

**Assignment-4**  
**Wowki Simulation**

<b>Assignmet Date</b>	<b>5 th November</b>
<b>Student Name</b>	<b>M.Anusha</b>
<b>Student Roll Number</b>	<b>960219106028</b>
<b>Maximum Mark</b>	<b>2 Mark</b>

**Question :**

Write a code and make a connection in WOKWI for ultrasonic sensor. Whenever distance is less than 100 , send "alert" to IBM cloud and display in device recent events.

**Program:**

```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "zc30p5"
#define DEVICE_TYPE "b11m3edevicetype"
#define DEVICE_ID "b11m3edeviceid"
#define TOKEN "H68iZ)!7uKKD_fvOb1"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Anusha/fmt/json";
char topic[] = "iot-2/cmd/led/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
PubSubClient client(server, 1883, wifiClient);
const int trigpin=5;
const int echopin=18;
String command;
String data="";
long duration;
float dist;
void setup()
```

```

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

void loop() {
  bool isNearby = dist < 100;
  digitalWrite(led, isNearby);
  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(500);
    }
    initManagedDevice();
    Serial.println();
  }
}

void initManagedDevice() {
  if (client.subscribe(topic)) {

```

```

    // Serial.println(client.subscribe(topic));
    Serial.println("IBM 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");
        }

    }
    if(dist>100){
        String payload = "{\"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");
        }
    }
}

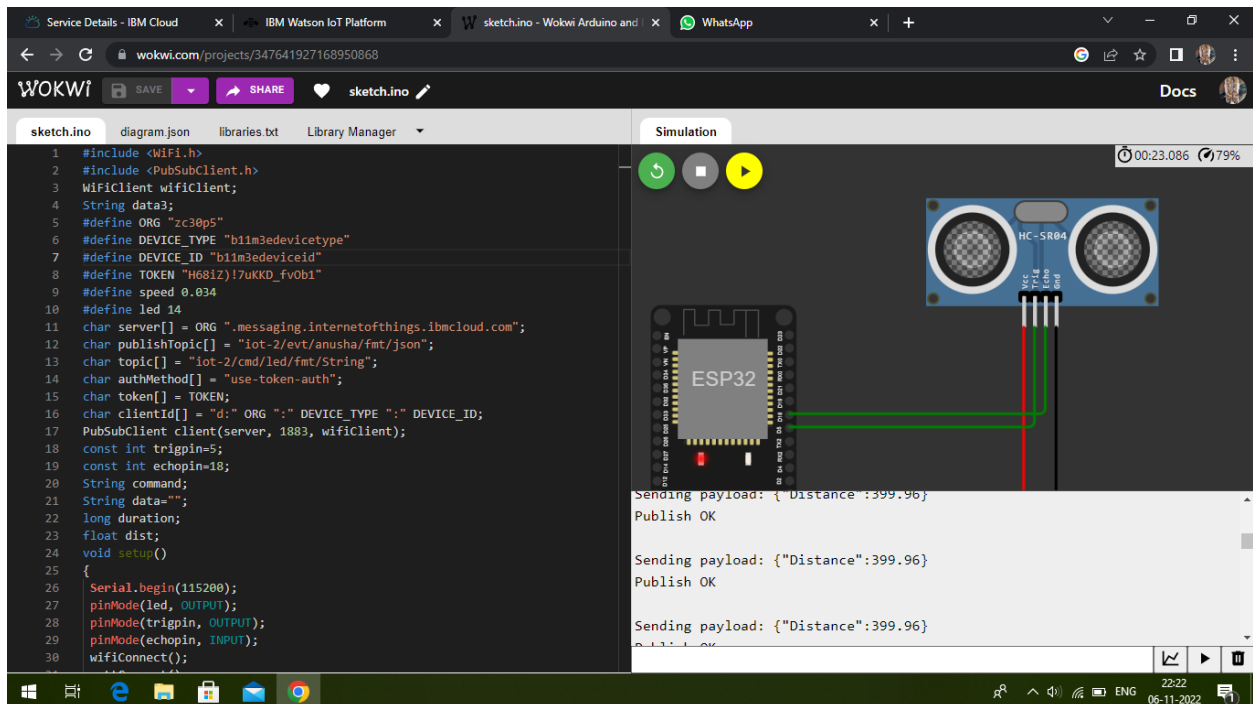
```

}

}

OUTPUT:

WOKWI SIMULATION :



When Distance < 100

Service Details - IBM Cloud x IBM Watson IoT Platform x sketchino - Wokwi Arduino and x WhatsApp

wokwi.com/projects/347641927168950868

WOKWI SAVE SHARE sketchino Docs

sketchino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.h>
2 #include <PubSubClient.h>
3 WiFiClient wificlient;
4 String data3;
5 #define ORG "zc30p5"
6 #define DEVICE_TYPE "b11m3edevicetype"
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14 char authMethod[] = "use-token-auth";
15 char token[] = TOKEN;
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17 PubSubClient client(server, 1883, wificlient);
18 const int trigpin=5;
19 const int echopin=18;
20 String command;
21 String data="";
22 long duration;
23 float dist;
24 void setup()
25 {
26   Serial.begin(115200);
27   pinMode(led, OUTPUT);
28   pinMode(trigpin, OUTPUT);
29   pinMode(echopin, INPUT);
30   wifiConnect();
```

Simulation

00:23.086 79%

Sending payload: {"Alert Distance":89.95}  
Publish OK

Sending payload: {"Alert Distance":89.95}  
Publish OK

Sending payload: {"Alert Distance":89.95}  
Publish OK

22:22 06-11-2022

## When Distance >100

Service Details - IBM Cloud x IBM Watson IoT Platform x sketchino - Wokwi Arduino and x WhatsApp

wokwi.com/projects/347641927168950868

WOKWI SAVE SHARE sketchino Docs

sketchino diagram.json libraries.txt Library Manager

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22 long duration;
23 float dist;
24 void setup()
25 {
26   Serial.begin(115200);
27   pinMode(led, OUTPUT);
28   pinMode(trigpin, OUTPUT);
29   pinMode(echopin, INPUT);
30   wifiConnect();
```

Simulation

00:23.086 79%

Sending payload: {"Distance":181.92}  
Publish OK

Sending payload: {"Distance":181.92}  
Publish OK

Sending payload: {"Distance":181.92}  
Publish OK

22:22 06-11-2022

## IBM CLOUD OUTPUT

Service Details - IBM Cloud | IBM Watson IoT Platform | sketchino - Wokwi Arduino and | WhatsApp

zc30p5.internetofthings.ibmcloud.com/dashboard/devices/browse

IBM Watson IoT Platform

960219106028@smartinternz.com  
ID: zc30p5

Browse Action Device Types Interfaces Add Device

Device: b11m3edevicetype Connected b11m3edevicetype Device Oct 23, 2022 6:09 AM

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
anusha	{"Distance":181.95}	json	a few seconds ago
anusha	{"Distance":181.95}	json	a few seconds ago
anusha	{"Distance":181.95}	json	a few seconds ago
anusha	{"Distance":181.95}	json	a few seconds ago
anusha	{"Distance":182}	json	a few seconds ago

0 Simulations running

**WOKWI LINK:**

<https://wokwi.com/projects/347641927168950868>