SPRINT-4

DATE	18 NOVEMBER 2022
TEAM ID	PNT2022TMID40922
PROJECT NAME	HAZARDOUS AREA MONITORING FOR INDUSTRIAL PLANT POWERED BY IoT

WOWKI CODE :

```
#include <WiFi.h>//library for wifi

#include <PubSubClient.h>

#include "DHT.h"// Library for dht11

#define DHTPIN 15     // what pin we're connected to

#define DHTTYPE DHT22

DHT dht (DHTPIN, DHTTYPE);// creating the instance by passing pin and typr of dht connected


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


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


#define ORG "aqudbz"//IBM ORGANITION ID

#define DEVICE_TYPE "NodeMCU"//Device type mentioned in ibm watson IOT Platform

#define DEVICE_ID "12345"//Device ID mentioned in ibm watson IOT Platform

#define TOKEN "EON8Q6-UN@GTJ&zH-Q"     //Token

String data3;

float Humidity, Temp;



//-------- 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()// configureing the ESP32

{

  Serial.begin(115200);

  dht.begin();

  delay(10);

  Serial.println();

  wificonnect();

  mqttconnect();

}


void loop()// Recursive Function

{


  Humidity = dht.readHumidity();
```

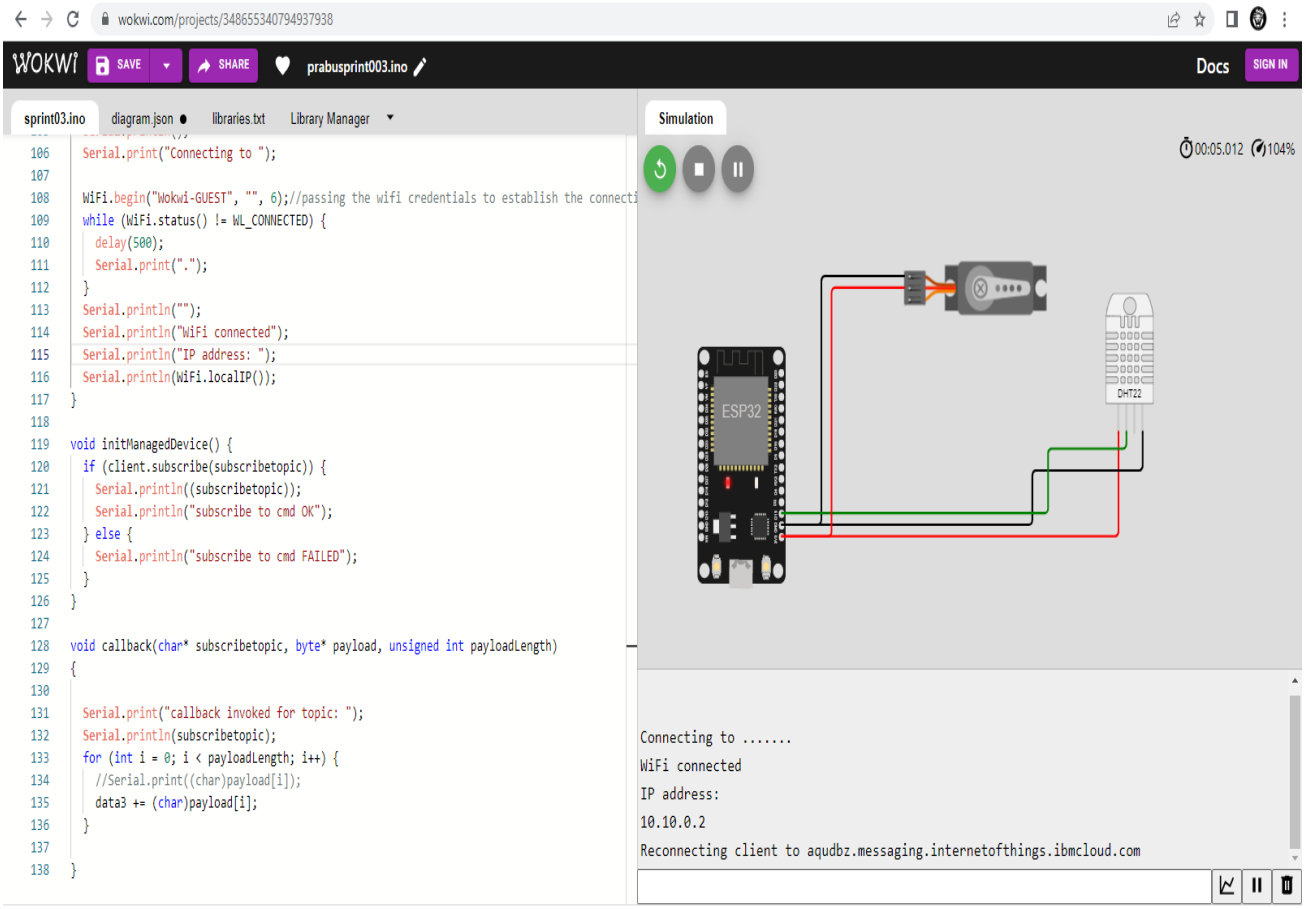
```
  Temp = dht.readTemperature();
  Serial.print("Temp:");
  Serial.println(Temp);
  Serial.print("Humidity:");
  Serial.println(Humidity);

  PublishData(Temp,Humidity);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}



/.....retrieving to Cloud...../

void PublishData(float Temp, float Humidity) {
  mqttconnect();//function call for connecting to ibm
  /*
     creating the String in in form JSon to update the data to ibm cloud
  */
  String payload = "{\"Temp\":";
  payload += Temp;
  payload += "," "\"Humidity\":";
  payload += Humidity;
  payload += "}";
```

```
  Serial.print("Sending payload: ");
  Serial.println(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];
  }
}
```

WOWKI OUTPUT :



LINK : https://wokwi.com/projects/348655340794937938

IBM WATSON PLATFROM :