Hazardous Area Monitoring for Industrial Plant powered by IOT

ASSIGNMENT 4

Team ID	PNT2022TMID15984
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IOT
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CODE:

```
#include <WiFi.h>

#include <PubSubClient.h>

WiFiClient wifiClient;

#define ORG "22h49t"

#define DEVICE_TYPE "NodeMCU"

#define DEVICE_ID "12345"

#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;

float 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);
```

```cpp
  while (!client.connect(clientId, authMethod, token)) {

    Serial.print(".");

    delay(500);

  }

  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){

    String payload = "{\"Alert distance\":";

    payload += dist;

    payload += "}";

    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");

}

}
```
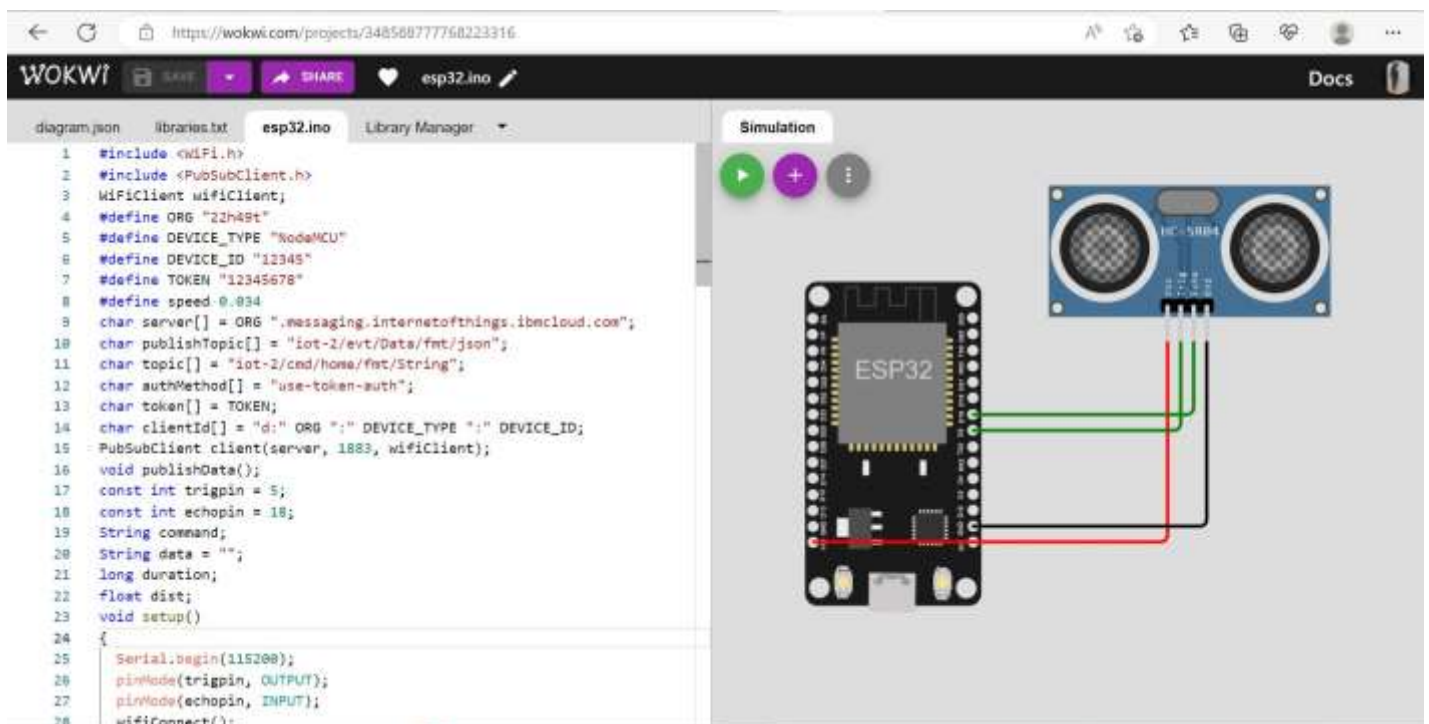
OUTPUT:

Identity	Device Information	Recent Events	State	Logs

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago

WORKWI LINK:

https://wokwi.com/projects/348588777768223316