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## 491 Weekly Status Report 8

4/12 - 4/19

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

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## Weekly Summary

Most of the effort this week was focused on developing the preliminary proof of concepts required for interfacing with the RockPro64. Also more research has been done on some of the hardware components we may still need to complete our prototype design. Some of the team has gotten a head start on working on their sections of the final project plan.

## Past Week Accomplishments

- **Justin Shaver**
  - Worked on proof of concept demonstrating GPIO bus interfacing using an LED
- **Thomas Frye**
  - Identified two methods for interfacing with the GPIO bus on the RockPro64 and analyzed the strengths and weaknesses of each:
    - System calls
    - Direct Register Mapping
  - Developed proof of concept with an LED and button demonstrating the above findings

- **Will Pigg**
  - Completed two circuit schematics:
    - 1/4" jack input has been researched
    - MIDI began research
  - Extensive research in some hardware component alternatives
  - Proof of concept for *proper* stomp switch circuit
- **Chandler Davis**
  - Worked on getting the rotary encoders working with code and the RockPRO64
  - Worked on the UI design for what will be displayed on the LCD screens
- **Daniel Bohlke**
  - Worked on validation and acceptance testing, functional testing, and nonfunctional testing sections for final project plan
  - Refined testing flow chart for both functional and nonfunctional testing
- **Caleb Hendrickson**
  - Created Use-Case Software Block Diagram detailing all requirements and their functionally classified components
  - Reviewed and edited Project Plan Use-Case Diagram, created an almost entirely new Use-Case Diagram
  - Reviewed and edited Project Plan Standards, added 5 standards to our Standards section

## Pending Issues

- **Thomas Frye**
  - Difficulty interfacing with I2C pins directly through register mapping
- **Will Pigg**
  - Require more research and understanding in MIDI interface and rotary encoders
- **Chandler Davis**
  - Trouble interfacing with the GPIO bus required for using LCD display over MIPI DSI connector

## Individual Contributions

Name	Individual Contributions	Hours	Total
Justin Shaver	<ul style="list-style-type: none"> <li>● POC for interfacing with GPIO bus</li> </ul>	8	
Thomas Frye	<ul style="list-style-type: none"> <li>● Identified methods for interfacing GPIO bus</li> <li>● POC demonstrating methods</li> </ul>	11	
Will Pigg	<ul style="list-style-type: none"> <li>● Complete two circuit schematics</li> </ul>	8	

	<ul style="list-style-type: none"> <li>● Research in hardware component alternatives</li> <li>● POC for stomp switch circuit</li> </ul>		
Chandler Davis	<ul style="list-style-type: none"> <li>● Interfaced rotary encoders with RockPro64</li> <li>● UI design for LCD screens</li> </ul>	8	
Daniel Bohlke	<ul style="list-style-type: none"> <li>● Worked on test plan section of final project plan</li> <li>● Refined flow charts for functional and nonfunctional testing</li> </ul>	8	
Caleb Hendrickson	<ul style="list-style-type: none"> <li>● Use case diagram for software platform</li> <li>● Refined top level use case diagram</li> <li>● Worked on standards section of project plan</li> </ul>	9	

## Comments Extended for Discussion

Regarding our prototype design, we have a hit a roadblock. We need to develop an API for interfacing with GPIO bus on the RockPro64. This will allow us to move forward with our design, especially for initializing the code base.

## Plans for Upcoming Week

- **Justin Shaver**
  - Work on final project plan sections and presentation
- **Thomas Frye**
  - Will have to focus time on final project plan sections and presentation
  - Hopefully will flesh out interacting with I2C interface through direct register mapping
- **Will Pigg**
  - Will complete the research began last week
    - Plan on completing circuits (to GPIO) schematics (MIDI, Encoders)
  - More circuit schematics will be developed for these parts
  - Eventually, all components will be made schematically and prototyped
- **Chandler Davis**
  - Develop POC showing rotary encoders interacting with GUI
- **Daniel Bohlke**
  - Refine final project plan sections
  - Work on presentation slides
- **Caleb Hendrickson**
  - Research Automatic Music Transportation
  - Create Software Block Diagram

## **Summary of Weekly Advisor Meeting**

The faculty meeting this week was very productive. The team had a very refined and well developed presentation to give to our advisor and client. Our adviser had insight as to not worry about the speed of data transfer over the GPIO bus as the CPU clock speed is so fast, latency will be negligible.