

Assignment-4

Date	24 October 2022
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Team ID	PNT2022TMID30849
Project Name	Industry-specific intelligent fire management.

Question :

Write code and connections in wokwi for ultrasonic sensors. That whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.

Upload document with wokwi share link and images.

Wokwi:

<https://wokwi.com/projects/348474572316607060>

Code:

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

WiFiClient wifiClient;

#define ORG "wix1xj"
#define DEVICE_TYPE "Abinaya"
#define DEVICE_ID "Sekar"
#define TOKEN "kNX?*sFyW!b2w*X3Vj"
#define speed 0.034

char server[] = ORG".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/status1/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);
        while (!client.connect(clientId, authMethod, token))
            { Serial.print("."); delay(500);
        }
        initManagedDevice();
        Serial.println();
    } }
    void initManagedDevice() { if
        (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");
            }
        }
    }

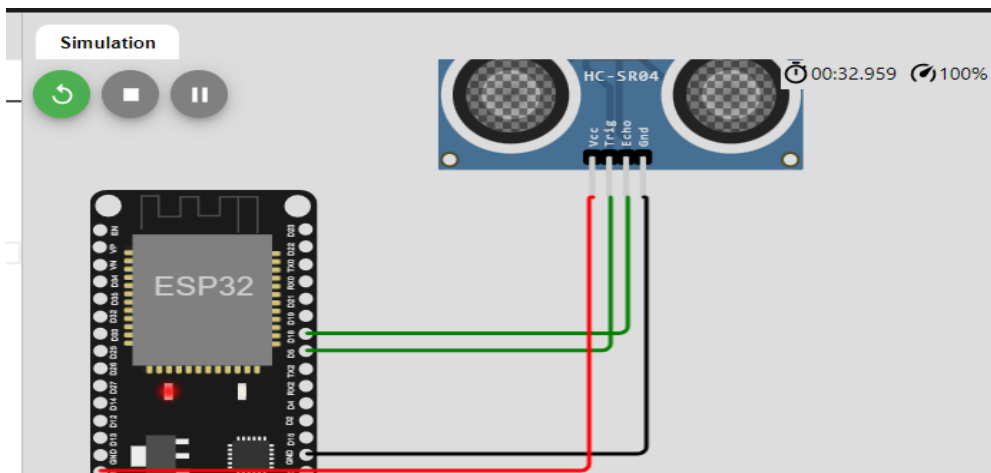
```

```

    }
}
}

```

Diagram:



Wokwi Output:

IBM Cloud

W sketch.ino - Wokwi Arduino and I x +

wokwi.com/projects/348474572316607060

TANGEDCO JA_Accounts(11220... New folder CMDA - Official Rec...

WOKWI

SAVE SHARE sketch.ino Docs

sketch.ino diagram.json libraries.txt Library Manager

```

1  #include <WiFi.h>
2  #include <PubSubClient.h>
3
4  WiFiClient wificlient;
5
6  #define ORG "Wix1xj"
7  #define DEVICE_TYPE "Abinaya"
8  #define DEVICE_ID "Sekan"
9  #define TOKEN "KXK2*sFyWlb2w*X3Vj"
10 #define speed 0.034
11
12
13 char server[] = ORG".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/event_1/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 const int trigpin=5;
22 const int echopin=18;
23 String command;
24 String data="";
25 long duration;
26 float dist;
27 void setup()
28 {
29   Serial.begin(115200);

```

Simulation

00:32.959 100%

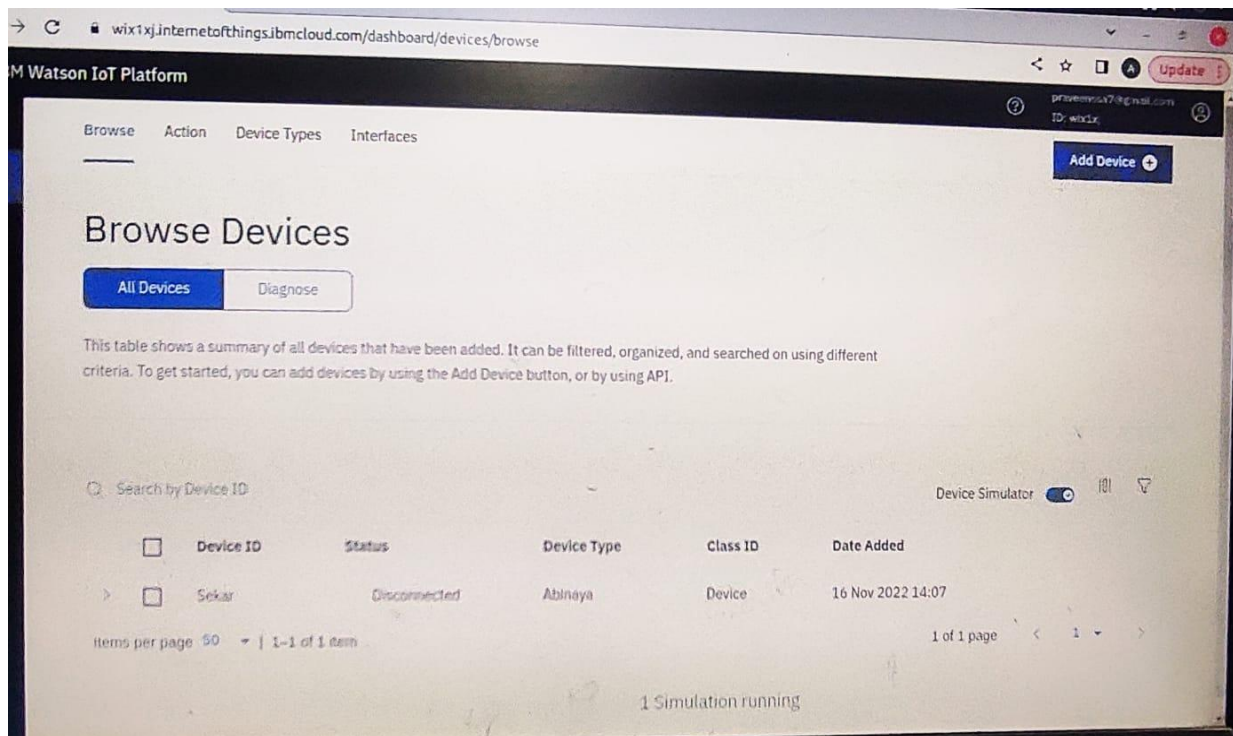
Connecting to Wifi..Wifi connected, IP address: 10.10.0.2

Reconnecting MQTT client to Wix1xj.messaging.internetofthings.ibmcloud.com

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Type here to search

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IBM cloud output:

