

SmartBridge Externship

Internet of Things

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Date: 28-05-2023

Assignment 2: In wokwi connect push button and upload 0 and 1 to IBM cloud

Code:

- Sketch.io

```
#include <WiFi.h> //library for wifi
#include <PubSubClient.h> //library for MQTT
#define button 4
#define LED 5
int buttonPin;

void callback(char* subscribtopic, byte* payload, unsigned int
payloadLength);

//-----credentials of IBM Accounts-----

#define ORG "s3f36h" //IBM ORGANITION ID
#define DEVICE_TYPE "abcd" //Device type mentioned in ibm watson IOT
Platform
#define DEVICE_ID "12345" //Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678" //Token
String data3;

//----- Customise the above values -----
char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; // Server
Name
char publishTopic[] = "iot-2/evt/Data/fmt/json"; // topic name and type of
event perform and format in which data to be send
char subscribtopic[] = "iot-2/cmd/command/fmt/String"; // cmd REPRESENT
command type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth"; // authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID; //client id
```

```

//-----
WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient); //calling the
predefined client id by passing parameter like server id,portand
wificredential
void setup() {
    pinMode(buttonPin, INPUT_PULLUP);
    Serial.begin(9600);
    wificonnect();
    mqttconnect();
}

void loop() {
    int buttonState = digitalRead(buttonPin);

    if (buttonState == HIGH) {
        Serial.println("Button state: 1");
    } else {
        Serial.println("Button state: 0");
    }

    delay(100);
    if (!client.loop()) {
        mqttconnect();
    } // Adjust delay as needed
}
/*.....retrieving to
Cloud.....*/

// void PublishData() {
//     mqttconnect();
//     String payload = "{\"temp\":\"";
//     payload += temp;
//     payload += "\", \"Humid\":\"";
//     payload += humid;
//     payload += "\"}";
//     if (client.publish(publishTopic, (char*) payload.c_str())) {
//         Serial.println("Publish ok");// if it sucessfully upload data on
the cloud then it will print publish ok in Serial monitor or else it will
print publish failed
//     } else {
//         Serial.println("Publish failed");
//     }
// }

void mqttconnect() {

```

```

if (!client.connected()) {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
        Serial.print(".");
        delay(500);
    }

    initManagedDevice();
    Serial.println();
}
}

void wificonnect() //function defination for wificonnect
{
    Serial.println();
    Serial.print("Connecting to ");

    WiFi.begin("Wokwi-GUEST", "", 6); //passing the wifi credentials to
    establish the connection
    while (WiFi.status() != WL_CONNECTED) {
        delay(500);
        Serial.print(".");
    }
    Serial.println("");
    Serial.println("WiFi connected");
    Serial.println("IP address: ");
    Serial.println(WiFi.localIP());
}

void initManagedDevice() {
    if (client.subscribe(subscribetopic)) {
        Serial.println((subscribetopic));
        Serial.println("subscribe to cmd OK");
    } else {
        Serial.println("subscribe to cmd FAILED");
    }
}

void callback(char* subscribetopic, byte* payload, unsigned int
payloadLength)
{
    Serial.print("callback invoked for topic: ");
    Serial.println(subscribetopic);
    for (int i = 0; i < payloadLength; i++) {
        //Serial.print((char)payload[i]);
        data3 += (char)payload[i];
    }
}

```

```

    Serial.println("data: "+ data3);
    if(data3=="lighton")
    {
    Serial.println(data3);
    digitalWrite(LED,HIGH);
    }
    else
    {
    Serial.println(data3);
    digitalWrite(LED,LOW);
    }
    data3="";
}

