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Lab Report on

Control LED Using Blynk App and Wifi

Course Code: CSE 426

Course Title: IoT Lab

Submitted to:

Md. Hasibur Rahman

Lecturer

Dept. of CSE

at Bangladesh University of Business and Technology.

Submitted by:

Syeda Nowshin Ibnat, 17183103020

Nusrat Jahan Anka, 17183103008

Mahmuda Begum, 17183103030

Nawrin Zaman Prova, 17183103044

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Introduction:

ESP32 - Wifi Communication

The ESP32 board can act as Wi-Fi Station, Access Point, or both. To set the Wi-Fi mode, we need to use WiFi.mode() and set the desired mode as an argument. When the ESP32 is set as a Wi-Fi station, it can connect to other networks (like routers). In this scenario, the router assigns a unique IP address to our ESP board. We can communicate with the ESP using other devices (stations) that are also connected to the same network by referring to the ESP unique IP address.

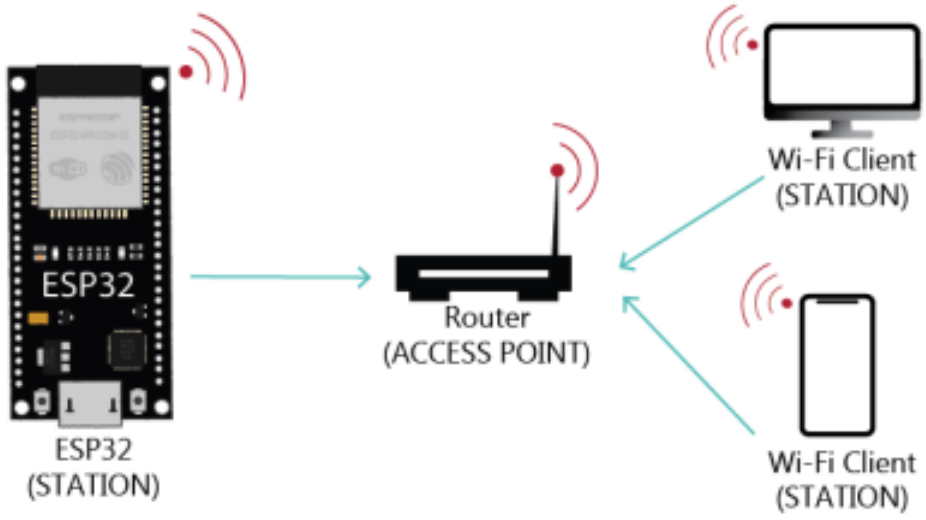

Figure 1: ESP 32 Wifi station

In some cases, this might not be the best configuration – when we don't have a network nearby and we still want to connect to the ESP to control it. In this scenario, we must set the ESP board as an access point.

Blynk App

Blynk is a platform that allows us to quickly build interfaces for controlling and monitoring our hardware projects from iOS and Android devices. After downloading the Blynk app, we can create a project dashboard and arrange buttons, sliders, graphs, and other widgets onto the screen.

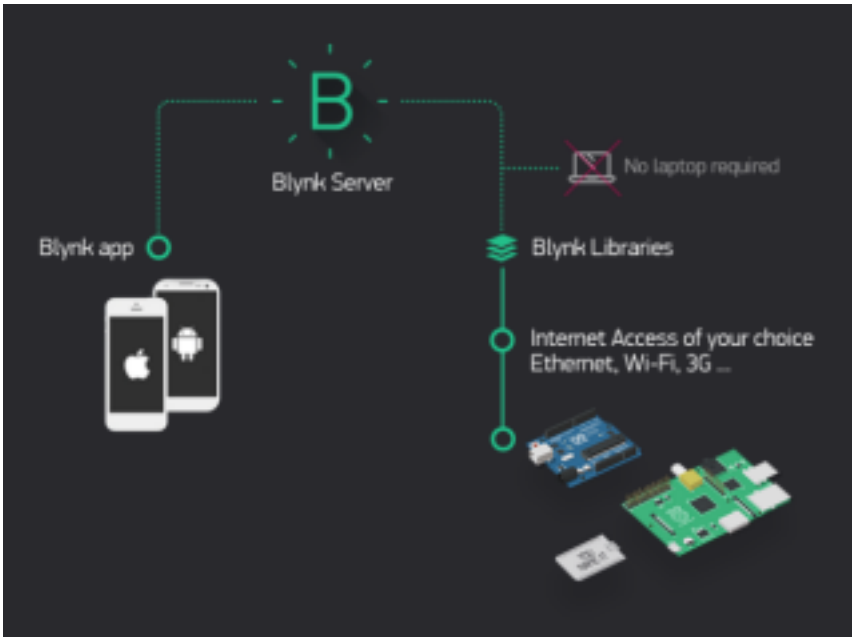

Figure 2: Use of Blynk App

Figure 3: UI design of our Blynk App

Tools/ Component Required:

1. ESP32 module
2. USB Cable
3. LED
4. Breadboard
5. Jumper wires
6. Resistor
7. Arduino IDE
8. Blynk App

Circuit diagram:

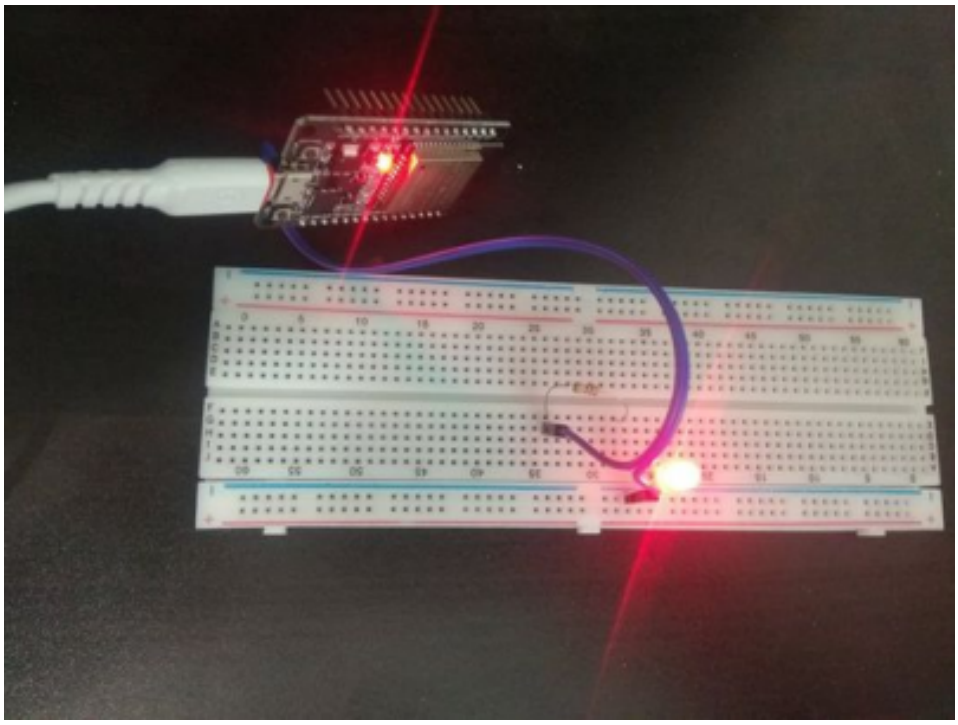

Figure 4: Circuit for Controlling LED Using Blynk App and Wifi

Code:

```
#define BLYNK_TEMPLATE_ID "TMPLPUlPGAuj"

#define BLYNK_DEVICE_NAME "Esp32 LED Wifi"

#define BLYNK_FIRMWARE_VERSION "0.1.0"

#define BLYNK_PRINT Serial

//#define BLYNK_DEBUG

#define APP_DEBUG

#define LED 18 //#define USE_WROVER_BOARD
//#define USE_TTGO_T7

#include "BlynkEdgent.h"

BLYNK_WRITE (V0) {

int pinValue = param.asInt();
```

```
digitalWrite (LED, pinValue); }
void setup(){
Serial.begin(115200);
delay(100);
pinMode (LED,OUTPUT);
BlynkEdgent.begin(); }
void loop() {
BlynkEdgent.run(); }
```

Conclusion:

In lab class eight we got to know about how to use Blynk App and also about Wifi Module. And that knowledge helped us to do this lab task. This lab task helped us to understand and gain more knowledge on the use of the Blynk App and Wifi Module. Hence, it is teamwork so we worked as a team to complete this lab task. We did face some problems during doing this task and we find the solutions from different websites and Youtube tutorials. In the end, we have successfully found the output as we wanted.