CUTTING POINTS

1) Struct needs to be correct at all times. If they are not updating correctly, graphics on screen will lag or not work entirely. (so between tasks and structs - check data is updating correctly with some form of unit test)
2) Collisions with objects - need to make sure collisions and the positions of objects are correct. This also ties in with making sure the structs are updating correctly, so there is some overlap. However, I also need to check that collisions with satchels and the wall end the game, collisions with the satchel and shield destroy the satchel, etc. This can be checked visually, in addition to having some type of unit test to make sure the numbers in my struct are updating correctly.
3) Satchel not firing off when current one is off screen - should be checking for whether or not a satchel is present. If there isn't one, fire another. Can be checked visually like the last one, in addition to checking a boolean or something I will implement as soon as the current satchel is no longer present.

Cutting point 1:

- Move slider for a certain amount of time, check if platform moves correct distance - not sure yet exactly how I am going to check this - Would probably pass
- Press shield button, see if shield instantly pops up (if enough energy) - Would pass

Cutting point 2:

- Move platform into canyon wall, check program acknowledges collision (when I get far enough, this can be replaced with a visual check that the game ends - I have reached this point in my code now and I can set a breakpoint to verify this happens) - Would pass
- Let satchel hit platform, check that program acknowledges collision (also game ends when I get that far) - Would fail

Cutting point 3:

- When there is no satchel on screen, can use debugger to see if program acknowledges this and is going to fire another the next time it enters the data monitor task - Would fail
- When a satchel is on the screen, can check the boolean or whatever I decide to use to make sure the program knows it is there (otherwise it will just start firing off a ton of them) - Would fail

- Shoot at wall, part of wall should break - Would fail
- Railgun should disable after shot until railgun shot is off screen - Would fail
- Shoot while moving, platform should keep moving - would fail
- Let railgun shot hit platform, should destroy platform - would fail
- Tap railgun button, and hold after, first shot should go slow and second shot should go faster - would fail
- When foundation has one "shot" left, left LED should start blinking - would fail
- Hold far left of slider, then middle left, far left should see right LED is brighter and middle left dimmer

- Accelerate slider continuously into either wall, should see “GAME OVER” when slider is going fast enough - would pass
- Hold railgun shot button, press shield button, shield should pop up - would fail
- Hold shield button, shield should only pop up for rising edge - would pass

FUNCTIONAL TESTS:

1) Hold far left of slider, should accelerate to left (when stationary). P
2) Hold far right of slider, should accelerate to right (when stationary). P
3) Hold slider opposite of direction of motion, should decelerate. P
4) Press shield button, shield should instantly pop up. P
5) Hold railgun shot button for at least two seconds, should shoot full power. P
6) Tap railgun shot button, should shoot low power. P
7) Let satchel hit slider, game should end. P
8) Let satchel hit floor, another one should immediately be fired. P
9) Let slider hit wall at high speed, game should end. P
10) Shoot foundation twice, game should end and left LED should come on. P
11) Shield when satchel is falling towards platform, satchel should reset and platform should not be hit. P
12) Shoot foundation once, left LED should blink. P
13) Hold down the shot button, the right LED should progressively get brighter. P
14) Tap shot button, shot should hit platform and game should end. P
15) Tap shield button, energy bar should decrease. P
16) Shoot railgun, energy bar should decrease. P
17) Drain the energy bar completely with shields, then fire the railgun. Shot should be low power. P
18) Destroy foundation, prisoner escaping animation should play followed by “you win” screen. P
19) Press the shield while holding the shot button, the shield should activate. P
20) Set platform up on left side of screen, hold far right of slider. Platform should reach right side in 4 seconds or less. P

WEEKLY SUMMARY

This week I got the LEDs working and added some minor tweaks to my code. Hopefully, I have eliminated all bugs. I also added a little animation when the game ends to show the prisoners escaping. I also made sure to test a lot and (hopefully) have worked out any bugs that may occur and am ready for demo. By this point, I believe I have completed all of the required objectives for the final project.

SUMMARY EFFORT and ESTIMATE NUMBERS

I did about 5 hours of work this week. This brings my total to 29.5 hours, matching my expected total of 29.5 hours. This brings me to 100% of my expected work. I have completed the project, in almost exactly the amount of time I expected (I'm sure some of my estimates were a little off).

IN SCOPE WORK ITEMS

I finished up the LED functionality and the fine tuning this week. For fine tuning I added an animation for the prisoners escaping and played around with my struct values. I had to adjust my values a bit based on the updated numbers in the slack, but it was only a minor issue. The LEDs were the last thing I had to complete for the required items, so after I got them working I decided to spend a bit more time working on the fine tuning since I had not spent much time working this week to finish the LEDs. The left LED was relatively simple to get working, but the right LED took more time than expected. I ended up using another timer library that would let me use a higher frequency clock in order to get the LED to dim and brighten properly. I wish I had done this sooner, as it was a bit of a pain.

TASK	EXPECTED	ACTUAL	EXPECTED TOTAL	ACTUAL TOTAL	COMPLETE?
PROJECT PLANNING	3	2.5	3	2.5	Y
UNIT TEST PLAN	3	1	6	3.5	Y
BUTTON FIFO/SLIDER RESPONSE	2	2	8	5.5	Y
IMPLEMENT PHYSICS	8	10	16	15.5	Y
DATA MONITOR TASK	1.5	1	17.5	16.5	Y
DISPLAY TASK (not actualy display)	2	3	19.5	19.5	Y
DISPLAY W/ GRAPHICS	4	5	23.5	24.5	Y
LED TASK and FUNCTIONALITY	3	2	26.5	26.5	Y
FINE TUNING (better graphics, messing with different settings to polish final projec	3	3	29.5	29.5	Y

RISK REGISTER

Risks have not changed for this week.

Slider sampled too slowly	10	80	800	3/24/23		R	Plan ahead to make sure tasks are prioritized well
Incorrect task diagram	100	100	10000	3/24/23	Mitigated	M	Checked with professor or TA
Losing track of time	30	80	2400	3/24/23	Mitigated	M	Going to make notes of what I have to do, write down how much time I have left to finish
Task switching (Do I need monitor task?)	5	60	300	3/24/23		R	Note that you can probably get rid of monitor task if you notice task switching is slowing program down too much
Platform clipping through side boundary	10	80	800	4/7/23	Resolved	R	I believe I covered all edge cases
Satchel collision with slider	10	30	300	4/21/23	Mitigated	M	Pretty sure I set up my conditions correct as I tested them, however not sure all edge cases are covered