

ASSIGNMENT-4

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Maximum marks	2 marks

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors.

Whenever distance is less than 100cm 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>WiFiClient;

twifiClient;

#defineORG "o1z9pr"
#define DEVICE_TYPE
"raspberrypi"#define DEVICE_ID
"USE YOUR ID"#defineTOKEN"USE
YOURTOKEN"
#define speed0.034

char server[] =
ORG".messaging.internetofthings.ibmcloud.com";char publi
shTopic[] = "iot-
2/evt/raspberrypi_1/fmt/json";chartopic[]="iot-
2/cmd/home/fmt/String";
char authMethod[] = "use-token-
auth";chartoken[] = TOKEN;
```

```
char clientId[]="d:ORG":"DEVICE_TYPE":"DEVICE_ID";
PubSubClient client(server, 1883,
wifiClient);void publishData();
```

```
const int
trigpin=5;const int echop
in=18;
String command;
String data="";
```

```
long
duration;float
dist;
```

```
void setup()
{
    Serial.begin(115200);pinMode(tr
igpin, 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(client.subscribe(topic));
        Serial.println("subscribetocmdOK");
    }
    else {
        Serial.println("subscribetocmdFAILED");
    }
}

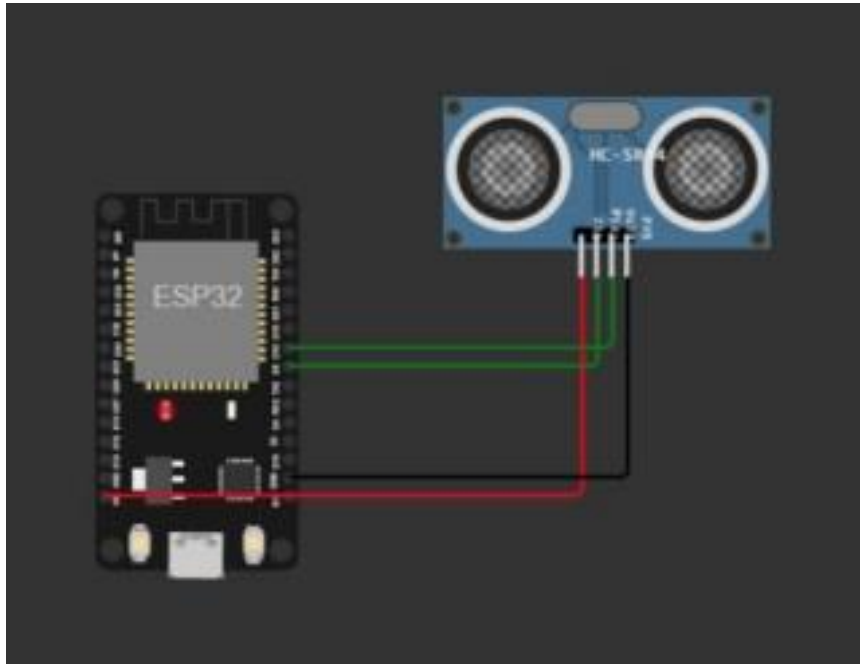
void publishData()
{
    digitalWrite(trigpin,LOW);
    digitalWrite(trigpin,HIGH);delayMicroseconds(10);digitalWrite(
trigpin,LOW);
    duration=pulseIn(echopin,HIGH);dis
t=duration*speed/2;if(dist<100){
        Stringpayload="{\"Alertdistance\":";
        payload +=
        dist;payload+=
        "\"}";

        Serial.print("\n");Serial.print("Sen
ding payload:
");Serial.println(payload);
        if(client.publish(publishTopic,(char*)payload.c_str()))
        {Serial.println("PublishOK");
        } else {
            Serial.println("PublishFAILED");
        }
    }
}

```



CONNECTIONS:



OUTPUT:

