**Unit Testing Plan**

| Test | Description | Cutting Point | Status |
|---|---|---|---|
| **Unit Test #1:** Button Press | Test that a button press (both buttons) triggers an interrupt and signals the angle task with a semaphore post. | Angle task (after sem post) | Not Run |
| **Unit Test #2:** Angle Task | Test that the button press increments and decrements changes the angle setpoint shared resource correctly. | Isolates buttons and angle task (cuts out physics) | Not Run |
| **Unit Test #3:** Slider Positions | Test each of four slider positions are read correctly from the throttle task, reading occurs periodically. | Throttle task (before mutex pend) | Not Run |
| **Unit Test #4:** Throttle Task | Confirm throttle task wakes periodically from timer semaphore post and modifies throttle setpoint correctly. | Isolates slider and angle task (cuts out physics) | Not Run |
| **Unit Test #5:** Configure Input | Test that the configured input is read correctly and stored in the physics task properly. | Isolates a subsection of physics task. | Not Run |
| **Unit Test #6:** Display Rocket | Test that the display task displays the rocket correctly throughout movement and rotation (given rocket data). | Display Task and mutex pend (cuts out physics) | Not Run |
| **Unit Test #7:** Periodic Physics | Confirm the physics task wakes up at the rate specified by configuration. | Isolates physics task and timer sem post. | Not Run |
| **Unit Test #8:** LED/PWM Task | Confirm that the LED task correctly sets up timers for PWM given thrust and acceleration data. | LED/PWM Task (cuts out physics) | Not Run |
| **Unit Test #9:** Physics Calculations | Test that calculated values are as expected given sample inputs. | Isolates physics task. | Not Run |
| **Unit Test #10:** Physics Queue | Assert that the physics task posts correct data to the message queue. | Cuts after message queue post | Not Run |
| **Unit Test #11:** Physics Rocket | Confirm that the rocket data structure is updated correctly according to the calculations. | Cuts before Display pends on mutex. | Not Run |

**Functional Testing Plan**

| Test | Description | Status |
|---|---|---|
| **Functional Test #1:** Game Start | Confirm the game starts and LCD displays welcome screen. | Not Run |
| **Functional Test #2:** Button 0 | Confirm pressing Button 0 causes the rocket to rotate counter clockwise. | Not Run |
| **Functional Test #3:** Button 1 | Confirm pressing Button 1 causes the rocket to rotate clockwise. | Not Run |
| **Functional Test #4:** Slider Throttle | Test that the position on the slider changes the fuel burn rate (also consider position slider not pressed). | Not Run |
| **Functional Test #5:** LED0 | Test that LED0 shows current thrust as a % of the maximum via pulse width modulated lighting. | Not Run |
| **Functional Test #6:** LED 1 Normal | Test that LED1 shows current acceleration as a % of the maximum. | Not Run |
| **Functional Test #6:** Win | Confirm the game can be won (may take several tries). | Not Run |
| **Functional Test #7:** Loss | Confirm the game can be lost. | Not Run |
| **Functional Test #8:** Restart | Check that after a win or a loss the game can be played again. | Not Run |
| **Functional Test #9:** Blackout | Assert causing too much acceleration leads to blackout and LED1 blinks with 50% duty cycle. | Not Run |
| **Functional Test #10:** Configurable | Confirm that the game data is configurable. | Not Run |

## Summary

After week one no tests have been run. Time was spent developing test plans themselves. I feel good about where the unit tests are broken up but my biggest concern is how I will port in the sample inputs and outputs.