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Class	**BS-AI**
Reg. No	**22-NTU-CS-1343**
Lab	**IOT**
Submission To	**Sir Nasir**

1. **Upload the same code to a physical ESP32 S3**:
    a. Run the code.
    b. Take a snapshot of Thonny.
    c. Record a short video of your physical device (change the pin from 33 to 48 for the physical device).

https://wokwi.com/projects/423428183892556801

2. **Investigate the Neopixel color behavior**:

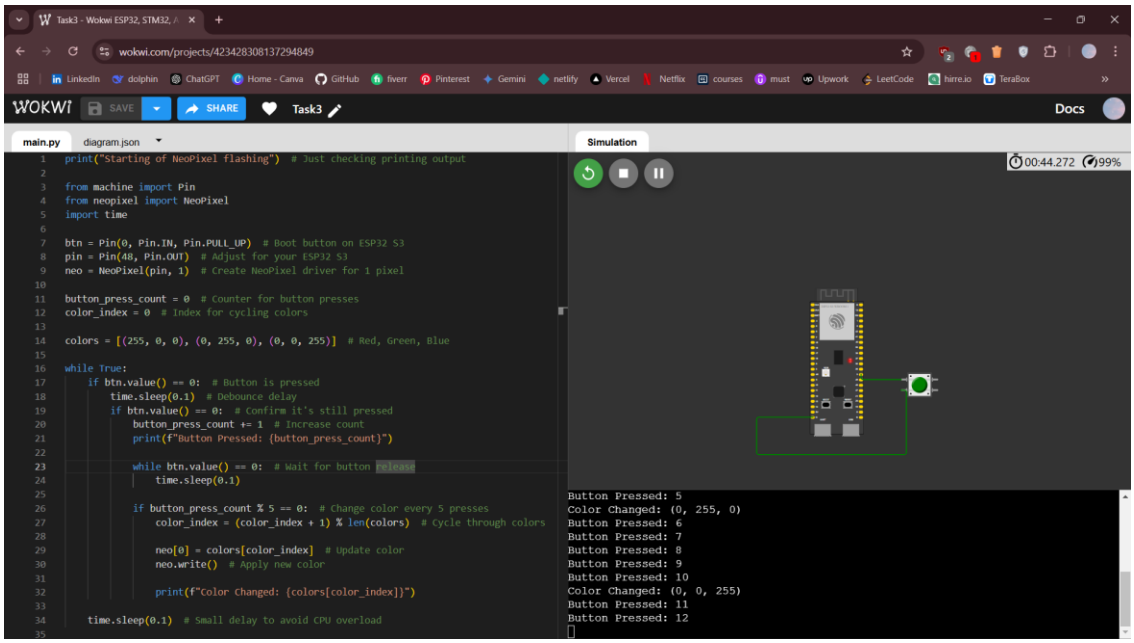
    a. Why does the Neopixel always turn blue when the button is pressed?

    The LED always turns blue because the button logic is set up. The button starts with a value of 1, which keeps the loop running. When we press the button, the value changes to 0, stopping the loop. But since blue was the last color displayed; the LED always gets stuck on blue.

    b. How can it be made to stop on different colors in real-time (e.g., sometimes red, sometimes green, sometimes blue)?

- We can use a list of colors to store different LED colors.
- Track the current color using a variable like color_index.
- Update color_index before exiting the loop when the button is pressed.
- LED stays on the last displayed color, instead of always stopping at blue.

3. **Modify the code for button presses**:
    a. Change the color after every 5 button presses.
    b. Examine the result: Does the color change exactly after 5 presses, or is there abnormal behavior?
    c. If there is abnormal behavior, what could be the reason?



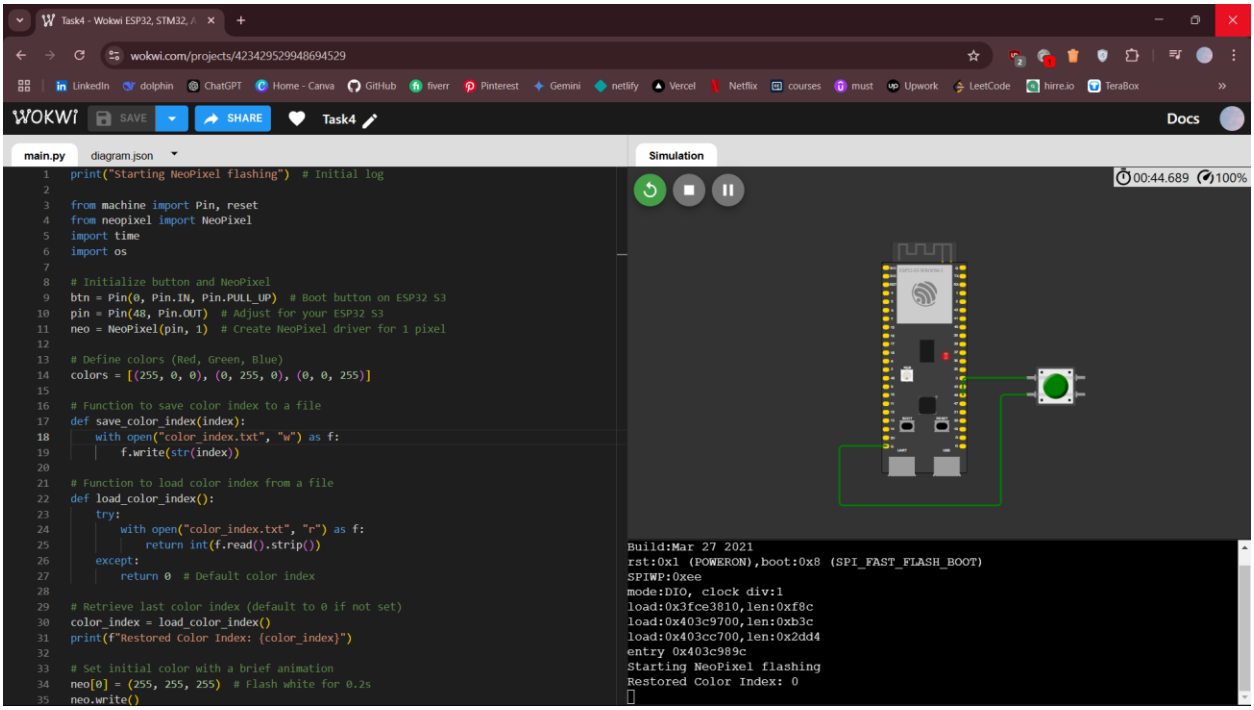
https://wokwi.com/projects/423428308137294849

Unusual Behavior:

- **Inconsistent Color Change:** The LED changes color before or after 5 presses.
- **Multiple Counts Per Press:** A single press registers multiple times, causing unexpected color changes.
- **No Color Change:** The LED doesn't change color even after 5 presses.

4. Implement your own changes to the code.

This version saves the last selected color in it when the ESP32 restarts.



https://wokwi.com/projects/423335410791447553