

ASSIGNMENT -4

IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

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QUESTION:

Write code and connections in wokwi for ultrasonic sensor. 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 of ibm cloud.

CODE:

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

WiFiClient wifiClient;
#define ORG "9v4yiu"

#define DEVICE_TYPE "Mydevice_Mahesh"
#define DEVICE_ID "47272"
#define TOKEN
"4MI0KofLVtcGBbSkqW"
#define speed 0.034

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/abcd_1/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="";
String lat="14.167589";
String lon="80.248510";
String name="point2";
```

```
String icon="";  
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()
{

```

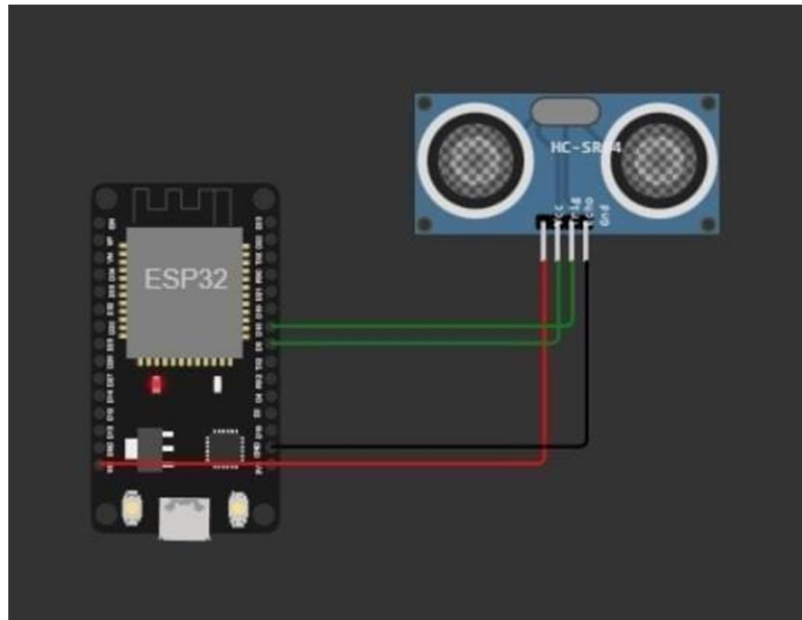
```

    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){
    dist=100-dist; icon="fa-
    trash";
} else{ dist=0;
    icon="fa-trash-
    o";
}
DynamicJsonDocument
doc(1024);String payload;
doc["Name"]=name;
doc["Latitude"]=lat;
doc["Longitude"]=lon;
doc["Icon"]=icon;
doc["FillPercent"]=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");
}
}

```

CONNECTIONS:



OUTPUT:

WOKWI

simulation

```
1 #include <ufl.h>
2 #include <PubSubClient.h>
3 #include <ArduinoJson.h>
4
5 WiFiClient wificlient;
6
7 #define ORG "fvdupc"
8 #define DEVICE_TYPE "abcd"
9 #define DEVICE_ID "rasp"
10 #define TOKEN "12345678"
11 #define speed 0.034
12
13 char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
14 char publishTopic[] = "iot-2/evt/abcd_1/fwt/json";
15 char topic[] = "iot-2/cmd/home/fwt/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 String lat="14.167589";
27 String lon="80.248510";
28 String name="point2";
29 String icon="";
30
31 long duration;
32 int dist;
33
34 void setup()
35 {
```

simulate

subscribe to cmd OK

Sending payload:
{ "Name": "point2", "Latitude": "14.167589", "Longitude": "80.248510", "Icon": "fa-trash-o", "FillPercent": 0 }
Publish OK



Browse Action Device Types Interfaces

Add Device +

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

| Event | Value | Format | Last Received |
|---------|----------------------|--------|-------------------|
| event_1 | {"AlertDistance":63} | json | a few seconds ago |
| event_1 | {"AlertDistance":68} | json | a few seconds ago |
| event_1 | {"AlertDistance":74} | json | a few seconds ago |
| event_1 | {"AlertDistance":82} | json | a few seconds ago |
| event_1 | {"AlertDistance":87} | json | a few seconds ago |

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1 Simulation running

