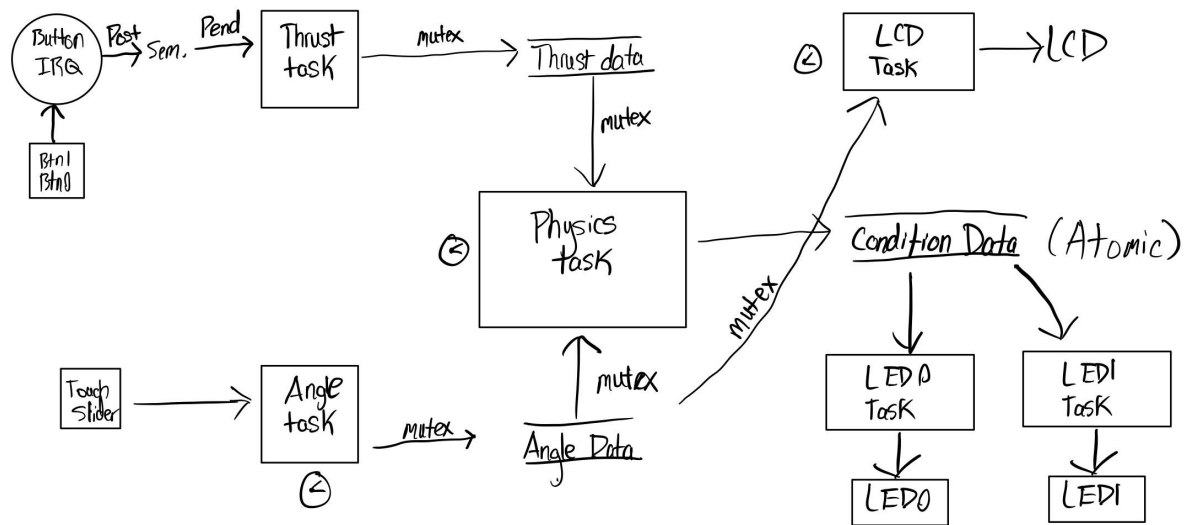


Task Diagram



Work Items

Task	Estimated Time (Hrs)	Actual Time (Hrs)	In Progress/Done
Project Planning	2	3.25	
Create Unit Tests	3	3	
Create Project Files	0.5	0.5	
Implement Button IRQs	1.5	1	
Instantiate all OS Resources	2	2	
Add Functional Tests	2	1	
Import LCD Sources	2	3.5	
Implement Config File	1.5	1	
Implement Thrust Task	3	4	
Implement Angle Task	3	0.3	
Implement Physics Task	8	1.5	
Implement LCD Task	4	0.5	
Implement LED Tasks	3		
Total	35.5	21.55	
Percent Done	60.70%		

Testing Plan

Unit Tests

1. Test Case: Valid AngleValues

- a. Test that the Angle task is getting proper values into the angle data structure when no input
 - b. Value with no input should be -1.
2. Test Case: Valid Angle Values
 - a. Test Angle task is setting proper value to angle data structure with user input
 - b. Value with input to far left of slider should be 0.
3. Test Case: Valid Angle Values
 - a. Test Angle task is setting proper value to angle data structure with user input
 - b. Value with input to left of slider should be 1
4. Test Case: Valid Angle Values
 - a. Test Angle task is setting proper value to angle data structure with user input
 - b. Value with input to right of slider should be 2.
5. Test Case: Valid Angle Values
 - a. Test Angle task is setting proper value to angle data structure with user input
 - b. Value with input to far right of slider should be 2.
6. Test Case: Valid Thrust Values
 - a. Test thrust task is correctly setting thrust data on button 0 interrupts.
 - b. Should set button 0 field in struct to true
 - c. Should decrement the thrust counter by 5.
7. Test Case: Valid Thrust Values
 - a. Test thrust task is correctly setting thrust data on button 1 interrupts.
 - b. Should set button 1 field in struct to true.
 - c. Should increment the thrust counter by 5.
8. Test Case: Valid Thrust Values
 - a. Test thrust task with zero thrust percentage.
 - b. X component for acceleration should have a zero value
 - c. Y component for acceleration should only be the gravitational constant
9. Test Case: Valid Thrust Values
 - a. Test thrust task with increment button held for longer period of time (3 presses)
 - b. Decrement button once to test in unison.
 - c. Verify by checking value of thrust.
10. Test Case: Valid Thrust Values
 - a. Test thrust task with increment button held for longer period of time (11 presses)
 - b. Verify by checking thrust caps out at 100.
11. Test Case: Valid Physics Velocity
 - a. Test velocity with thrust value of 0
 - b. Check velocity over a time period
 - c. Verify velocity value
12. Test Case: Valid Physics Velocity
 - a. Test velocity with non-zero thrust value

- b. Check velocity over a time period
- c. Verify velocity value

Functional Tests

1. Test Case: Test LCD Functionality.
 - a. Check that LCD is correctly initialized by displaying a Message
2. Test Case: TEST LCD Functionality
 - a. Ensure that LCD is updating at a reasonable speed to ensure playability.
3. Test Case: LCD Functionality
 - a. Verify that exiting the bounds of the screen ends the game.
4. Test Case: Test LED0
 - a. Test LED brightness at different duty cycles to verify correct PWM implementation. Verify by seeing brightness of LED with different values.
5. Test Case: Test LED
 - a. Test with healthy flight conditions
6. Test Case: Test LED
 - a. Test with blackout flight conditions
7. Test Case: Test LED
 - a. Test with game over conditions
8. Test Case: Test Config Data
 - a. Test with values that should quit simulation
9. Test Case: Test Config Data
 - a. Test with valid values and verify that game continues.
10. Test Case: Test Physics Model
 - a. Test whether the physics model is simulated correctly

Test Summary

All the above unit tests have been implemented. Only the tests pertaining to the angle and thrust tasks have been completed completely and are passing. I am still working on the physics task at the moment, so I don't have the functions to set the physics related items yet.

I have also implemented a set of functional tests for my project. As of this week, I have added some asserts to the startup section to verify that the configuration macros are working correctly.

Project Standing

This week, I have worked on the addition of one more task in the project.. I have added the angle task and its related slider functions. I have also begun implementation of the physics model task. This is most likely the section that I will spend most time on along with the LCD task since I have to figure out how to correctly move my spaceship model onto the pixel grid. I also revised my configuration file to reflect the changes that were added to the lab writeup. I

have completed another 15% of my project and am at a total percentage of 60% towards completion. With the upcoming break this week, I am hoping to be able to add an additional 25% in order to stay on track. With some dedication, I do believe there's a small chance I could complete this project within the week.