Lab 8 Report – Ryan King

For lab 8 I redid lab 1 in rust.

Resources used:

https://chatgpt.com/share/b8150696-b074-4be4-9dac-b5f27ce99390

https://medium.com/@zacchaeusoluwole/build-an-embedded-system-rgb-led-blinker-with-rust-on-esp32-using-esp-idf-27e77cf793f7

And the official esp-rs repositories

https://github.com/esp-rs/esp-idf-template

https://github.com/esp-rs/esp-rust-board

From medium.com article:

3. Configuring GPIO Pins

Next, we need to configure the GPIO pins to control the RGB LED. We assume that you have connected the RGB LED to GPIO pins 2 (Red), 4 (Green), and 5 (Blue). We'll set these pins as outputs.

```
let peripherals = Peripherals::take().unwrap();
let mut r_pin = PinDriver::output(peripherals.pins.gpio2).expect("Error: Unable
let mut g_pin = PinDriver::output(peripherals.pins.gpio4).expect("Error: Unable
let mut b_pin = PinDriver::output(peripherals.pins.gpio5).expect("Error: Unable
```

4. Creating the LED Blinker Loop

Now comes the fun part — creating the LED blinker loop. We'll alternate the colors of the RGB LED with one-second intervals.

```
loop{
        r_pin.set_high().expect("Error: Unable to set pin r high");
        FreeRtos::delay_ms(1000);
        r_pin.set_low().expect("Error: Unable to set pin r low");
        g_pin.set_high().expect("Error: Unable to set pin g high");
        FreeRtos::delay_ms(1000);
        g_pin.set_low().expect("Error: Unable to set pin g low");
        b_pin.set_high().expect("Error: Unable to set pin b high");
        FreeRtos::delay_ms(1000);
        b_pin.set_low().expect("Error: Unable to set pin b low");
    }
```

From ChatGPT:

“I have a ESP32-C3-DevKit-Rust Board. Below is my code in C for a basic hello world program with the ESP-IDF framework. Please help me convert this code to Rust.”

“Everything is set up, thank you! Please convert the following C code to rust for the esp32.”

“I get the error: error[E0433]: failed to resolve: use of undeclared crate or module `esp_chip_info_t` --> src/main.rs:15:25 | 15 | let mut chip_info = esp_chip_info_t::default(); | ^^^^^^^^^^^^^^^^ | | | use of undeclared crate or module `esp_chip_info_t` | help: a type alias with a similar name exists: `esp_chip_id_t` How can I fix this?”

“error[E0432]: unresolved import `esp_idf_sys` --> src/main.rs:2:5 | 2 | use esp_idf_sys::*; | ^^^^^^^^^^^ use of undeclared crate or module `esp_idf_sys`”

None of this produced functional code ☹. I ended up just using code from the medium page for the led and using the https://github.com/esp-rs/esp-idf-template repository for the rest of my code and setup.