

**Name: Malaika**

**Regno : 23-NTU-CS-1291**

**Embedded IoT Systems (CSE-3080)**

**Fall 2025** (BSCS-5

A/B, BSAI-5)

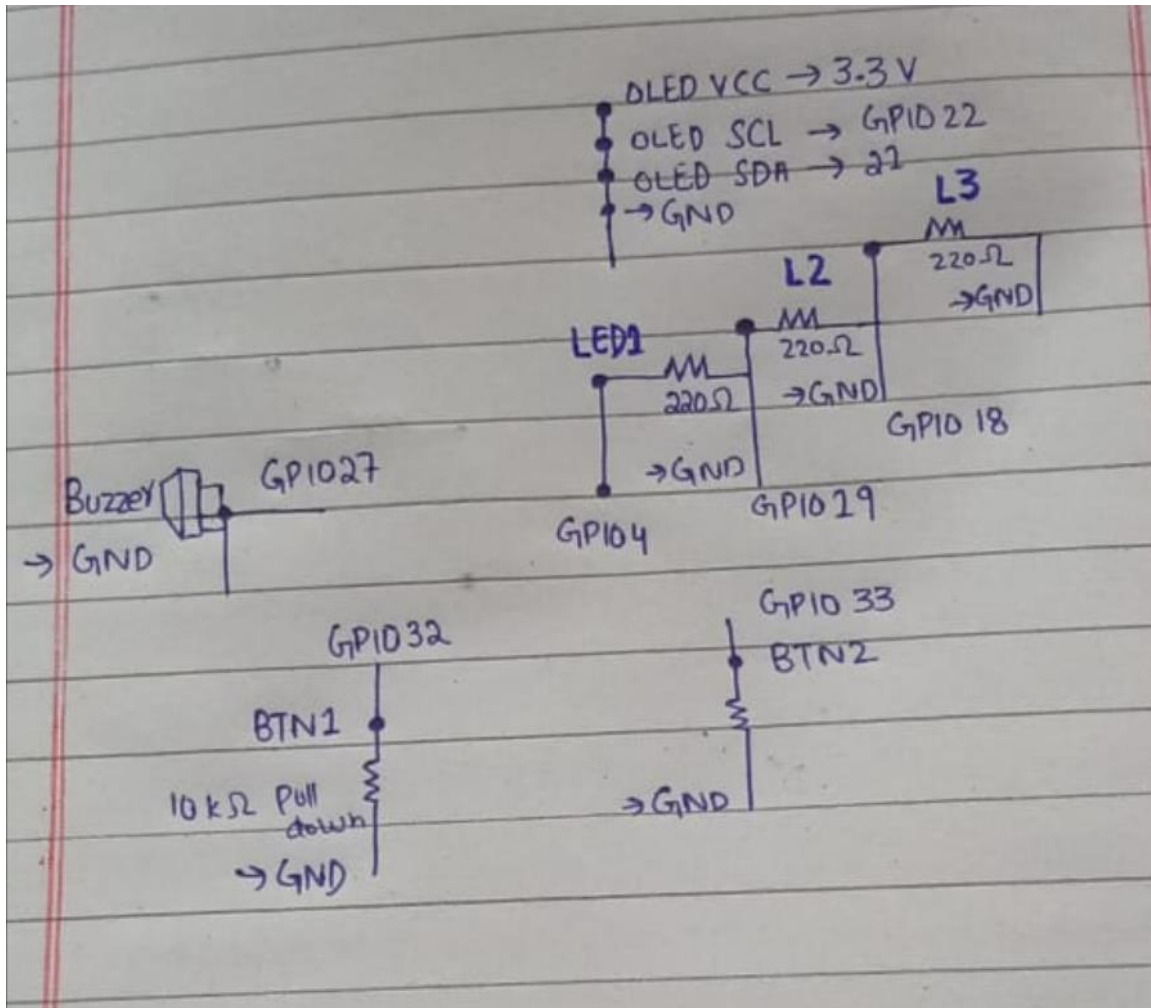
**Assignment 1 (Implementation Part)**

**Question 3 — Implementation**

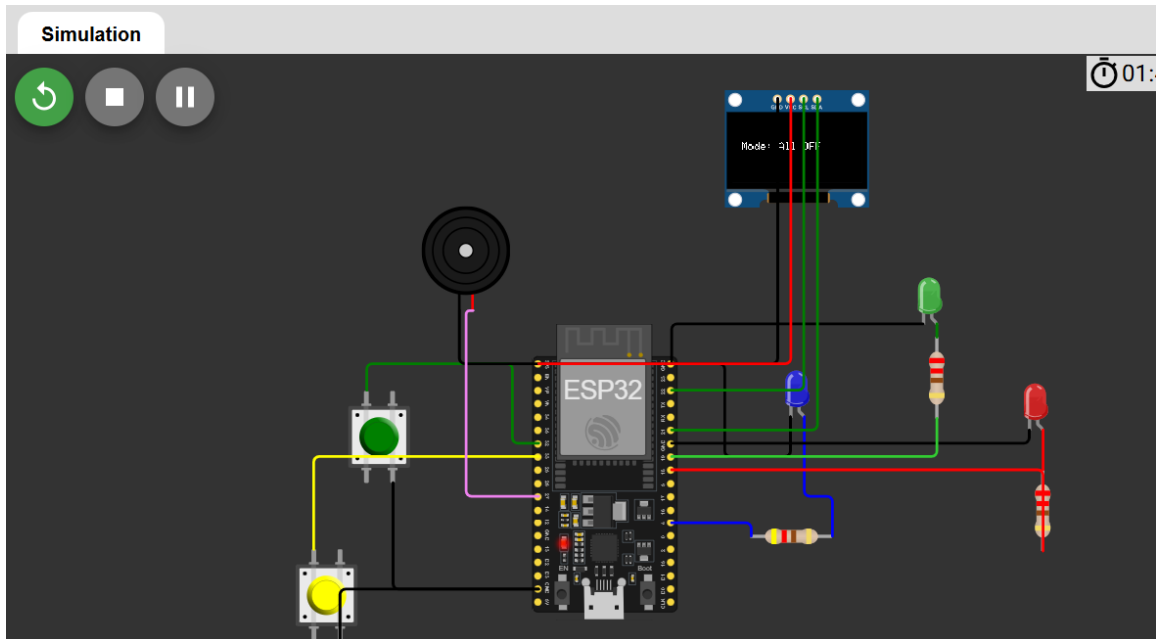
