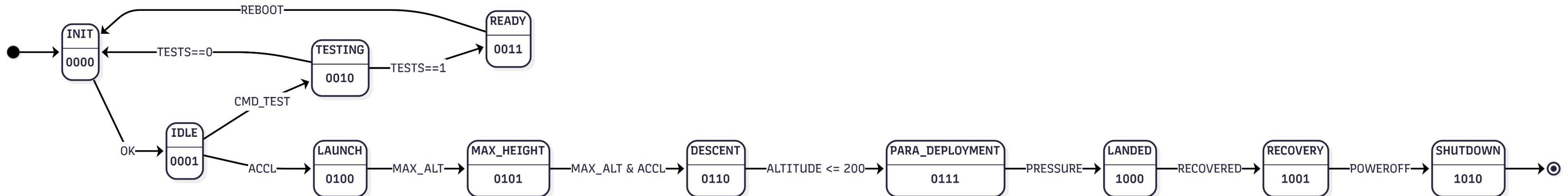


Team Anant
OBC

MISSION 1

Q1.



Q2.

GitHub Link To Source Code:

<https://github.com/d-vinine/ANANT-OBC/tree/main/Mission-1>

MISSION 2

Q1.

GPIO stands for General Purpose Input Output. They are digital pins on micro-controllers and ICs that can serve as both input or output pins. They can be programmed to receive signals or output them.

Q2.

As such, any pins that have a gpio mode can be used.

I used P9.11 GPIO 30 (gpio0_30) as a clock line.
The project on <https://hackaday.io/project/3913/logs> also uses this as the clock line.

P9.12 GPIO 60 (gpio1_28) was used as the data line. It is physically next to the previous pin making wiring cleaner.

```
&ocp {
    /* These are the GPIOs used by the PRU for native
     * interfacing with the SNES gamepads. */
    /* CLOCK OUTPUT, GPIO0[30], export 30 */
    P9_11_pinmux {
        mode = "gpio_pd";
    };
    /* LATCH OUTPUT, GPIO0[31], export 31 */
    P9_13_pinmux {
        mode = "gpio_pd";
    };
    /* GP0DATA INPUT, GPIO1[28], export 60 */
    P9_12_pinmux {
        mode = "gpio_pd_input";
    };
    /* GP1DATA INPUT, GPIO1[18], export 50 */
    P9_14_pinmux {
        mode = "gpio_pd_input";
    };
}
```

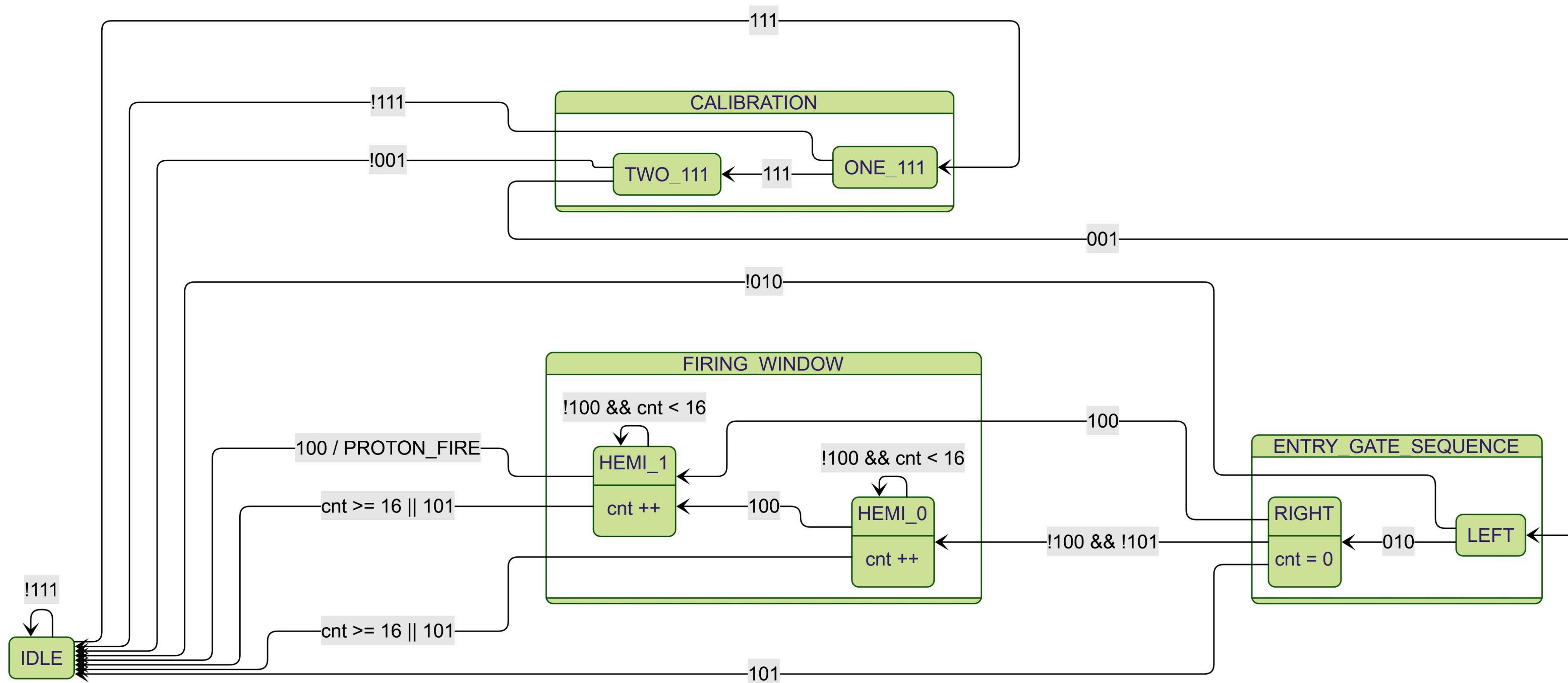
Q3.

GitHub Link To Source Code:

<https://github.com/d-vinine/ANANT-OBC/tree/main/Mission-2>

MISSION 3

Q1.



Q2.

GitHub Link To Source Code:

<https://github.com/d-vinine/ANANT-OBC/tree/main/Mission-3>

Q3.

```
[2026-01-18 01:14:46 UTC] iverilog '-Wall' '-g2012' design.sv testbench.sv && unbuffer vvp a.out
VCD info: dumpfile dump.vcd opened for output.
--- TRENCH RUN START: SCENARIO 1 ---
[SUCCESS] Cycle 8: Proton Torpedoes Fired! Direct Hit!

--- ENEMY INTERCEPT: SCENARIO 2 ---
[SUCCESS] Aborted run. Vader's lock correctly reset the FSM.

--- SENSOR NOISE: SCENARIO 3 ---
[SUCCESS] Noise correctly filtered. Exactly-Two-Cycles rule followed.

--- MISSION SIMULATION COMPLETE ---
testbench.sv:99: $finish called at 266000 (1ps)
Finding VCD file...
./dump.vcd
[2026-01-18 01:14:47 UTC] Opening EPWave...
Done
```

GitHub Link To Source Code:
<https://github.com/d-vinine/ANANT-OBC/tree/main/Mission-3>

