

## ASSIGNMENT -4

### IOT BASED SAFETY GADGET FOR CHILD SAFETY MONITORING AND NOTIFICATION

TEAM ID : PNT2022TMID20466

ROLL NO : 727819TUCS152

NAME : RAHAMATH SHIHANA S

#### 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 "fvdupc"
```

```
#define DEVICE_TYPE
"abcd"#define DEVICE_ID
"rasp"#define TOKEN
"12345678"
#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()
{

```

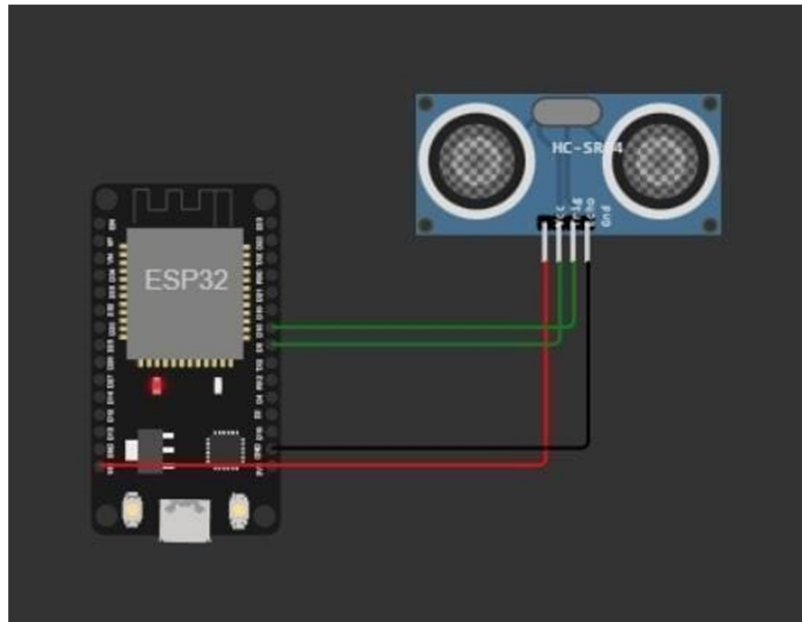
```

    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

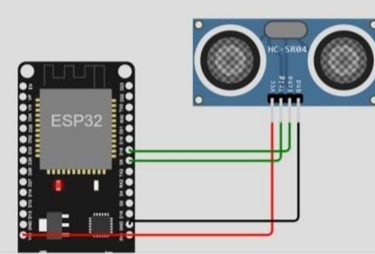
sketch.ino diagram.json libraries.txt Library Manager

```
1 #include <WiFi.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/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
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 {
```

Simulation

00:06.799

Restart the simulation



subscribe to cmd OK

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

Publish OK

IBM Watson IoT Platform

412719104042@smartinternz.com  
ID: hedupc

Add Device

BrowseActionDevice TypesInterfaces

Search by Device ID

Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location
abcd_1	Connected	abcd	Device	Oct 26, 2022 7:33 PM	

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
event_1	{"alertdistance":86}	json	a few seconds ago
event_1	{"alertdistance":57}	json	a few seconds ago
event_1	{"alertdistance":27}	json	a few seconds ago
event_1	{"alertdistance":26}	json	a few seconds ago
event_1	{"alertdistance":48}	json	a few seconds ago

1 Simulation running

Show desktop

