SMARTBRIDGE EXTERNSHIP

Internet of Things (IOT)

Assignment – 2

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VIT – AP

Question: in wokwi connect push button and upload 0 and 1 to ibm cloud

Code:

sketch.ino:

sketch.ino | diagram.json | libraries.txt | Library Manager

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

void callback(char* subscribetopic, 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 per
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd  REPRESENT command ty
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 c
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 d
  //   } 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
    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
```

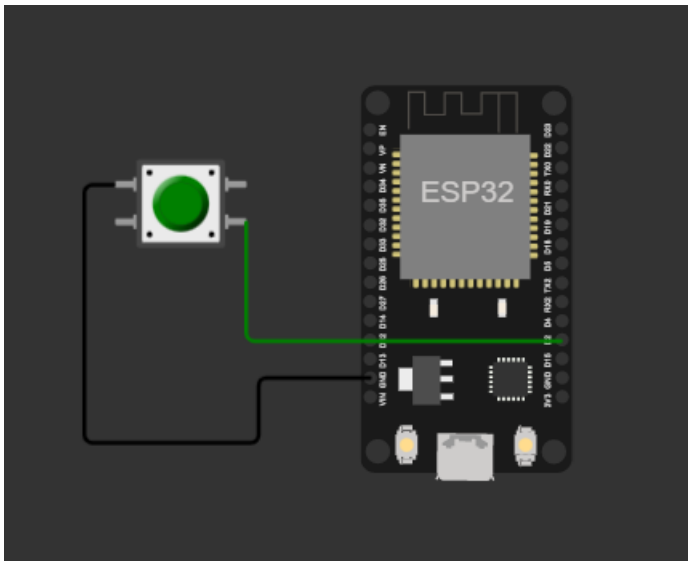
```
  {
Serial.println(data3);
digitalWrite(LED,LOW);
  }
data3="";
}
```

diagram.json:

sketch.ino | diagram.json | libraries.txt | Library Manager

```
{
  "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
```