WOKWI SIMULATION

TEAMID:PNT2022TMID49056

CODE:

```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include <LiquidCrystal.h>
#include <ESP32Servo.h>
#include <DHT.h>// Library for dht11
#define DHTPIN 15// what pin we're connected to
#define DHTTYPE DHT22  // define type of sensor DHT 11
LiquidCrystal lcd(2,4,19,21,12,14);
int GreenLED= 18;
int RedLED = 5;
int BUZZER_PIN = 13;
const int servoPin = 22;
String data3;
int g;
Servo door;
int pos;
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 "domlyv"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT
Platform
#define DEVICE_ID "12"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678"     //Token
float h, t;
//-------- 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 datato 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() {
Serial.begin(115200);
dht.begin();
```

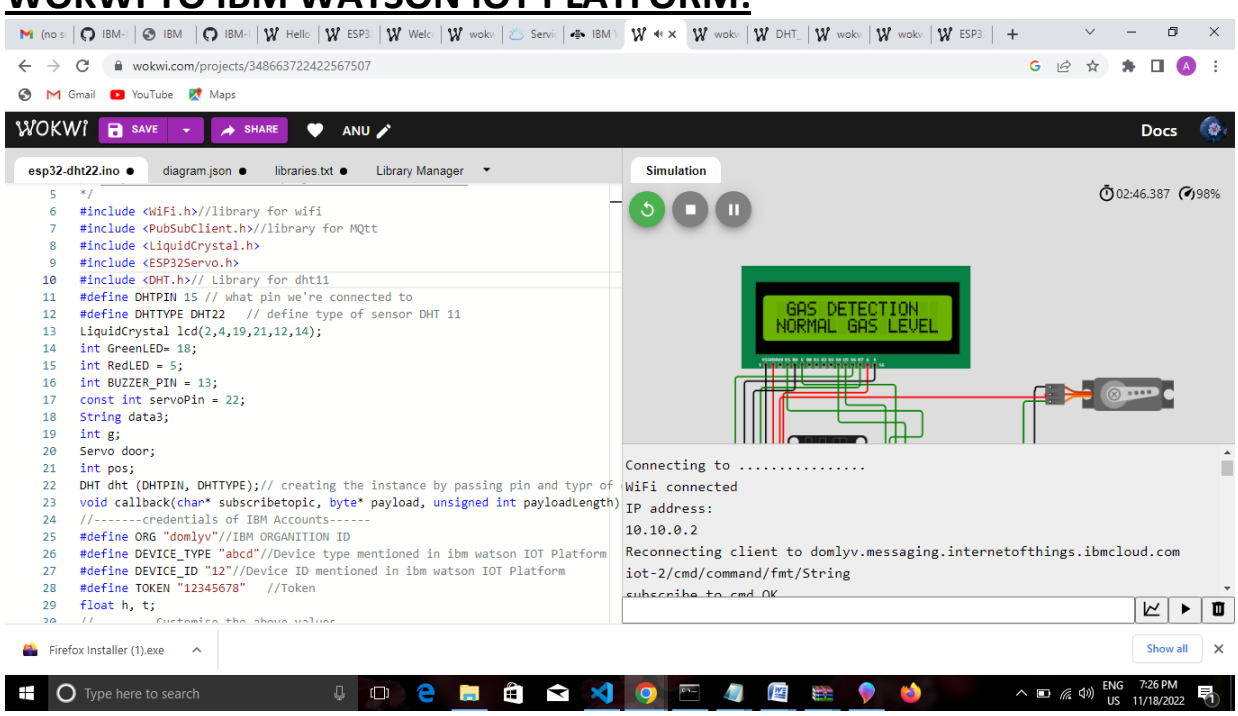
```
pinMode(GreenLED, OUTPUT);
pinMode(RedLED, OUTPUT);
pinMode(BUZZER_PIN, OUTPUT);
lcd.begin(16,2);
lcd.setCursor(1,0);
lcd.print(("GAS DETECTION"));
door.attach(servoPin, 500,2400);
Serial.println();
wificonnect();
mqttconnect();
}
void loop(){
g =random(0,100);
Serial.print("Gas Level in Percentage :");
Serial.println(g);
h =dht.readHumidity();
t = dht.readTemperature();
Serial.print("temp:");
 Serial.println(t);
Serial.print("Humid:");
Serial.println(h);
condition(g);
PublishData(t, h ,g);
delay(1000);
if(!client.loop()) {
mqttconnect();
}
delay(5000);
}
//    Condition for buzzer
void myTone( int pin)
{
ledcAttachPin(pin, 0); // pin, channel
ledcWriteNote(0, NOTE_F, 4); // channel, frequency, octave
}
void myNoTone( int pin)
{ ledcDetachPin(pin);
}
//    Condition for Gaslevel
void condition(int g){
if(g > 50){
myTone(BUZZER_PIN);
digitalWrite(RedLED, HIGH);
digitalWrite(GreenLED, LOW);
delay(500);
lcd.setCursor(0,1);
lcd.print("ALERT!!");
delay(300);
lcd.setCursor(0,1);
lcd.print("HAZARDOUS LEVEL!");
}
else { myNoTone(BUZZER_PIN);
digitalWrite(RedLED, LOW);
digitalWrite(GreenLED, HIGH);
```

```
delay(500);
lcd.setCursor(0,1);
lcd.print("NORMAL GAS LEVEL");
}
} /*.....................................retrieving to Cloud   */
void PublishData(float temp, float Humid, int Gas) {
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 +=
","\"Humid\":"; payload += Humid; payload += "," "\"Gas\":"; payload +=
Gas; 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];
}
Serial.println("data: "+ data3);
if(data3=="dooropen") {
Serial.println(data3);
pos = 180; //open the door door.write(pos);
}
else
{
Serial.println(data3);
pos = 0; // closing the door door.write(pos);
}
data3="";
}
```

WOKWI OUTPUT:

WOKWI TO IBM WATSON IOT PLATFORM:

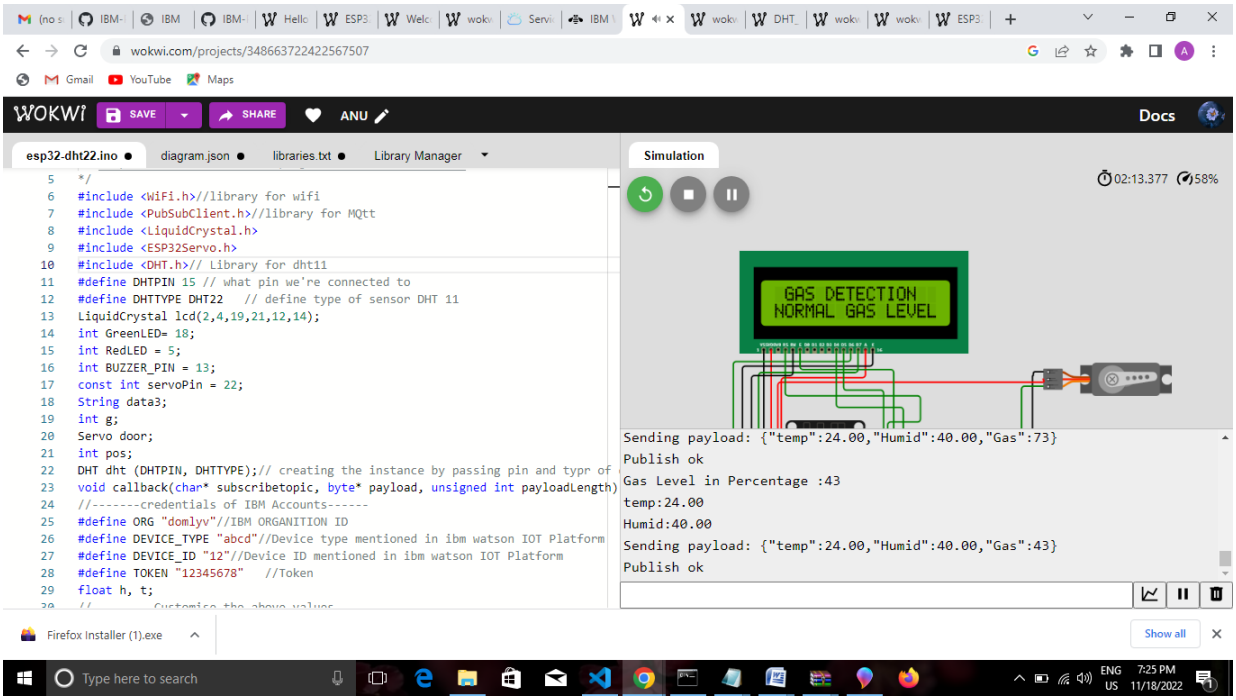


WOKWI LINK:

https://wokwi.com/projects/348663722422567507

GAS DETECTION:

NORMAL GAS LEVEL:



GAS DETECTION:

HAZARDOUS LEVEL: