

SPRINT 3

Program

```
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>

const char* ssid = "Wokwi-GUEST";
const char* password = "";

#define ORG "oenq7r"
#define DEVICE_TYPE "DeviceType"
#define DEVICE_ID "123456"
#define TOKEN "Ch!y&Xu6G(OJiwg08B"

#define led 14
#define buzzer 15
#define pir 2

int sensor_value=0;
int pirState=LOW;
int val=0;

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char pubTopic[] = "iot-2/evt/status1/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);
void setup()
{
    Serial.begin(115200);
    pinMode(led, OUTPUT);
    pinMode(buzzer, OUTPUT);
    pinMode(pir, INPUT);
    Serial.print("Connecting to ");
    Serial.print(ssid);
    WiFi.begin(ssid, password);
    while (WiFi.status() != WL_CONNECTED)
    {
        delay(500);
        Serial.print(".");
    }
}
```

```

}
Serial.println("");

Serial.print("WiFi connected, IP address: ");
Serial.println(WiFi.localIP());

if (!client.connected())
{
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token))
    {
        Serial.print(".");
        delay(500);
    }
    Serial.println("Bluemix connected");
}
}

void loop()
{
    sensor_value=random(300,10000);

    String payload = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
    payload += "\",\"GasValue\":";
    payload += sensor_value;
    payload += "ppm";
    payload += "}}";

    if(sensor_value>1000)
    {
        digitalWrite(led, HIGH);
        delay(500);
        tone(buzzer,1000);
        delay(1000);
        payload += "High";
        val = digitalRead(pir);
        if (val == HIGH)
        {
            if (pirState == LOW)
            {
                Serial.println("Motion detected! Evacuate NOW!!!");
            }
        }
    }
}

```

```

Serial.print("Sending value: ");
Serial.println(payload);
if (client.publish(pubTopic, (char*) payload.c_str()))
{
    Serial.println("Publish Success");
}
else
{
    Serial.println("Publish Failed");
}
delay(100);
}

```

Output

The screenshot displays the Wokwi IoT simulator interface. At the top, there's a browser-like address bar showing the project URL: `wokwi.com/projects/348553157099389523`. Below the address bar, the Wokwi logo and navigation buttons (SAVE, SHARE, Docs, SIGN UP) are visible. The main workspace is divided into two sections: a top section for the circuit simulation and a bottom section for the terminal output.

The circuit simulation shows an ESP32 microcontroller board connected to a blue square sensor module and a black circular speaker. A blue light indicator is also present. The terminal output at the bottom shows the following sequence of events:

```

1 Publish Success
1 Sending value: {"d":{"Name":"123456","GasValue":652ppm}}
1 Publish Success
1 Sending value: {"d":{"Name":"123456","GasValue":5384ppm}}High
2 Publish Success
2 Sending value: {"d":{"Name":"123456","GasValue":1560ppm}}High
2 Publish Success

```

The Windows taskbar at the bottom indicates the system time as 12:06 AM on 11/17/2022, with a temperature of 30°C.

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes tabs for 'Browse', 'Action', 'Device Types', and 'Interfaces'. A sidebar on the left contains icons for various platform features. The main content area shows a device with ID '123456' in a 'Connected' state, with a timestamp of 'Nov 16, 2022 1:50 AM'. Below this, a 'Recent Events' tab is selected, displaying a table of live data streams. The table has four columns: 'Event', 'Value', 'Format', and 'Last Received'. It lists five 'status1' events, each with a JSON value and a 'json' format, all received 'a few seconds ago'. The bottom of the image shows a Windows taskbar with various application icons and a system clock indicating 12:11 AM on 11/17/2022.

Event	Value	Format	Last Received
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...]	json	a few seconds ago
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...]	json	a few seconds ago
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...]	json	a few seconds ago
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...]	json	a few seconds ago
status1	{"type":"Buffer","data":[123,34,100,34,58,123,3...]	json	a few seconds ago

Link:

<https://wokwi.com/projects/348553157099389523>