*Note : Task Diagram will change a little w.r.t week #1 , Working towards finalizing & editing that as I move forward*

**Accurate summary statement of your functionality deliverables and usability so far** :

***Week 1*** : This week I did the project planning, created my task diagram, and identified 2 cutting points and updated the risk registers.

***Week 2 :*** This week I played with Will's Lab7 to learn more about working with the display task and to display a simple image on the screen. I implemented the button and slider task from previous labs to work on the project. I'm also making small progress on the display task, and some platform physics related work

**Week 3 :** This week I was able to display something on the LCD screen and manipulate it using the buttons. I have implemented the platform physics and tasks. I wrote a comprehensive unit testing code for the platform and also identified my ideal functional tests. I have also made decent progress in programming satchel physics and tasks.

**Summary effort & estimate numbers :**

This week I understood even more of the breadth and scope of the project required. I worked on finishing the platform unit test and the platform tasks and physics. I have also made the functional tests and have also started working partially on satchel physics. I have also made progress on display testing and was able to display something through a test program and manipulate using the buttons.

I would say that I made about 42.5% progress in the project. I have worked for about 11 hours(for week#3) and about 27 hrs total. And I estimate that I would need to work for about 48 hrs to implement the total project. I have made some decent progres in the current in scope items and would like to make some more progress on it soon

**List of in-scope work items** (NOT just _this_ week's), **indicating complete or not-yet-complete, along with your estimates of how long you think they will take in total for each :**

1) Initial Design for the Project + Task Diagram (3 hrs) : **Complete**
2) Implement Button ISR (5hrs) :**Complete**
3) Implement the Slider functionality (1 hr) : **Complete**
4) Implement LCD Task (7 hrs) : **Complete/Partial**
5) Implement LED Task (5 hrs) : **Not complete**
6) Implement Platform Task( 6 hrs) : **Complete**
7) Implement Shield Task (8 hrs) : **Not complete**
8) Implement RailGun Task (5hrs) : **Not complete**
9) Implement Slider Physics (4 hrs) : **Complete**
10) Implement Satchel Physics (5 hrs) : **Not complete - Gathering relevant equations+info(Complete)**
11) Implement Rail_Gun Physics(4 hrs) : **Not complete**
12) Implement + Integrate with the main Physics Task (9 hrs) : **Not complete**
13) Debugging + Testing (10 hrs) : **Not complete**
14) Extra Items (3 hrs) : **Not complete**

**Completed Items Summary :**

Implement button ISR : I finished this work in my in scope list as I felt that buttons functionality and setup is a major important one to finish before we can talk about the overall functionality of the various tasks and physics setup. This took about 1.5-2 hrs and was little easy as most was utilized from previous labs.

Implement Slider functionality : Again another important setup. Implementing the functionality and integrating with the capsense.c file . This will help me to develop the platform task along with the slider physics. This took me about 1 hour to complete and was again utilized mostly from previous labs.

Mutexes, Task setup etc : This kinda took a little bit of time as I implemented it from understanding the project in total and what's necessary for the essential functioning of the project. This took me about 4 hours to complete.

LCD Task : This in its initial stage seems complete but now I have to play around and implement the various shapes and lines to be displayed. I played mostly with Will's Lab7 for the display and understood how to work with the LCD for this task. This took me about 3.5-4 hours to complete.

Satchel/Slider Physics : (Not complete) : Even though I haven't started the implementation of the physics for both the slider and the satcher. I have started looking at the various information and information required to implement. I'm currently at the end stages of finalizing this necessary information. This took me about ~2 hours to plan and understand these items.

Platform Physics : (Complete) : This week I basically finished the platform physics. Now I just have to test it out and report the results back next week. This took me about 5-6 hours to complete and was by far the difficult task to accomplish so far.

**Unit Testing (Code Uploaded in github):**

**Comprehensive Platform Physics Testing**

1) To test when the platform is at the resting position and that no acceleration or anything is provided (**Fail**)
2) To test when the platform moves right when no acceleration provided (**Fail**)
3) To test when the platform moves left when no acceleration provided (**Fail**)
4) To test when the platform moves right when some acceleration is provided (slow) (**Fail**)
5) To test when the platform moves left when some acceleration is provided (slow) (**Fail**)
6) To test when the platform moves right when high acceleration is provided (fast) (**Fail**)
7) To test when the platform moves left when high acceleration is provided (fast) (**Fail**)
8) To test when the platform is destroyed (**Fail**)
9) To test when the platform encounters the right bounds and comes to a halt (**Fail**)
10) To test when the platform encounters the left bounds and comes to a halt (**Fail**)

**Functional Testing :**

1) To make sure when the game starts corrects things like canyon walls, platform and the castle is displayed : **Fail**
2) When pressing left or right the platform moves left or right with a specified force : **Fail**
3) When pressing the button railgun ejectile is shown : **Fail**
4) The satchel is bouncing off the canyon wall : **Fail**
5) Tasks Functionality and everything is working properly : **Fail**
6) To get something to display on the LCD and manipulate through buttons or slider : **Pass**
7) Rail Gun ejectile physics is working properly : **Fail**
8) Game management system is working properly with proper win/lose scenarios : **Fail**
9) Press Btn 1 to discharge and destroy the incoming satchel : **Fail**
10) Make sure the castle physics is working properly and taking the hits etc. properly : **Fail**