Circuit Diagram: Design a Wokwi circuit and draw a neat hand-sketch including:

- 2 push buttons
- 3 LEDs
- 1 buzzer
- 1 OLED

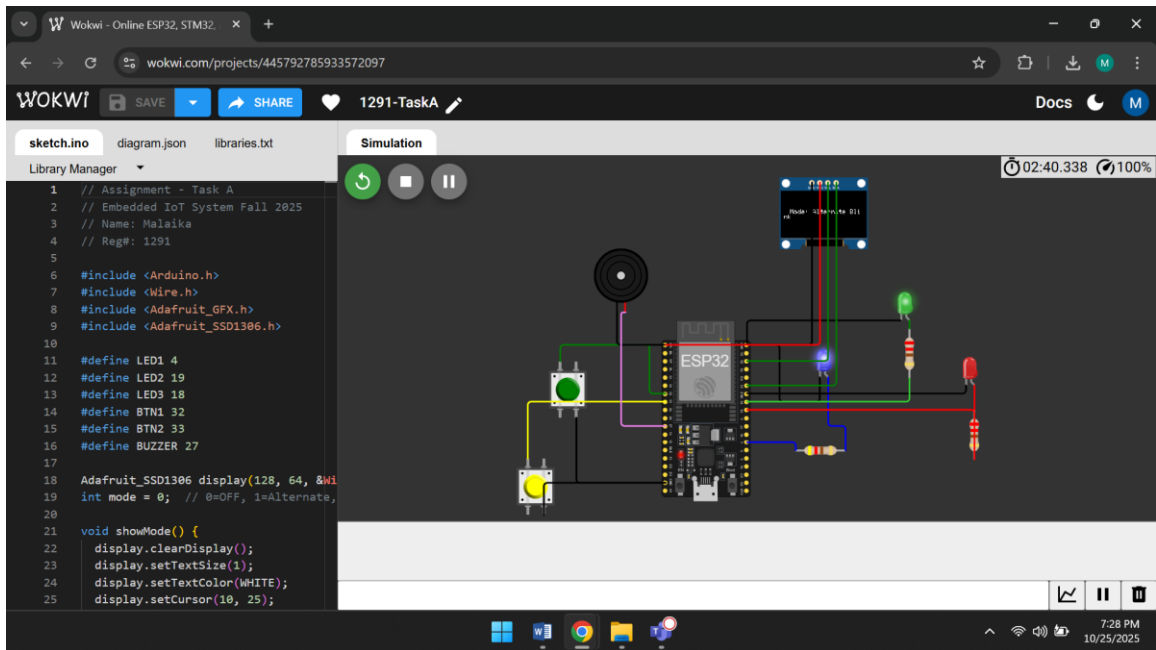
Task A — Coding: Use one button to cycle through LED modes (display the current state on the OLED):



