Week Three Report

Time Estimate

Predicted

1. LCD task: 5 Hours
2. Platform Task: 1.5 Hours
3. Additional bug fixes (not predicted)

Actual

1. Physics Engine: 1 Hour
2. Platform Task: 1 hour
3. Additional bug fixes: 1.5 Hours

Test Plan

Week 1:

The first point at which we can perform more comprehensive testing is when the physics engine is completed. This will be the backbone of the game and run relatively often. Having a "cutting point" here would minimize bugs down the line.

Another point at which we can do comprehensive testing is once the player movement is implemented. This task involves a lot of peripherals and unforeseen behavior will be easier to find when I can interact with the game.

Week 2:

I have created unit tests for the physics engine. I have run into a problem where I need to implement stubbing of some OS structures that the functions use as the kernel isn't started at the time I run my tests. Besides that the basic structure will be the same, I have 7 smaller tests to ensure the sub functionality is working and one integration test where I will run the engine through multiple ticks . I need to add a way for game overs to occur in order for one of the tests to be implemented and I also still need to finish the full integration test of the physics system, but I am leaving that until next week.

Week 3:

I finished up unit tests for the physics engine. I have decreased the amount of tests to five following the new requirements, and worked through last weeks problem with being stuck pending the mutex. The mutex error was solved by abstracting the pends up to a higher level and making the tested physics functions isolated from the RTOS. I will likely have more than five tests in the end as my initial reading of the requirements lead me to believe I needed five for

the physics engine alone, while I meet the requirements, only testing one component of the system well likely lead to errors in the rest of the application.

Weekly Summary

This week I finished up the LCD task and drawing the objects as well as finished the platform task. Some updates and play testing will need to be done to nail down what numbers feel best for the acceleration as it is currently extremely difficult to react to the HM in time, though it may be impossible to fix with the limitation of the player only having control over the platform acceleration. Both tasks took less time than expected, particularly the LCD task was much easier to finish then I had anticipated as the provided shape drawing functions in the Glib library came in very useful and I had not known of their existence when estimating. Other bug fixes throughout previously done work had to be made as well.

I have completed **63.8%** of my currently-scoped, estimated work (11 actually spent /17.25hr total estimate) in **80.8%** of the initially-estimated time. (13.6125 estimated for the items I have completed, of 17.25r total estimate). For the work that has been completed, I took **0.80x** (11/13.6125) as much time as I estimated.

Scope

Completed this week:

- LCD Task (Estimate 5 hours, actual 1 hours)

  Took significantly less than expected as I had assumed I would have to draw pixel by pixel the shapes for the HM, Platform and canyon. The provided silicon labs provided library for drawing helped immensely in drawing shapes, greatly shortening the time it took compared to the estimate.

- Platform Task or Player movement (Estimate 1.5 Hours, actual 1 hours)

  This task also took shorter than expected. Luckily the skeleton I had setup for everything last week made implementation very easy. The majority of the time was spent messing around with the final result in order to come to better numbers for a playable game (still not finalized).

In Scope (Not final order of completion)

- Physics engine (Estimate: 3 Hours)
- Player Movement (Estimate: 1.5 hours)
- HM System (Estimate: 2 Hours)

- Laser System (Estimate: 1 Hour)
- Shield System (Estimate: 1 Hour)
- LEDs (Estimate: 15 Minutes)
- LCD System & Design (Estimate: 5 Hours)

Out of Scope but want to implement

- Menu
- Difficulty settings
- Multiple HM’s