team members tasked with development due to their complexity.

Past Week Accomplishments

- **Justin Shaver**
    - Made sure everyone got their project work uploaded.
    - Started research on implementing the time based filters.
- **Thomas Frye**
    - Successfully established audio signal transfer with the RockPro and guitar signal
- **Will Pigg**
    - I researched heavily into bringing an audio signal into our MPU.
    - I tested guitar sound waves on an oscilloscope with our components.
- **Chandler Davis**

- ○ I worked on the presentation for our senior design meeting
- ○ I created a simple mock-up of what our GUI might look like using actual Glade components. It doesn't do anything, but it was more to get experience with the design aspect.
- **Daniel Bohlke**
  - ○ This week I installed Glade onto my Ubuntu VM and started working on more GUI windows.
- **Caleb Hendrickson**
  - ○ Changed from implementation of hanning window function to blackman window function
  - ○ Researched Previous Senior Design Project ADC and Software Interface
  - ○ Completed implementation of low pass frequency filter using FIR filter
  - ○ Testing of low pass functionality of FIR filter for correctness

Pending Issues

- **Thomas Frye**
  - ○ Current audio transfer is botched and will need further review. Possible revision of circular buffer or memory address issue.
- **Will Pigg**
  - ○ I discovered that our breakout boards are not functional unless I make an inverting circuit - we will need to test how the raw audio sounds from a guitar and proceed from there.
  - ○ We may need to implement filters now, or we could possibly find out that a raw signal from a guitar can be used perfectly in software.
  - ○ I tried to do some coding with arduino to visualize a section of a song - it did not go so well. I will need other team members to help me with this.
- **Chandler Davis**
  - ○ An issue that I'm still having is that I don't know the API endpoints that the GUI elements will need to be mapped to.
  - ○ Glade often crashes
  - ○ I need to find the quickest path to building the GUI with the features and look we want, while avoiding distraction from all of the other options.
    - ■ There are many options for the layout of GUI elements within a window. I overestimated how restrictive the GTK library it. There are many options that it's almost like taking web design courses all over again.
- **Daniel Bohlke**
  - ○ I don't quite have a full idea of all of the windows that need to be created for the GUI
- **Caleb Hendrickson**
  - ○ May need to test low pass filter with a wide variety of sound types(square, triangle, etc.)

Individual Contributions

Name	Individual Contributions	Hours	Total
Justin Shaver	Delegated and organized trello tasks Started development in time based filters	9	23
Thomas Frye	Established audio signal transfer	7	21
Will Pigg	Test components interacting with guitar signals	10	18
Chandler Davis	Created mockup for GUI to present to faculty	7	24
Daniel Bohlke	Continued development of GUI	8	22
Caleb Hendrickson	Modified existing filter functions and added additional ones	8	24

Plans for Upcoming Week

- **Justin Shaver**
  - Start implementing the time-based filters like echo and delay.
  - I commit to having the echo and delay filter done by next Wednesday.
  - Look back through old projects to ensure we are getting our questions and roadblocks handled.
- **Thomas Frye**
  - Resolve audio signal transfer issues.
- **Will Pigg**
  - Finalize stomp switches
  - Setup/finalize LED pushbuttons for GPIO use
  - Discuss with team the optimal approach for analog signal input - like I said, plugging the guitar straight into the the GPIO might work well still.
  - Build enclosure.
- **Chandler Davis**
  - I will be trying to hook up the rotary encoder to the GPIO pins of my Raspberry Pi 3B+
    - Since I don't have a RockPro, this should be enough. We will just need to remap the GPIO pins on the RockPro
  - With the rotary encoder connected, I will try to get integration between it and the GUI.
    - I'm thinking of having the rotary encoder effect some volume and a slider on the GUI reflecting this change.
  - Getting further experience with GUI layouts and designs.

- **Daniel Bohlke**
  - Work on Creating another window for the GUI
- **Caleb Hendrickson**
  - Find algorithm to implement an impulse response for high pass frequency filtering
  -
  - Determine method of connection and data format between ADC and software interface
  - Help complete our basic prototype before our Thursday for the faculty