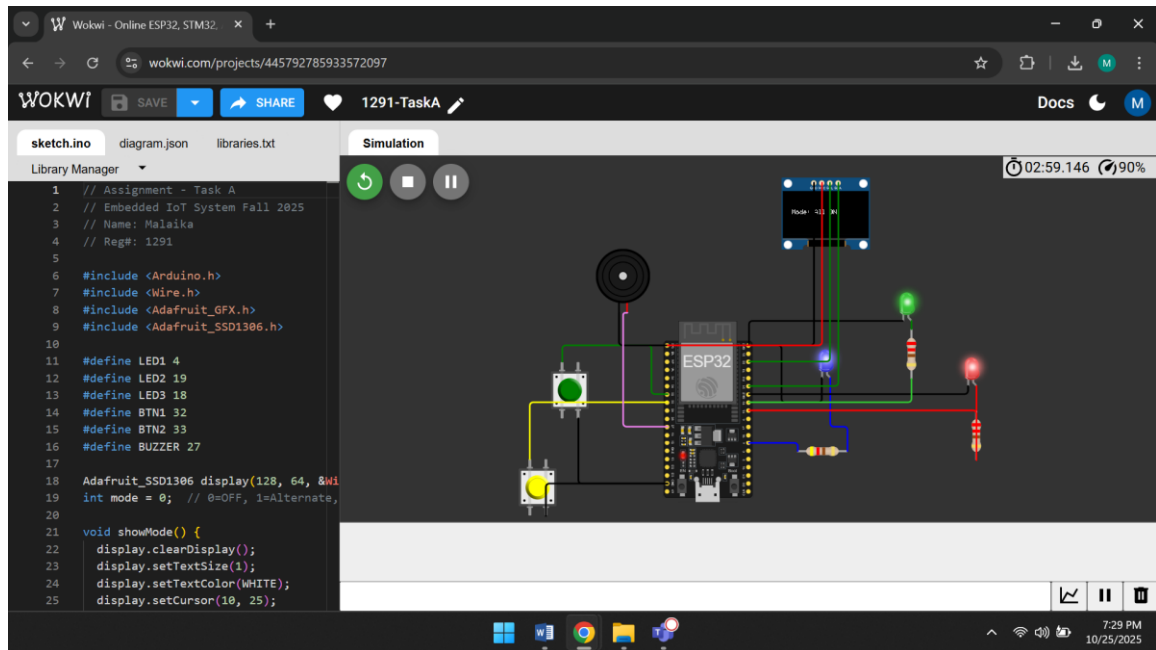
1. Both OFF



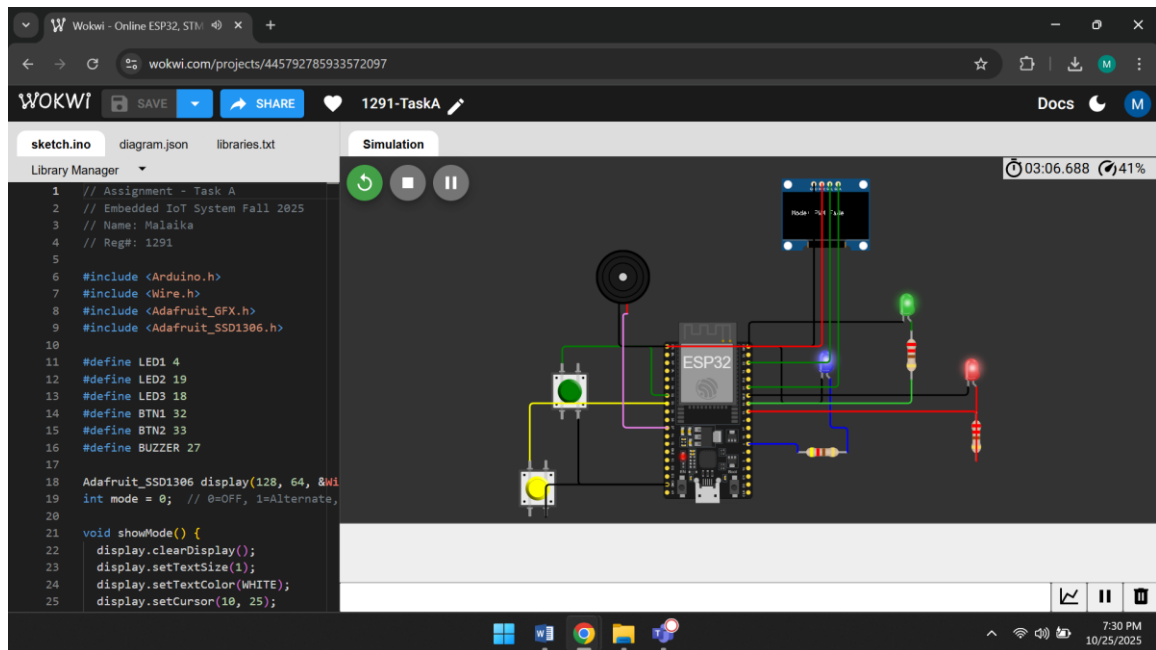
## 2. Alternate blink



## 3. Both ON



#### 4. PWM fade



Video:



