

ESP32 Two Switches with Independent LED Toggle

➤ Code:

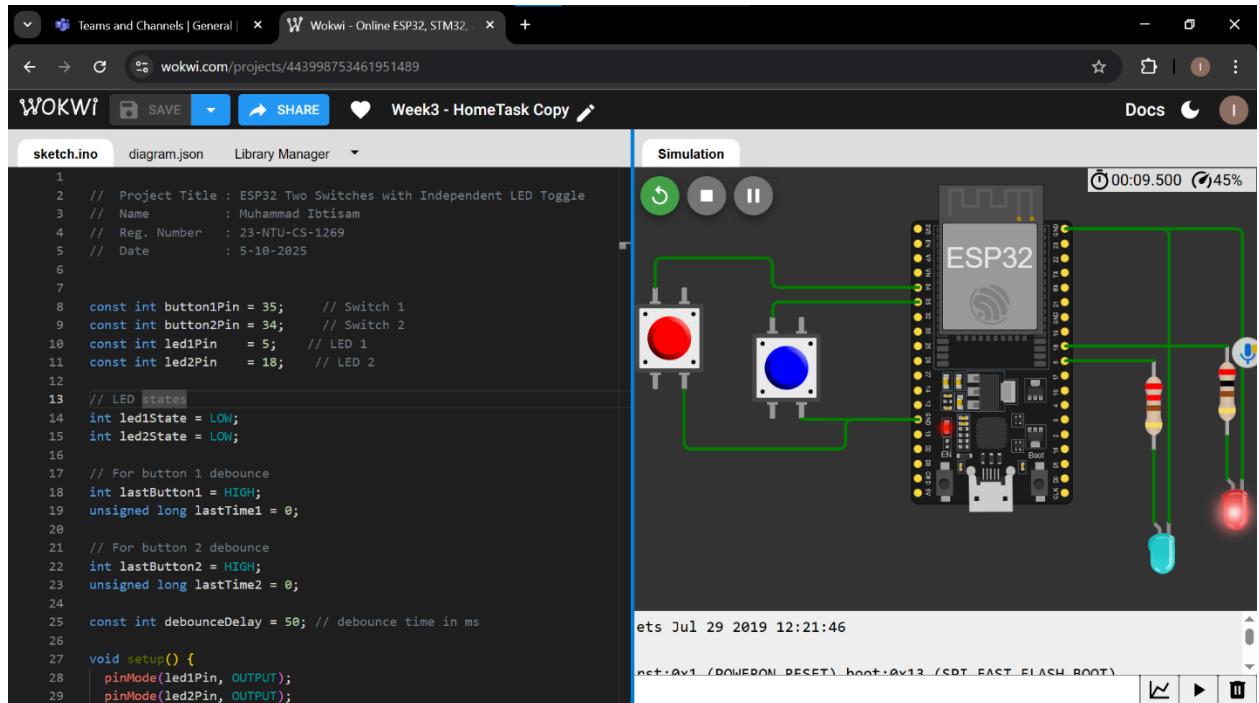
```
> const int button1Pin = 35;      // Switch 1
> const int button2Pin = 34;      // Switch 2
> const int led1Pin     = 5;      // LED 1
> const int led2Pin     = 18;     // LED 2
>
> // LED states
> int led1State = LOW;
> int led2State = LOW;
>
> // For button 1 debounce
> int lastButton1 = HIGH;
> unsigned long lastTime1 = 0;
>
> // For button 2 debounce
> int lastButton2 = HIGH;
> unsigned long lastTime2 = 0;
>
> const int debounceDelay = 50; // debounce time in ms
>
> void setup() {
>   pinMode(led1Pin, OUTPUT);
>   pinMode(led2Pin, OUTPUT);
>
>   pinMode(button1Pin, INPUT_PULLUP); // active LOW
>   pinMode(button2Pin, INPUT_PULLUP); // active LOW
>
>   digitalWrite(led1Pin, led1State);
>   digitalWrite(led2Pin, led2State);
> }
```

```

> void loop() {
>     //Button1
>     int reading1 = digitalRead(button1Pin);
>     if (reading1 == LOW && lastButton1 == HIGH && (millis() - lastTime1) >
debounceDelay) {
>         led1State = !led1State;                                // toggle LED1
>         digitalWrite(led1Pin, led1State);
>         lastTime1 = millis();
>     }
>     lastButton1 = reading1;
>
>     //Button2
>     int reading2 = digitalRead(button2Pin);
>     if (reading2 == LOW && lastButton2 == HIGH && (millis() - lastTime2) >
debounceDelay) {
>         led2State = !led2State;                                // toggle LED2
>         digitalWrite(led2Pin, led2State);
>         lastTime2 = millis();
>     }
>     lastButton2 = reading2;
> }
>