```

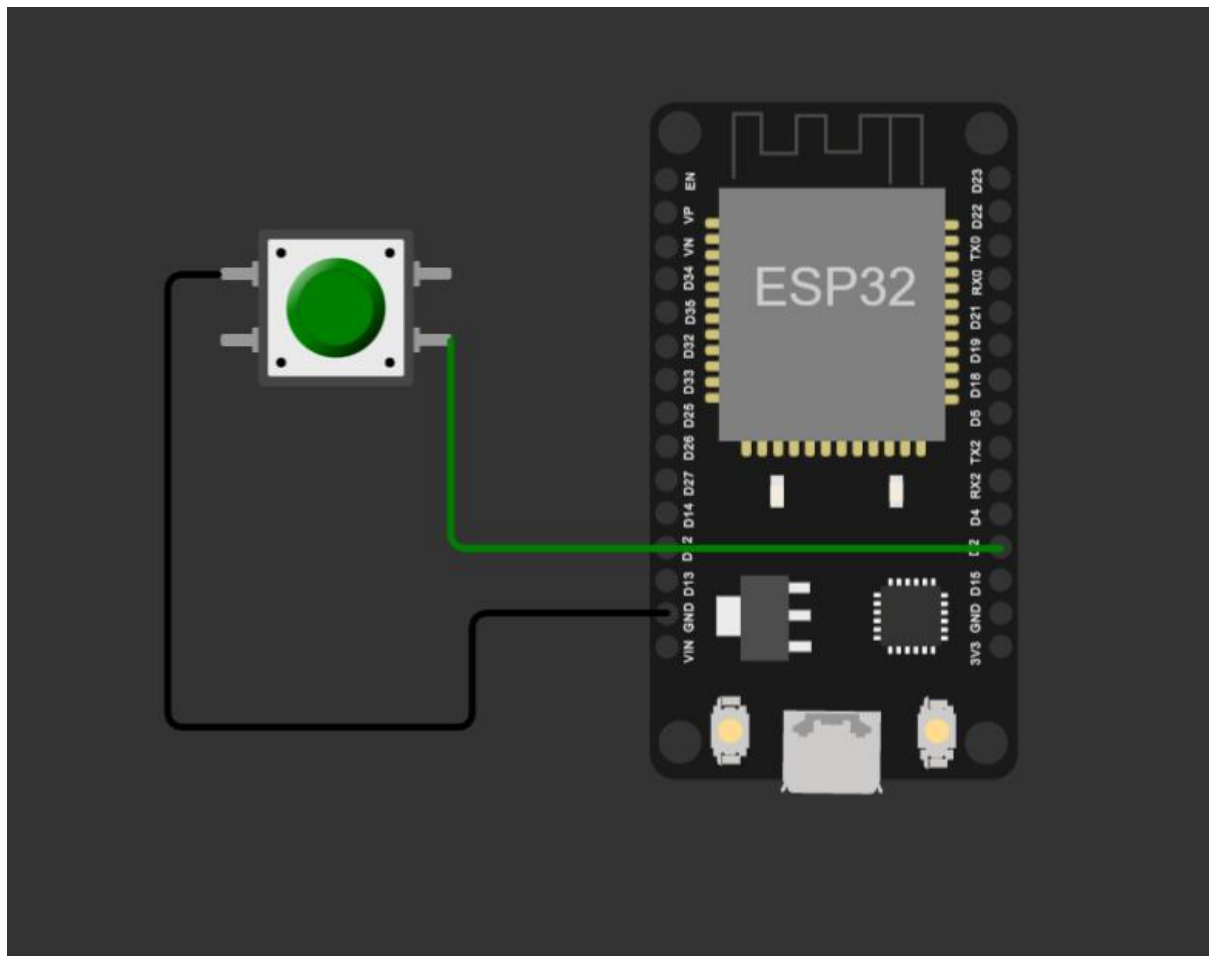
- **Diagram.json**

```

{
  "version": 1,
  "author": "JYOTI PRAKASH BEHURA 20BCE7355",
  "editor": "wokwi",
  "parts": [
    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": 0, "left": 0,
    "attrs": {} },
    {
      "type": "wokwi-pushbutton",
      "id": "btn1",
      "top": 38.73,
      "left": -124.27,
      "attrs": { "color": "green" }
    }
  ],
  "connections": [
    [ "esp:TX0", "$serialMonitor:RX", "", [] ],
    [ "esp:RX0", "$serialMonitor:TX", "", [] ],
    [ "esp:D2", "btn1:2.r", "green", [ "h0" ] ],
    [ "btn1:1.l", "esp:GND.2", "black", [ "h-14.53", "v130", "h87.73", "v-32.73" ] ]
  ],
  "dependencies": {}
}

```

Diagram:



Output:

```
Connecting to .....  
WiFi connected  
IP address:  
10.10.0.2  
Reconnecting client to s3f36h.messaging.internetofthings.ibmcloud.com  
iot-2/cmd/command/fmt/String  
subscribe to cmd OK  
  
Button state: 0  
Button state: 0
```