PROJECT DEVELOPMENT PHASE

SPRINT-2

DATE	13 November 2022
TEAM ID	PNT2022TMID35489
TITLE	Gas Leakage Monitoring and Alerting System for Industries

Sending data from Wokwi to IBM Cloud:

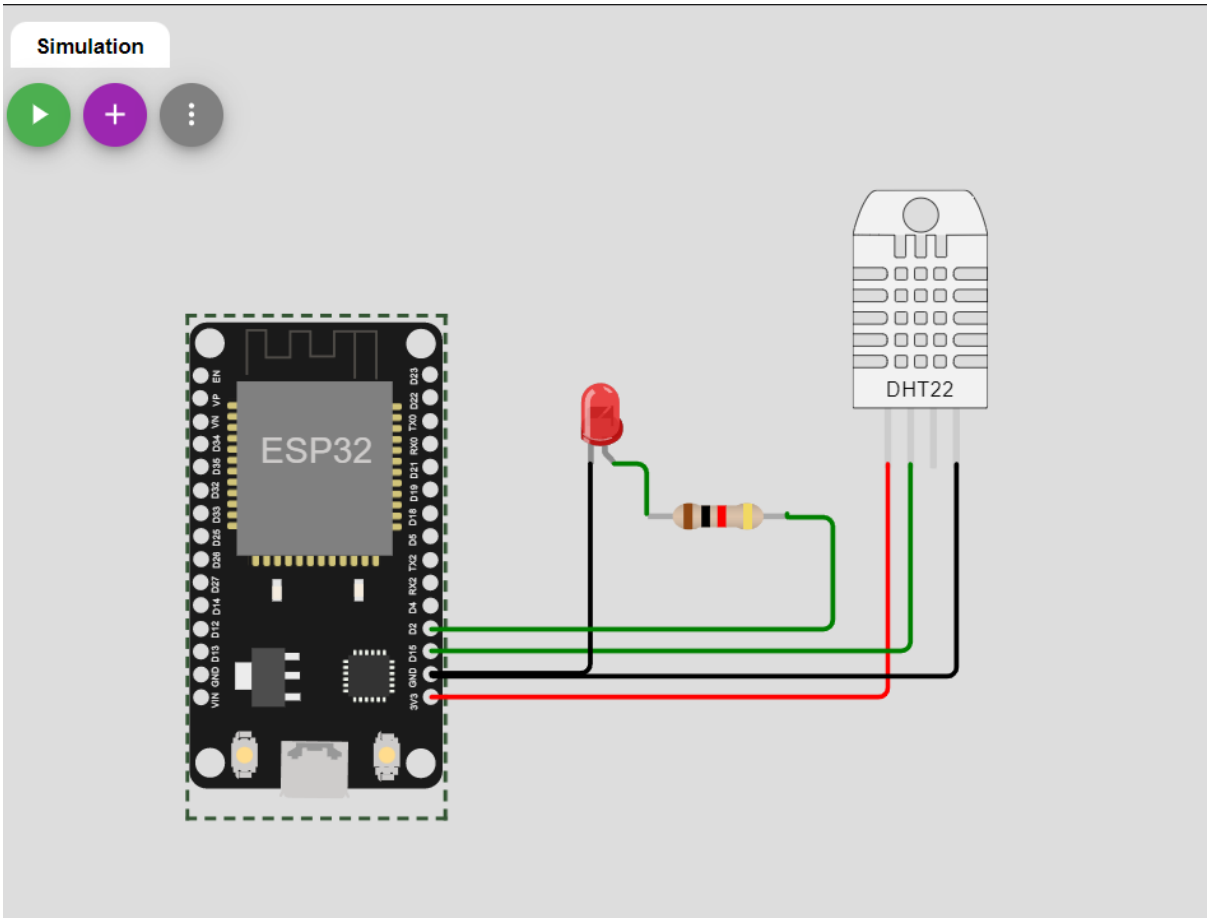
CODE:

```
#include <WiFi.h>//library for Wi-fi
#include <PubSubClient.h>//library for MQTT
#include "DHT.h"// Library for DHT 11
#define DHTPIN 15     // what pin we're connected to
#define DHTTYPE DHT22   // define type of sensor DHT 11
#define LED 2

DHT dht (DHTPIN, DHTTYPE);

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

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

#define ORG "d4fpcb"//IBM ORGANISATION ID
#define DEVICE_TYPE "abcde" //Device type mentioned in IBM Watson
IOT Platform
#define DEVICE_ID "123456" //Device ID mentioned in IBM Watson IOT
Platform
#define TOKEN "1234567890"     //Token
String data3;
float h, t;

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,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();
  Serial.print("temp:");
  Serial.println(t);
  Serial.print("Humid:");
  Serial.println(h);

  PublishData(t, h);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
  }
}

void PublishData(float temp, float humid) {
  mqttconnect();  //function call for connecting to IBM
  String payload = "{\"temp\":";
  payload += temp;
  payload += "," "\"Humid\":";
  payload += humid;
  payload += "}";
  Serial.print("Sending payload: ");
  Serial.println(payload);

  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() //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");
  }
}
```

SCHEMATIC:



WOKWI OUTPUT:

```
Connecting to .....
WiFi connected
IP address:
10.10.0.2
Reconnecting client to d4fpcb.messaging.internetofthings.ibmcloud.com
iot-2/cmd/command/fmt/String
subscribe to cmd OK

temp:68.40
Humid:93.00
Sending payload: {"temp":68.40,"Humid":93.00}
Publish ok
```

IBM CLOUD OUTPUT: