Project Description

Semaphores:

- gpio_pressed
- read_capsense

Flags:

- bt1_discharged
- bt0_started_charging
- bt0_stopped_charging_led
- shot_ready (same event as bt0_stopped_charging_led)
- direction_updated
- game_over_led
- game_over_lcd

FIFO

- btn0_fifo (size: 10)
- buton_handling_fifo (size: 1)
- platform_direction_fifo (size: 1)
- Game_data (size: 1)

Tasks:

Button Handling:

- Will calculate how long btn0 is held and send shot_ready events to the LED and Physics task. This will read from the btn0_fifo in order to calculate the difference between how long it was held down. It will write how long bt0 was held down to the buton_handling_fifo.

Platform Direction:

- Sends a flag to the physics task if there was a change in platform direction. Writes direction information to platform_direction_fifo if the information is updated.

Physics:

- Takes in all information to calculate where the platform is, how much energy is in the capacitors, the trajectory of the cannonball, and if the projectile hit the castle
- Every time it receives data, it posts it to the game-data queue with updates the state of the game (ie cart location, canon ball location, game over)

LED

- Gradualy lights led0 up while btn0 is held down. Flashes led1 When a person won the game

LCD

- Updates screen on a timer basis

TESTING THIS WEEK

- I want to test that inputs are being received correctly. Mainly the timing of how long btn0 is held down.
- Set up all tasks for the project

TO DO:

- Get physics task working with cart movement
- Get physics task working with projectile launch
- Implement capacitor charge-up functionality.
- Implement castle-dropping bombs occasionally
- Implement game_over event

SUMMARY:

- I have completed 15% of the work required for this project this week. I reached my first goal of setting up all of the tasks and testing that I was receiving inputs from the board correctly.