

## 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 sharelink 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"1234  
5678"  
#define speed0.034
```

```
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 com  
mand;String data="";  
String  
lat="14.167589";String  
lon="80.248510";String n
```

```

ame="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("WiFiconnected,IPaddress:");
    Serial.println(WiFi.localIP());
}

void mqttConnect(){
    if(!client.connected()){
        Serial.print("ReconnectingMQTTclientto");Serial.println(server);while(!client.connect(clientId,authMethod,token)){Serial.print(".");delay(1000);
        }
        initManagedDevice();
        Serial.println();
    }
}

```

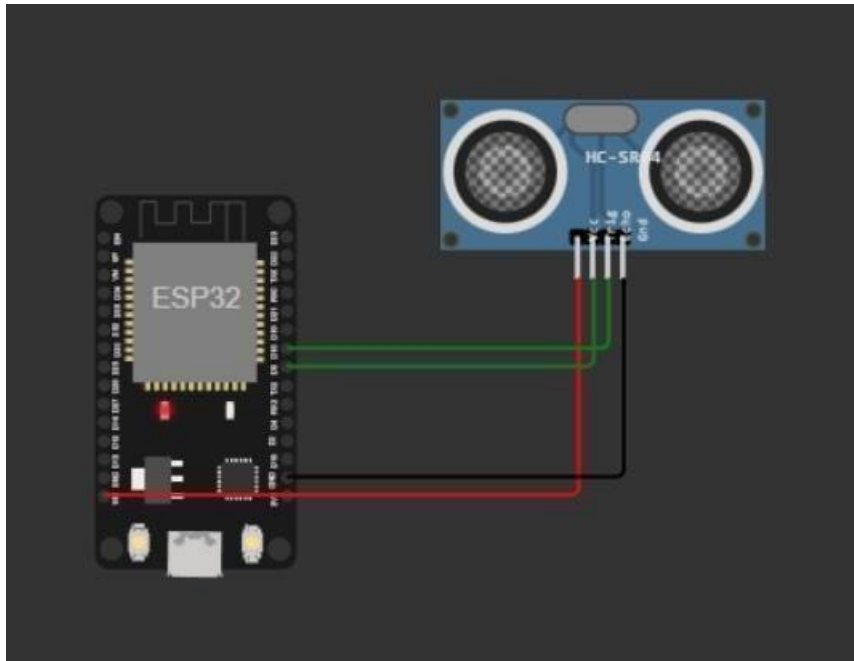
```

void initManagedDevice()
{
    if (client.subscribe(topic))
        { Serial.println(client.subscribe(topic));Serial.println("subscribet
        ocmdOK");
        }else{
            Serial.println("subscribetocmdFAILED");
        }
}
void publishData()
{
    digitalWrite(trigpin,LOW);digital
    IWrite(trigpin,HIGH);delayMicro
    seconds(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["Fill
    Percent"]=dist;serializeJson(doc,
    payload);delay(3000);Serial.prin
    t("\n");
    Serial.print("Sendingpayload:");
    Serial.println(payload);
    if(client.publish(publishTopic,(char*)payload.c_str())){
        Serial.println("PublishOK");
    }else{
        Serial.println("PublishFAILED");
    }
}

```

## CONNECTIONS:



## OUTPUT:

**WOKWI** [SAVE] [SHARE] [Docs]

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: fwtpuc

Browse

Action

Device Types

Interfaces

Add Device

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

