**Sprint 2**

Wokwi Link :<https://wokwi.com/projects/348132773889835602>

Code:

#include <WiFi.h>

#include <PubSubClient.h>

#include "DHT.h"

#define DHTPIN 15

#define DHTTYPE DHT22

DHT dht (DHTPIN, DHTTYPE); //Creating the instances for DHT22

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

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

#define ORG "z0kljz"//IBM ORGANITION ID

#define DEVICE\_TYPE "DHT11"//Device type mentioned in ibm watson IOT Platform

#define DEVICE\_ID "Temp\_Humid"//Device ID mentioned in ibm watson IOT Platform

#define TOKEN "a8DT4SKUC+IC4kmC8@" //Token

float h, t; // variable for Humidity, Temperature

long gas\_random; // variable for random generator which is considered to be output of gas sensor

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";

char publishTopic[] = "iot-2/evt/Data/fmt/json";

char subscribetopic[] = "iot-2/cmd/test/fmt/String";

char authMethod[] = "use-token-auth";

char token[] = TOKEN;

char clientId[] = "d:" ORG ":" DEVICE\_TYPE ":" DEVICE\_ID;

WiFiClient wifiClient;

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

void setup()

{

Serial.begin(115200);

dht.begin();

pinMode(LED,OUTPUT);

delay(10);

Serial.println();

wificonnect();

mqttconnect();

}

void loop()

{

h = dht.readHumidity();

t = dht.readTemperature();

gas\_random = random(0,100);

Serial.print("temperature:");

Serial.println(t);

Serial.print("Humidity:");

Serial.println(h);

Serial.print("Gas PPM:");

Serial.println(gas\_random);

PublishData(t, h, gas\_random);

delay(1000);

if (!client.loop())

{

mqttconnect();

}

}

//--------Publishing the data to IBM Watson IOT platform--------

void PublishData(float temp, float humid, long gas)

{

mqttconnect();

String payload = "{\"temperature\":";

payload += temp;

payload += "," "\"humidity\":";

payload += humid;

if (gas>=30)

{ // Checking of gas leakage beyond the threshold (here we considered the safelimit as below 30 ppm)

payload += "," "\"Alert !!! Detected gas PPM\":";

payload += gas;

}

payload += "}";

Serial.print("Sending payload: ");

Serial.println(payload);

//-------Checking of the connection between Wokwi and IBM Watson IOT platform---------

if (client.publish(publishTopic, (char\*) payload.c\_str()))

{

Serial.println("Publish ok");

}

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()

{

Serial.println();

Serial.print("Connecting to ");

WiFi.begin("Wokwi-GUEST", "", 6);

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");

}

}