UNIVERSIDAD DE GUADALAJARA

CUCEI

Materia: Seminario de problemas de programación de sistemas embebidos

Clave: I9893 Sección: D01

NRC: 133339 2025A

# Practice report #1

Ángel de Jesús Vázquez Zarate 218259672

Naresh Satoshi López Ojeda 216819174

Daniel Esaú Gonzales Molina 219561097

Fernanda Hermosillo Gonzáles

This report practice focuses on controlling an LED diode using the ESP32 microcontroller. Since the ESP32 has a built-in LED, there is no need to purchase an external diode. The objective of this practice is to understand how to control the LED's behavior through programming, including adjusting its blinking speed and transition effects.

During the course, we studied how to turn an LED on and off using a simple line of code:

```
DigitalWrite(LED_BUILTIN, HIGH);
```

In this case, "HIGH" represents the voltage level that turns the LED on. To turn it off, we simply change "HIGH" to "LOW":

```
DigitalWrite(LED_BUILTIN, LOW);
```

If these commands are placed within the loop function, the LED will continuously turn on and off. However, during testing, we observed that the transitions were too fast for the human eye to perceive.

To address this issue, we introduced a delay function to pause the execution for a specific duration, allowing the LED’s state changes to be visible:

```
Delay(time);
```

With this understanding, the final practice involved controlling the LED's blinking speed, transitioning from fast to slow and vice versa. To achieve this, we used different variables:

- spd: Controls the speed of the LED’s flickering.

- Maxmun and minmum: Define the range for the LED's blinking speed.
- If statements: Implemented within the loop function to manage the LED's behavior dynamically.

This practice provided valuable hands-on experience in programming and controlling microcontroller components. By experimenting with different variables and implementing conditional logic, we were able to manipulate the LED's behavior effectively. Understanding the importance of timing in digital signals is essential for future applications in embedded systems.