SMARTBRIDGE EXTERNSHIP

Internet Of Things

Assignment 2:

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In wokwi connect push button and upload 0 and 1 to ibm cloud

Code:

sketch.ino

```
#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 "9f8wlx"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "1234"//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 subscribetopic[] = "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 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 ");
```

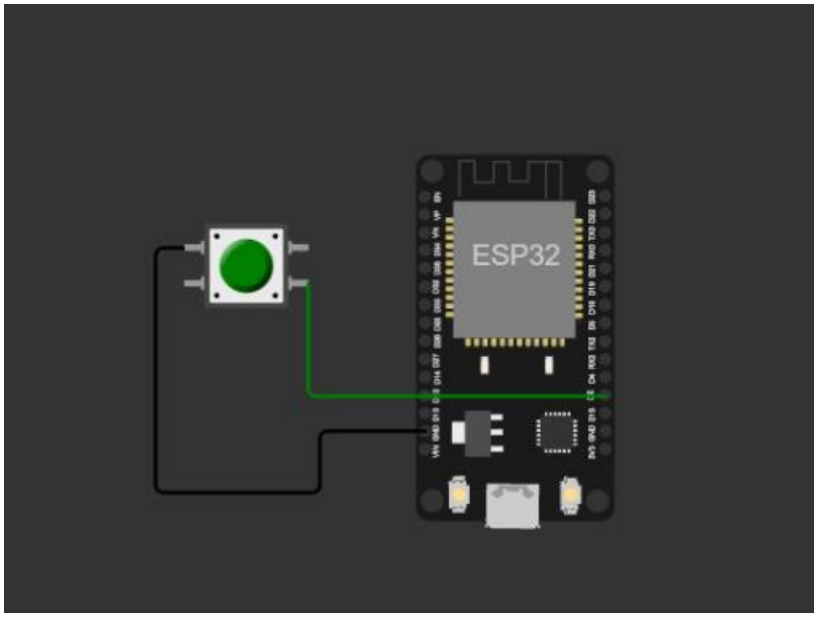
```
  WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish
the connection
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi connected");
  Serial.println("IP address: ");
  Serial.println(WiFi.localIP());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

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="";
}
```

