SPRINT 4

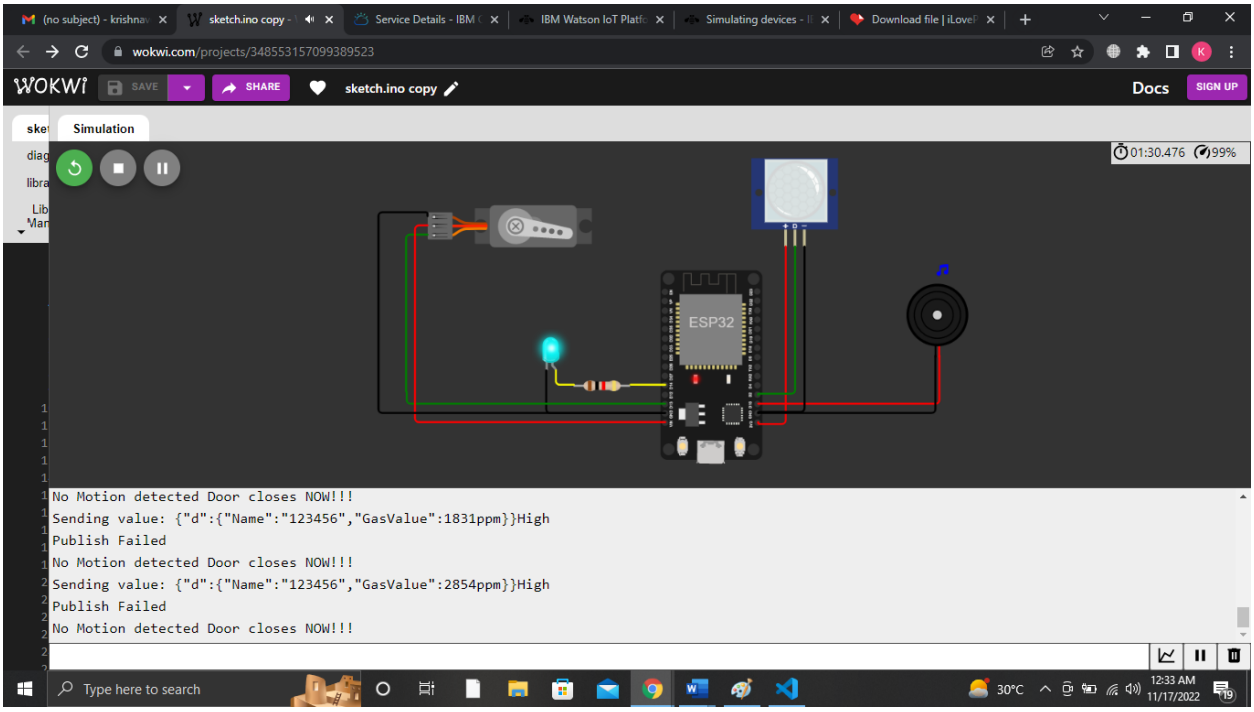
Program

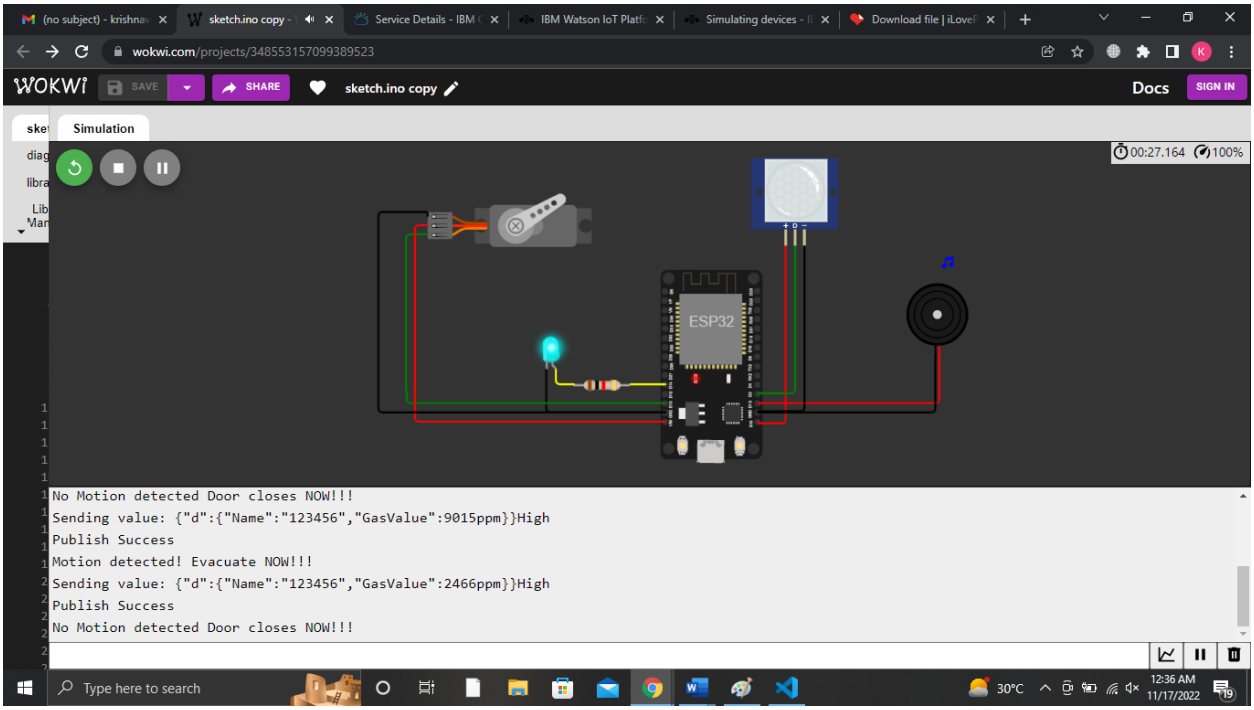
```
#include <WiFi.h>
#include <WiFiClient.h>
#include <PubSubClient.h>
#include <ESP32Servo.h>

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
#define servoPin 13
Servo servo;
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);
  servo.attach(servoPin,500,2400);
  Serial.print("Connecting to ");
  Serial.print(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED)
```

