

CODE :

```
#include <WiFi.h>
#include <PubSubClient.h>
#include <ArduinoJson.h>
WiFiClient wifiClient;
#define ORG "3n45bc"
#define DEVICE_TYPE "98nivetha"
#define DEVICE_ID "98nivethaid"
#define TOKEN "gTlxIHv105MH)D?IfX"
#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["Distance Alert:"]=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");
}
}
}
}

```

sketch.ino

```

1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4 WiFiClient wifiClient;
5 #define ORG "3n45bc"
6 #define DEVICE_TYPE "98nivetha"
7 #define DEVICE_ID "98nivethaid"
8 #define TOKEN "gTlxIHvI05MH)D?IFX"
9 #define speed 0.034
10 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
11 char publishTopic[] = "iot-2/evt/Data/fmt/json";
12 char topic[] = "iot-2/cmd/home/fmt/String";
13 char authMethod[] = "use-token-auth";
14 char token[] = TOKEN;
15 char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
16 PubSubClient client(server, 1883, wifiClient);
17 void publishData();
18 const int trigpin=5;
19 const int echopin=18;
20 String command;
21 String data="";
22 long duration;
23 int dist;
24 void setup()
25 {
26   Serial.begin(115200);
27   pinMode(trigpin, OUTPUT);
28   pinMode(echopin, INPUT);
29 }
30 void loop()
31 {
32   // Trigger the sensor
33   digitalWrite(trigpin, HIGH);
34   delayMicroseconds(10);
35   digitalWrite(trigpin, LOW);
36   delayMicroseconds(2);
37   // Read the distance
38   long duration = pulseIn(echopin, HIGH);
39   // Calculate the distance in centimeters
40   int distance = duration * speed / 2;
41   // Publish the distance
42   publishData();
43   delay(1000);
44 }
45 void publishData()
46 {
47   StaticJsonDocument<256> doc;
48   doc["Distance Alert"] = distance;
49   String json = dtoaToString(doc);
50   client.publish(publishTopic, json);
51 }

```

Simulation

00:32.239 99%

Publish OK

Sending payload: {"Distance Alert":26}

Publish OK

Sending payload: {"Distance Alert":26}

Publish OK

Wowki Link : <https://wokwi.com/projects/347043744012304980>

IBM Watson IoT Platform

3n45bc.internetofthings.ibmcloud.com/dashboard/devices/browse

922119106067@smartinternz.com
ID: 3n45bc

Browse Action Device Types Interfaces

Add Device +

Event	Value	Format	Last Received
Data	{"Distance Alert":26}	json	a few seconds ago
Data	{"Distance Alert":26}	json	a few seconds ago
Data	{"Distance Alert":26}	json	a few seconds ago
Data	{"Distance Alert":26}	json	a few seconds ago
Data	{"Distance Alert":26}	json	a few seconds ago

Items per page 50 | 1-1 of 1 item

1 of 1 page

0 Simulations running