Task 2

Aniket Sharma   20BCE2641

Vellore Institute of Technology (VIT)   Vellore

Aim:

Simulating an MQTT connection with a NodeMCU (ESP32). The condition being, sending the status of the button to the cloud (IBM Cloud Service, Watson IoT) that can be 0 or 1.

Share Link (Wokwi):

https://wokwi.com/projects/365905602341117953

sketch.ino:

```cpp
#include <WiFi.h>
#include<PubSubClient.h>
int button=2;

#define ORG "xvgkhg"
#define TYPE "wokwi"
#define ID "1234"
#define TOKEN "12345678"

char server[]=ORG".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/ButtonStatus/fmt/json";
char subscribeTopic[]="iot-2/cmd/noParticularUse/fmt/String";
char authMethod[]="use-token-auth";
char token[]=TOKEN;
char clientId[]="d:"ORG":"TYPE":"ID;

WiFiClient wifiClient;
PubSubClient client(server,1883,wifiClient);

void setup()
{
  Serial.begin(9600);
  pinMode(button,INPUT);
  delay(10);
  Serial.println();
  wificonnect();
```

```cpp
    mqttconnect();
}
void loop()
{
  int status=digitalRead(button);
  Serial.print("Status: ");
  Serial.println(status);

  PublishStatus(status);
  delay(1000);
  if(client.loop()!=true)
  {
    mqttconnect();
  }
}


void PublishStatus(int status)
{
  mqttconnect();
  String payload="{\"Status\": ";
  payload=payload+status;
  payload=payload+"}";

  bool flag=client.publish(publishTopic,(char*)payload.c_str());

  if(flag==true)
  {
    Serial.println("Payload sent Successfully");
  }
  else
  {
    Serial.println("Publish failed");
  }
}

void mqttconnect()
{
  if(client.connected()!=true)
  {
    //Serial.println("Client not connected, attempting to reconnect");
    while(!!!client.connect(clientId,authMethod,token))
    {
      Serial.print(".");
      Serial.println();
    }
  }
}


void wificonnect()
{
```
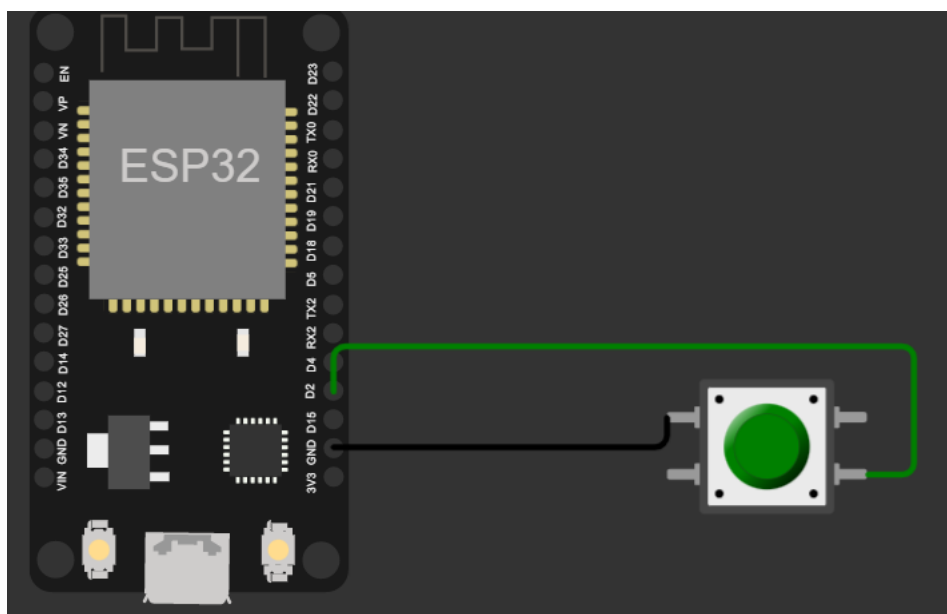
```
  Serial.println();
  Serial.print("Connecting ");
  WiFi.begin("Wokwi-GUEST","",6);
  while(WiFi.status()!=WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }

  Serial.println();
  Serial.println("Wifi connected");
}
```

Simulation:

IBM cloud

Event	Value	Format	Last Received
ButtonStatus	{"Status":1}	json	a few seconds ago
ButtonStatus	{"Status":1}	json	a few seconds ago
ButtonStatus	{"Status":1}	json	a few seconds ago
ButtonStatus	{"Status":0}	json	a few seconds ago
ButtonStatus	{"Status":0}	json	a few seconds ago

Performed by –

Name – Aniket Sharma

Reg. No. – 20BCE2641

University – Vellore Institute of Technology (VIT)

Branch– Vellore