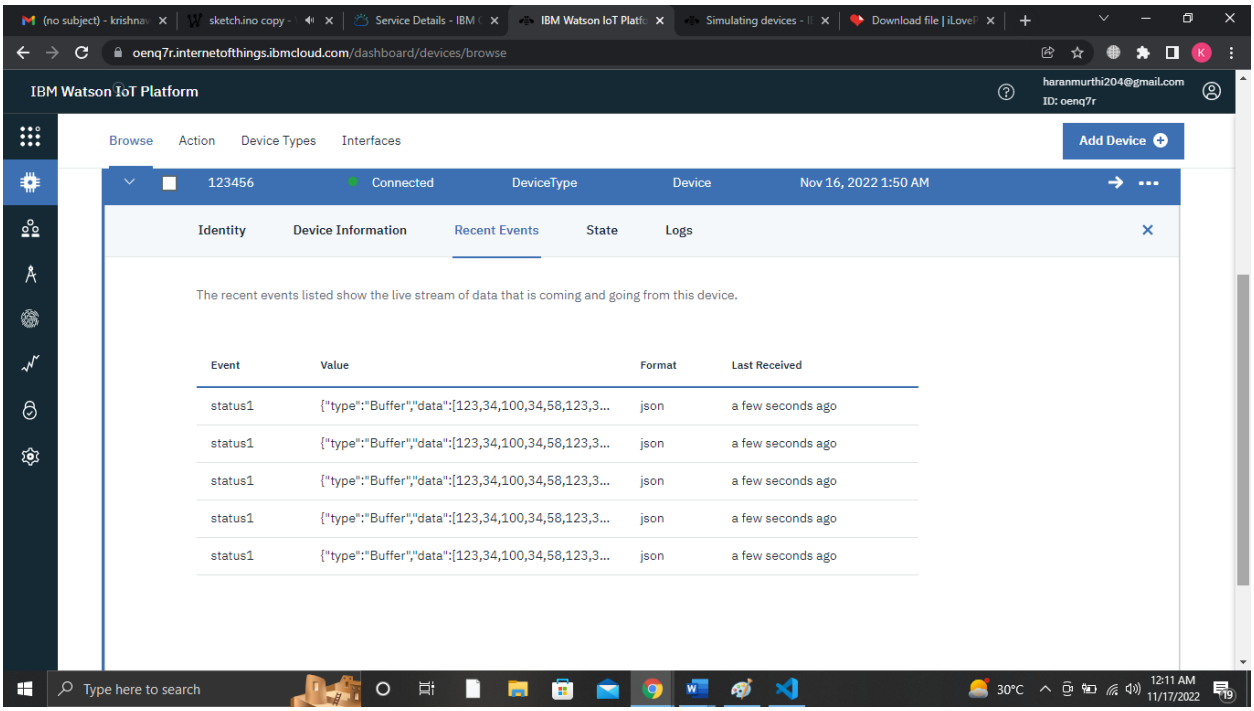
```
  {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");

  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");
  }
}
int pos = 0;
void loop()
{
  sensor_value=random(300,10000);
  for (pos = 0; pos <=180; pos +=1){
    servo.write(pos);
    delay(15);
  }

  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!!!");
      }
    }
    else
  {
    Serial.println("No Motion detected Door closes NOW!!!");
    for (pos =180; pos >=0; pos -=1){
      servo.write(pos);
      delay(15);
    }
  }
  }

  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:


wokwi.com/projects/348553157099389523
WOKWI
SAVE
SHARE
sketch.ino copy
Docs
SIGN UP
Simulation
01:30.476
99%
ESP32
No Motion detected Door closes NOW!!!
Sending value: {"d":{"Name":"123456","GasValue":1831ppm}}High
Publish Failed
No Motion detected Door closes NOW!!!
Sending value: {"d":{"Name":"123456","GasValue":2854ppm}}High
Publish Failed
No Motion detected Door closes NOW!!!
Type here to search
30°C
12:33 AM
11/17/2022


wokwi.com/projects/348553157099389523
WOKWI
SAVE
SHARE
sketch.ino copy
Docs
SIGN IN
Simulation
00:27.164
100%
ESP32
No Motion detected Door closes NOW!!!
Sending value: {"d":{"Name":"123456","GasValue":9015ppm}}High
Publish Success
Motion detected! Evacuate NOW!!!
Sending value: {"d":{"Name":"123456","GasValue":2466ppm}}High
Publish Success
No Motion detected Door closes NOW!!!
Type here to search
30°C
12:36 AM
11/17/2022



Event payload

```
{
  "deviceTypes": [
    {
      "id": "DeviceType",
      "running": true,
      "events": [
        {
          "id": "event_1",
          "frequency": {
            "repeat": "1",
            "every": "minute"
          },
          "json": "{\n  \"type\":
\"Buffer\",\n  \"data\":[\n      123,\n      23,\n      24,\n      25]\n}\n"
        }
      ],
      "devices": [
        {
```

```
          "id": "123456",
          "generated": false
        }
      ],
      "managed": {
        "enabled": false
      }
    }
  ],
  "APIKey": "a-oenq7r-gjxcbhqjmn"
}
```


Link:

https://wokwi.com/projects/348553157099389523