```

➤ Screenshots:

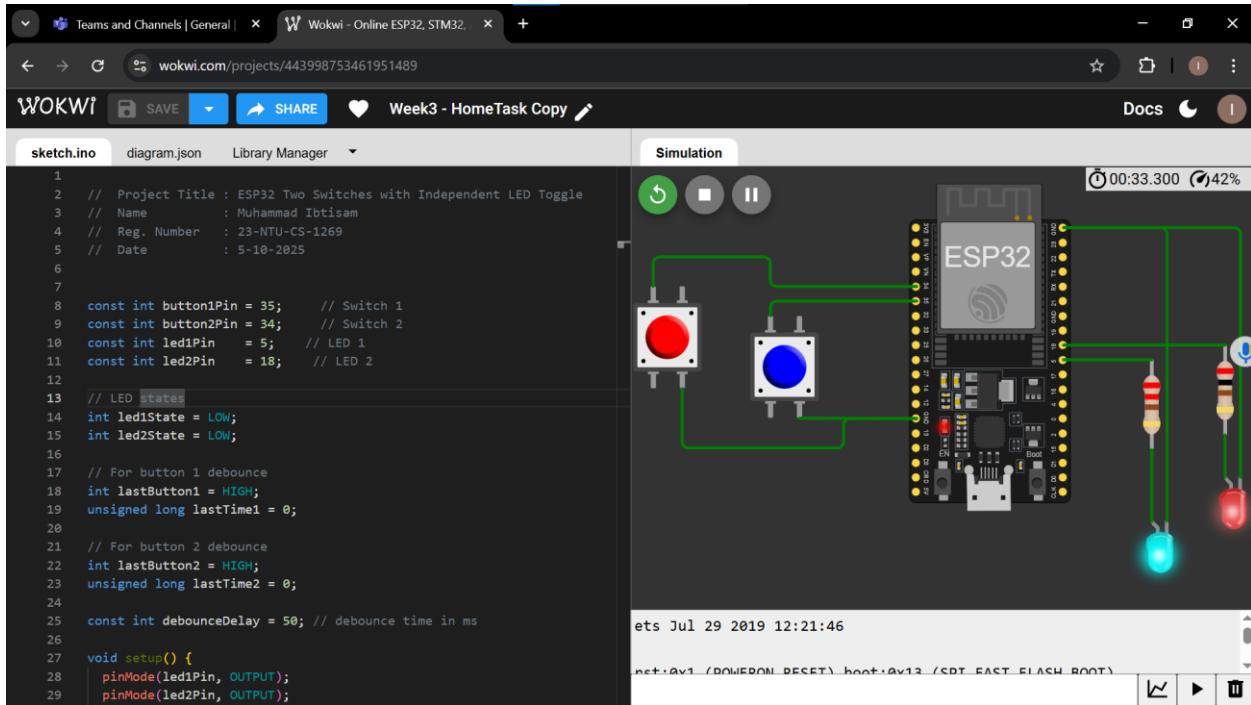


The screenshot shows the Wokwi online simulation environment. On the left is the code editor with the file 'sketch.ino' containing C++ code for an ESP32. On the right is the simulation window showing a breadboard setup with an ESP32 module. Two red push buttons are connected to pins 35 and 34 respectively. Two blue LEDs are connected to pins 5 and 18. Resistors are placed in series with each LED. The simulation shows the LEDs turning on and off in response to button presses.

```
1 // Project Title : ESP32 Two Switches with Independent LED Toggle
2 // Name          : Muhammad Ibtisam
3 // Reg. Number   : 23-NTU-CS-1269
4 // Date         : 5-10-2025
5
6
7 const int button1Pin = 35;      // Switch 1
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9 const int led1Pin    = 5;        // LED 1
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11
12 // LED states
13 int led1State = LOW;
14 int led2State = LOW;
15
16 // For button 1 debounce
17 int lastButton1 = HIGH;
18 unsigned long lastTime1 = 0;
19
20 // For button 2 debounce
21 int lastButton2 = HIGH;
22 unsigned long lastTime2 = 0;
23
24 const int debounceDelay = 50; // debounce time in ms
25
26 void setup() {
27     pinMode(button1Pin, INPUT);
28     pinMode(button2Pin, INPUT);
29     pinMode(led1Pin, OUTPUT);
30     pinMode(led2Pin, OUTPUT);
31 }
```

This screenshot is identical to the one above, showing the same Wokwi simulation environment with the code editor and breadboard setup. The simulation displays the same behavior: the blue LEDs turn on and off when the corresponding red buttons are pressed.

```
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Wokwi project link:

<https://wokwi.com/projects/443998753461951489>