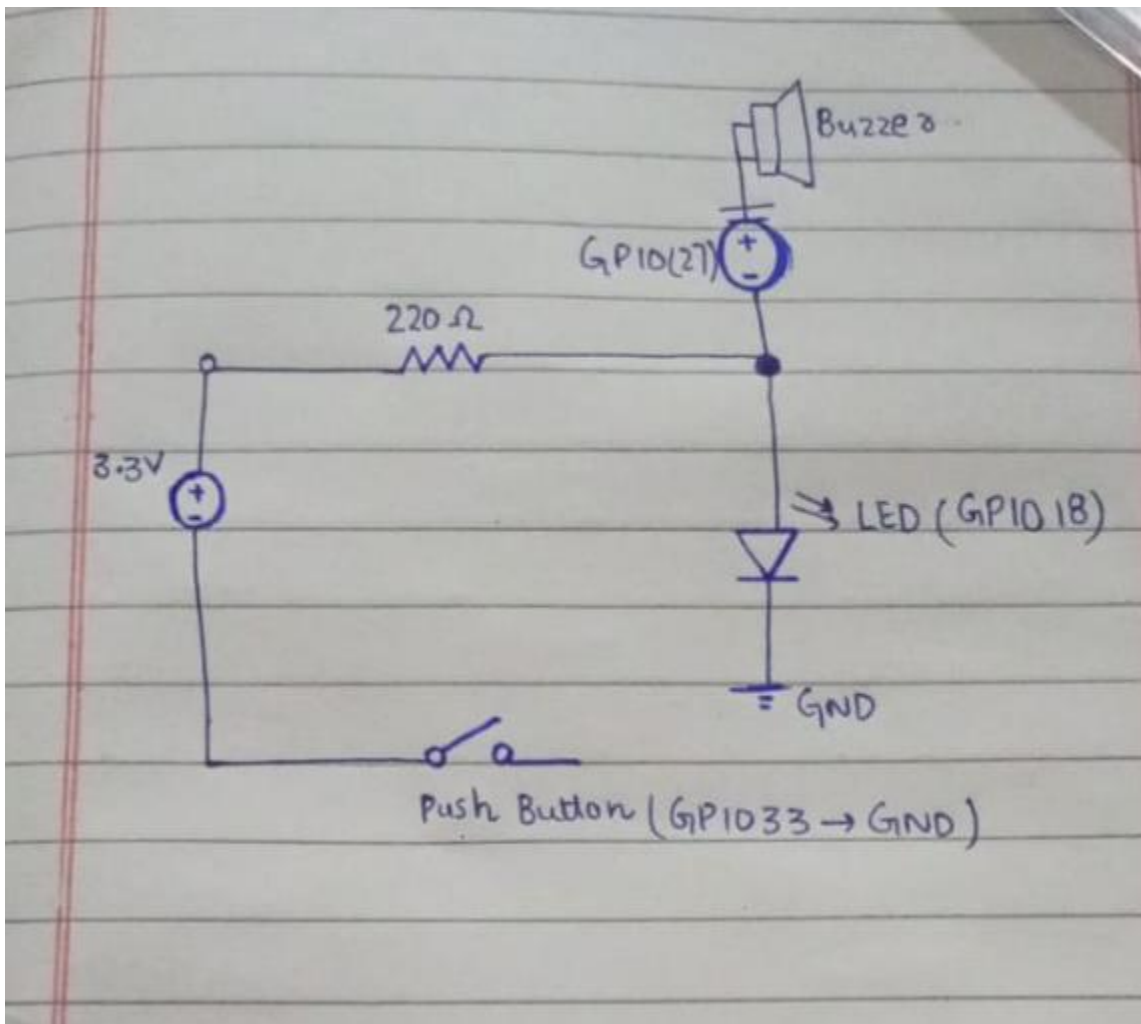
Short Clip of TaskA

**Wowki Link:**

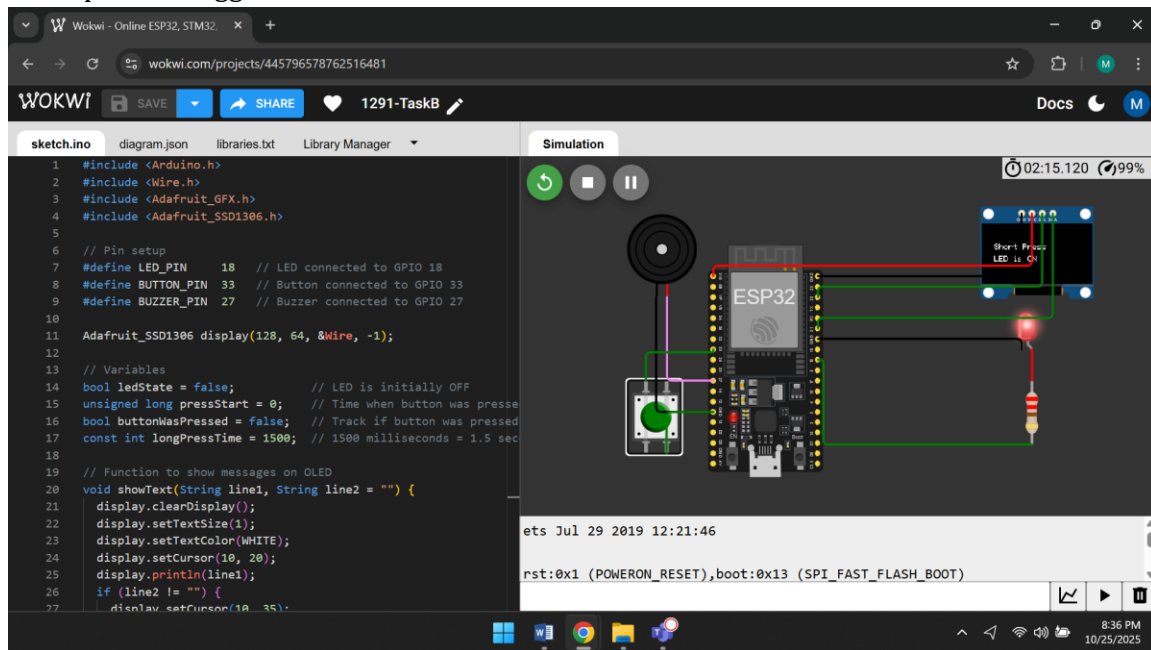
<https://wokwi.com/projects/445792785933572097>

Use the second button to reset to OFF.

