

Deliverable	Est Time	Total Time	Notes	Total Est Time	Total project time	LogHours	LogDate	Summaary Work
LCD Task	2	2.5	This works. I am displaying a moving circle rn. I need to figure out a way to make the LCD seem less flisahy. It blinks way to often	22	11	3	4/3/24	Generated project and started transferring needed functions and etc from lab 7. Got the screen to run a demo and all tasks are set up waiting to be filled
Physics Task	6	5.6				3	4/5/24	Worked on Gyro task. Got some reads working. Not sure yet if the whole thing is working or not
Quantum Burst Task	4	0.2		Amount Complete EST		3	4/9/24	Updated the LCD driver to the newer one with the DMA, implemented the correct physics for ball movement, and got the gyro working
LED Task	3	0.2		50		2	4/11/24	I got the RNG working and attempted to build a maze function. The maze function didnt work at all
Obstical Task	5	2	Attempted to build a maze function that did not work at all. Need to go to office hours					
Gyro Read Task	-	-	This task became obsolete and the gyro read was moved to the physics.current time spent migrated to the physics task					
Build out data structs	1	0.5						
Build out ISR Routines	1							

Week 3

This week I managed to get my RNG, Gyro, and most of my physics tasks working properly. I even attempted to get my maze generation task working but that did not end up working like I expected it too. Will most likely go into office hours next week to fix that.

I have completed 50 % of my estimated project. This feels slightly inaccurate but I am very close to a very playable game. Since the deletion of my Gyro task and the migration of that time to the physics task. I am currently on pace to have completed 1 to 1 the work that I expected to complete in the given timeframe

UnitTest	Tested	P/F?
Dummy gyro angles are fed into the physics engine algorithm with differing ball weights and the ball velocities x and y are calculated		
Dummy button press flags are sent at different times to the qunatem task code. This will determin wheather the code enables quantum tunneling depending on where it is in the charge cycle		

FunctionalTests	Tested	P/F?
1. Gyroscope Response Test		
Setup: The STM32F429i-DISC1 board is mounted on a stable platform with the gyroscope initialized and connected to the LCD for angle display. Trigger: Manually tilt the board in a known direction by a specific angle.Expected Result: The LCD updates to accurately display the new angle of tilt corresponding to the direction and magnitude of the board's movement.		
2. Maze Generation and Display Test		
Setup: The game is initiated with default configuration settings for maze generation.Trigger: Press the start button to begin a new game session.Expected Result: A new maze is generated with randomized walls and holes within the constraints of the configuration settings. The maze is correctly displayed on the LCD screen, showing the start and end points clearly.		
3. Quantum Disruptor Activation Test		
Setup: During an active game session with the drone positioned adjacent to a wall.Trigger: Press the user button to activate the quantum disruptor.Expected Result: The drone moves through the wall unimpeded for a brief period, as indicated by a visual change or marker on the LCD screen. The energy store decreases accordingly.		
4. Energy Store Recharge Rate Test		
Setup: The game is in progress with the energy store partially depleted.Trigger: Wait without activating the quantum disruptor.Expected Result: The energy store gradually increases at the predefined recharge rate until it is fully recharged, as indicated by the green LED's brightness level.		
5. LED Indicators Test		
Setup: The game starts with a fully charged energy store.Trigger: The quantum disruptor is activated, depleting the energy store below the minimum activation energy.Expected Result: The green LED displays the energy store's status by dimming correspondingly. The red LED flashes at a rate proportional to the time remaining for the energy store to recharge to the minimum activation energy level.		
6. Physics Engine Accuracy Test		
Setup: The game is in progress, with the drone navigating through the maze.Trigger: Tilt the board at various angles to simulate gravity-induced acceleration in different directions.Expected Result: The drone's movement on the LCD screen accurately reflects the physical simulation of the board's tilt, including speed and direction changes.		
7. Trap Detection and Game Over Test		

Setup: The game is in progress, with the drone approaching a hole without the quantum disruptor activated.Trigger: The drone's center moves over the hole.Expected Result: The game immediately ends, displaying a loss message on the LCD screen. The red LED may flash to indicate game over.		
8. Waypoint Navigation and Win Condition Test		
Setup: A game session is nearing completion, with only one waypoint remaining.Trigger: Navigate the drone to the final waypoint within the time limit.Expected Result: Upon reaching the last waypoint, the game displays a win message along with the final score, factoring in the time taken and waypoints reached.		

Valid Modified Fibonacci values	
	1
	2
	3
	5
	8
	13
	20
	40
	70
	100

Where the project stands WK1									
This week I did the project planning, created my task diagram, and identified 2 cutting points for unit testing. Everything should be fully contained in this Google Sheets and this and the code will be uploaded every week to github									

Where the project stands WK2

This week I updated my task diagram. I worked on my LCD task and my gyro task primarily. I encountered a timing issue with my read values so I might end up using a message que instead of just a mutex pushing values into a struct. The LCD is working well and I got to a point where I have a circle sometimes moving across the screen inconsistently depending on how I move the board.

I completed 26% of my estimated time for the project to be complete. This feels inaccurate as I am unsure if some of the functionality of the gyro is working the way I expect it to. I spent 6 hours on what I estimated should take me 3 hours. So far I have taken 2X the amount of time I should have and I still have a lot of work left to do for those tasks.