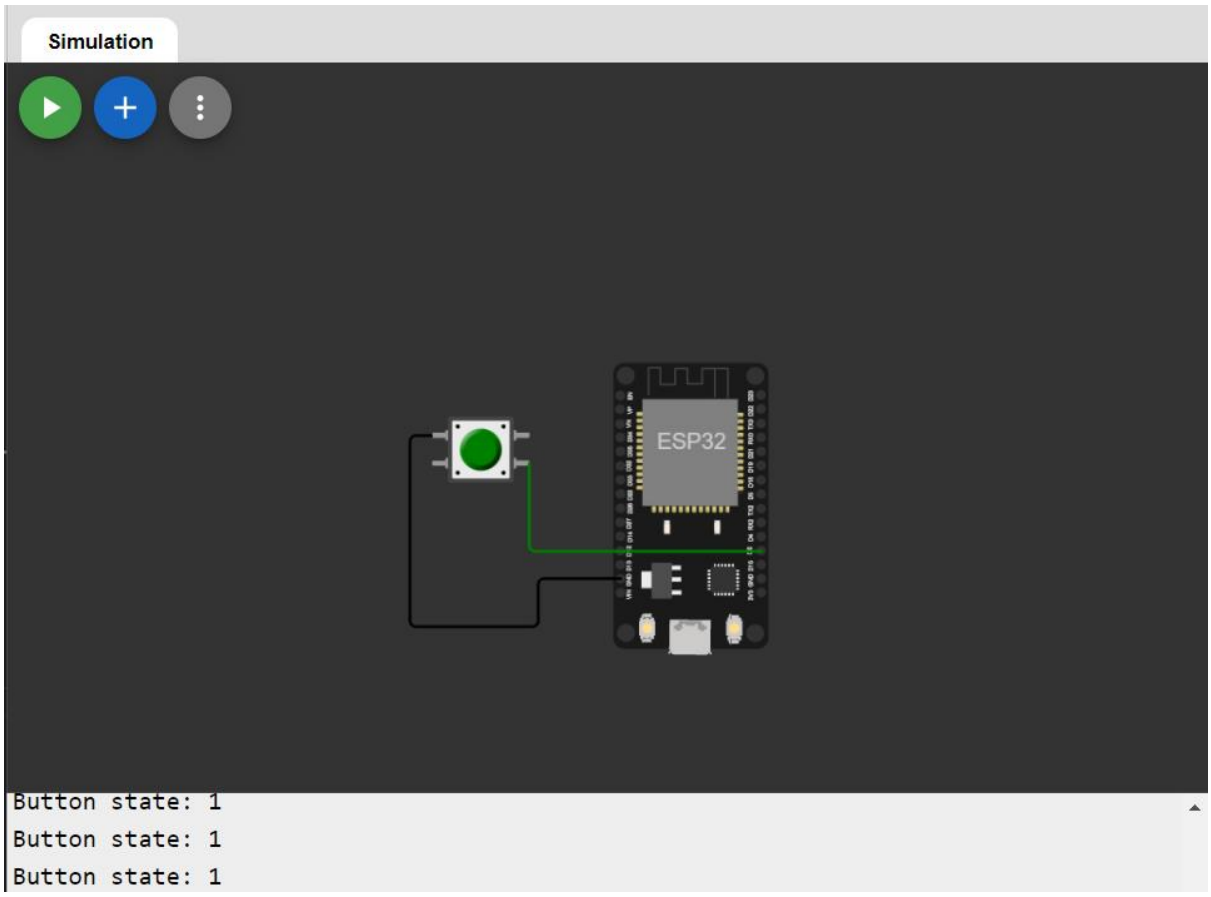
diagram.json

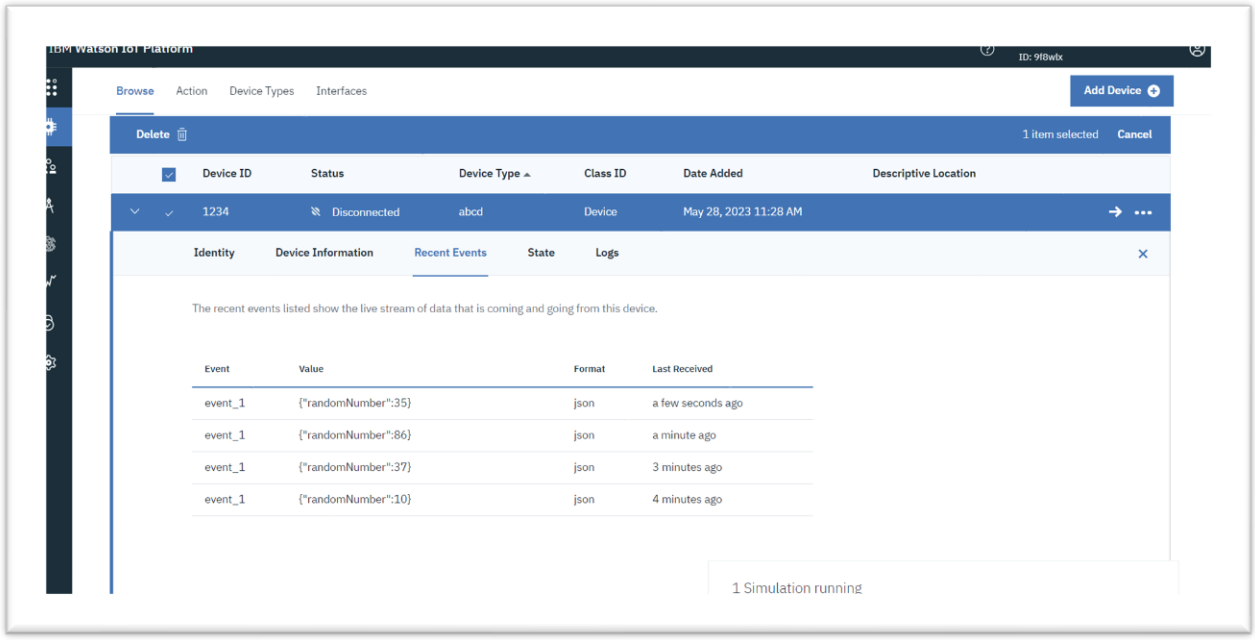
```
{
  "version": 1,
  "author": "MADHYAM PATRA",
  "editor": "wokwi",
  "parts": [    { "type": "wokwi-esp32-devkit-v1", "id": "esp", "top": 0, "left": 0,
"attrs": {} },
    {
      "type": "wokwi-pushbutton",
      "id": "btn1",
```

```
    "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": {}
```



Output:


Simulation
ESP32
Button state: 1
Button state: 1
Button state: 1


IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Add Device
Delete
1 item selected
Cancel
Device ID
Status
Device Type
Class ID
Date Added
Descriptive Location
1234
Disconnected
abcd
Device
May 28, 2023 11:28 AM
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
event_1
{"randomNumber":35}
json
a few seconds ago
event_1
{"randomNumber":86}
json
a minute ago
event_1
{"randomNumber":37}
json
3 minutes ago
event_1
{"randomNumber":10}
json
4 minutes ago
1 Simulation running