

Work Items

Task	Estimated Time (Hrs)	Actual Time (Hrs)
Project Planning	2	3.25
Create Unit Tests	3	3
Create Project Files	0.5	0.5
Implement Button IRQs	0.5	
Instantiate all OS Resources	2	2
Import LCD Sources	2	
Implement Thrust Task	3	
Implement Angle Task	3	
Implement Physics Task	8	
Implement LCD Task	4	
Implement LED Task	2	
Total	30	8.75
Percent Done	29.17%	

Testing Plan

1. Test Case: Valid Angle Values
 - 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

Test Summary

All the above tests have been implemented. Only the tests pertaining to the angle task have been completed completely and are passing. I did have to cut back from my tests I added initially since they were pertaining to hardware and that would be hard to unit test. I will be transitioning those tests into functional tests.

Project Standing

This week, I created the Unit tests for angle, thrust, and physics tasks. I also created the project in simplicity and added all of the OS files and initialized the first iteration of resources. I have begun working on the angle task and implementing the change of angle functions.

So far, I have completed 29.17% of my scoped work. I spent more time on the Unit Test task due to debugging issues with understanding how CTEST works, but was able to resolve these issues.