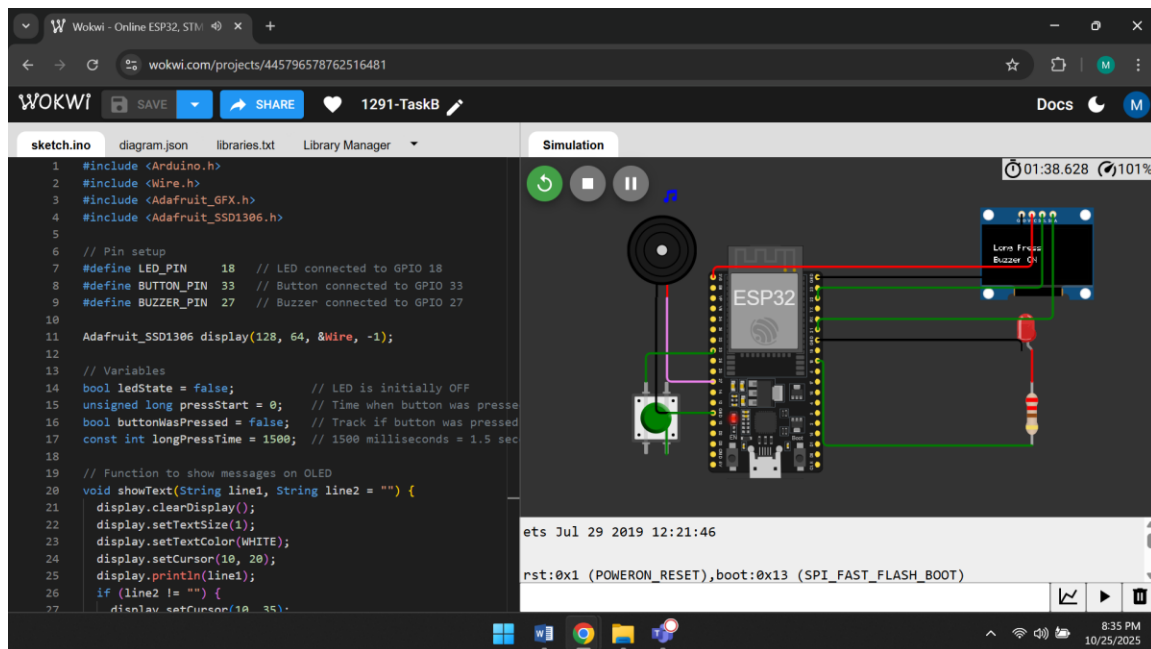
Task B — Coding: Use a single button with press-type detection (display the event on the OLED):



- Short press → toggle LED



- Long press (> 1.5 s) → play a buzzer tone



**Video Link:****WokWi Link:**

<https://wokwi.com/projects/445796578762516481>

**Guidelines****Repository & Submission**

- Repository: Use your existing course repository; add a folder: assignment1-<regno>
- Include folders:
  - /src, /include, /docs, /wokwi (JSON exported from Wokwi)
  - /screenshots (photos or short clip showing different outputs)
- Push to GitHub with a README.md containing the Wokwi link, pin map, and screenshots.
- Submit a compiled PDF on MS Teams before the deadline.

**Coding & Documentation**

- Use your own circuit design with chosen pins and clearly colored wiring/components.
- Write code in your own style with clear, technical variable names and meaningful comments.
- Begin each program with a comment block containing the title, your name, and registration number.
- Keep answers to short and logical questions concise and original.

**Academic Integrity**

- All material must be defensible and understandable to you.
- Avoid direct copy-paste from any source (students, websites, etc.).
- You may discuss ideas, but the final submitted work must be your own.
- The viva will be held in Week 7.

**Marking Rubric (50 points)**

<i>Evaluation Criteria Marks</i>	
<i>Circuit design (originality)</i>	5
<i>Interrupt stability</i>	5
<i>Debounce accuracy</i>	5
<i>OLED updates</i>	5
<i>Documentation (code + circuit demo)</i>	10
<i>Short questions (clarity of understanding)</i>	10
<i>Logical questions (reasoning and justification) Total</i>	10
	50 (All marks are viva-based)

**Deadline**

Submission Deadline(Q1,2): Sunday, 19 October 2025 (PDF on MS Teams).

Submission Deadline(Complete): Sunday, 26 October 2025 (code on GitHub).

As the deadline of code is still several days away, make good use of the time to fully understand the concepts and develop your own original work.