

ASSIGNMENT – 4

WOKWI CODE

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

WiFiClient wifiClient;

#define ORG "mdhfx5"
#define DEVICE_TYPE "sensor"
#define DEVICE_ID "1234qwerty"
#define TOKEN "12345678"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
void publishData();

const int trigpin=5;
const int echopin=18;
String command;
String data="";

long duration;
int dist;

void setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}

void loop() {
```

```

publishData();
delay(500);

if (!client.loop()) {
  mqttConnect();
}
}

void wifiConnect() {
  Serial.print("Connecting to "); Serial.print("Wifi");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while (WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.print("WiFi connected, IP address: "); Serial.println(WiFi.localIP());
}

void mqttConnect() {
  if (!client.connected()) {
    Serial.print("Reconnecting MQTT client to "); Serial.println(server);
    while (!client.connect(clientId, authMethod, token)) {
      Serial.print(".");
      delay(1000);
    }
    initManagedDevice();
    Serial.println();
  }
}

void initManagedDevice() {
  if (client.subscribe(topic)) {
    Serial.println(client.subscribe(topic));
    Serial.println("subscribe to cmd OK");
  } else {
    Serial.println("subscribe to cmd FAILED");
  }
}

void publishData()
{
  digitalWrite(trigpin, LOW);
  digitalWrite(trigpin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin, LOW);
}

```

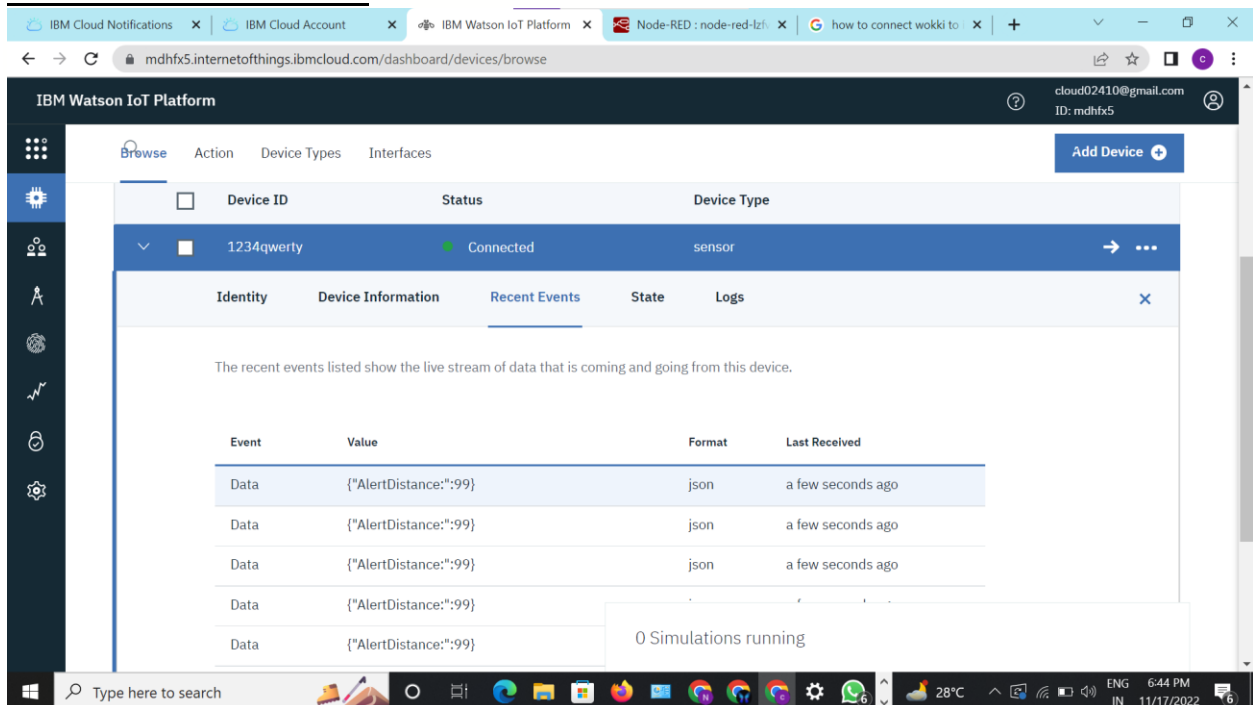
```

duration=pulseIn(echopin,HIGH);
dist=duration*speed/2;

if(dist<100){
  DynamicJsonDocument doc(1024);
  String payload;
  doc["AlertDistance:"]=dist;
  serializeJson(doc, payload);
  delay(3000);
  Serial.print("\n");
  Serial.print("Sending payload: ");
  Serial.println(payload);
  if (client.publish(publishTopic, (char*) payload.c_str())) {
    Serial.println("Publish OK");
  } else {
    Serial.println("Publish FAILED");
  }
}
}
}

```

OUTPUT SCREENSHOTS



The screenshot shows the IBM Watson IoT Platform dashboard. The device '1234qwerty' is listed with a status of 'Connected' and a device type of 'sensor'. The 'Recent Events' tab is active, showing a table of events. The table has columns for Event, Value, Format, and Last Received. The events listed are all 'Data' events with the value '{\"AlertDistance\":\"99\"}' in 'json' format, received 'a few seconds ago'.

Event	Value	Format	Last Received
Data	{\"AlertDistance\":\"99\"}	json	a few seconds ago
Data	{\"AlertDistance\":\"99\"}	json	a few seconds ago
Data	{\"AlertDistance\":\"99\"}	json	a few seconds ago
Data	{\"AlertDistance\":\"99\"}	json	a few seconds ago
Data	{\"AlertDistance\":\"99\"}	json	a few seconds ago

0 Simulations running

Editing IBM-Project-7480-16588 x Inbox (10,810) - niveda.ec19@bi... Assignment-4 - Wokwi Arduino x How to change folder name in G... +

wokwi.com/projects/348578771835552340

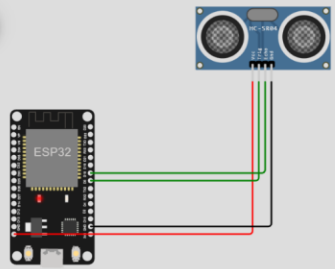
Gmail YouTube Maps Dashboard | BIP MOODLE NI License Activator... SKILLS - BIT Testbook Online Co... ProGrad | Aptitude J... Arrays & Strings - C...

WOKWI SAVE SHARE Assignment-4 Docs

sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4
5 WiFiClient wifiClient;
6
7 #define ORG "mdhfx5"
8 #define DEVICE_TYPE "sensor"
9 #define DEVICE_ID "1234qwerty"
10 #define TOKEN "12345678"
11 #define speed 0.034
12
13 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/Data/fmt/json";
15 char topic[] = "iot-2/cmd/home/fmt/String";
16 char authMethod[] = "use-token-auth";
17 char token[] = TOKEN;
18 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
19 PubSubClient client(server, 1883, wifiClient);
20 void publishData();
21
22 const int trigpin=5;
23 const int echopin=18;
24 String command;
25 String data="";
26
```

Simulation



01:18.506 99%

mdhfx5.messaging.internetofthings.ibmcloud.com

1
subscribe to cmd OK

Sending payload: {"AlertDistance":99}
Publish OK

Type here to search

28°C 6:51 PM 11/17/2022

LINK

<https://wokwi.com/projects/348578771835552340>