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491 Weekly Status Report 4

2/22 - 3/1

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

After dividing the project into manageable sections, we noticed that beginning the design rests heavily on the onboard controller. Each team member was tasked with researching a few controllers that could be used in our design along with a comparison of strengths and weaknesses. A few team members have began researching in other components of the project such as signal processing and hardware components. We presented our findings to our adviser and client during the faculty meeting at the end of the week.

Past Week Accomplishments

- **Justin Shaver**
    - Researched microcontrollers that have the required specifications for our project.
- **Thomas Frye**
    - Identified a few microcontrollers that would be well suited for our design.
    - Produced a powerpoint weighing the strengths and weaknesses of each of the microcontrollers.
- **Will Pigg**

    - Created formal order spreadsheet to submit for approval.
    - Ordered the first batch of components that will be used in our design.
- **Chandler Davis**
    - Researched potential microcontrollers to be used in our design.
    - Began research in displays that could be used as the onboard UI in our design.
    - Developed proof of concept showing a Raspberry Pi display to a LCD screen.
- **Daniel Bohlke**
    - Researched microcontrollers that may fit well in our design.
- **Caleb Hendrickson**
    - Researched hardware specifications of a few microcontrollers that could be used in our design.
    - Began researching audio processing and analog to digital conversion.

Pending Issues

- **Thomas Frye**
    - Hardware required for analog and digital conversion.
    - Interfacing audio signals with microcontroller on software level.
- **Will Pigg**
    - Considering the size of the chassis of our device.
    - Address AutoCAD options for enclosure design.
    - Hardware required to have analog input signals to the microcontroller.
- **Chandler Davis**
    - Consider optimal onboard displays for our design.

Individual Contributions

Name	Individual Contributions	Hours	Total
Justin Shaver	● Researched microcontrollers	4	13
Thomas Frye	● Researched microcontrollers ● Researched ADC/DAC functionality ● Powerpoint on controller options for faculty meeting	5	14
Will Pigg	● Items to order spreadsheet ● Placed order for components ● Researched hardware interfaces with microcontroller	5	14
Chandler Davis	● Researched microcontrollers ● Research displays	8.5	14.5

	● Proof of concept showing display functionality		
Daniel Bohlke	● Researched microcontrollers	4	11
Caleb Hendrickson	● Researched microcontrollers ● Researched audio signal processing	4	15

Plans for Upcoming Week

- **Justin Shaver**
  - Fill out Trello board.
- **Thomas Frye**
  - Develop proof of concept showing ADC/DAC functionality with our microcontroller.
- **Will Pigg**
  - Identify material to use for enclosure.
  - Begin testing in AutoCAD to use CNC milling.
  - Test hardware components with oscilloscope for analog signal processing.
  - Test individual components for a furthered understanding.
- **Chandler Davis**
  - Identify some strengths and weaknesses for several programming languages for developing a GUI with a LCD display.
- **Daniel Bohlke**
  - Research unit tests in C that will be required later to test functionality.
- **Caleb Hendrickson**
  - Contribute proof of concept for audio signal processing implementation that can be used in our design.

Summary of Weekly Advisor Meeting

We presented a Powerpoint on the potential controllers options that we could incorporate into our design. Our options were largely dependant on cost, but our adviser and client made it clear that cost should not be of top concern for this project. With the knowledge we decided on the best suited microcontroller for our needs.