

**ASSIGNMENT 4
WOKWI PROGRAM**

Assignment Date	23 OCT 2022
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Maximum Marks	2 Marks

Team ID : PNT2022TMID06075

PROGRAM

Smart Waste Management System for Metropolitan Cities

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events. Uplode document with wokwi share link and images of ibm cloud.

CODE:

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

WiFiClient wifiClient;

String data3;

#define ORG "ztcz45"

#define DEVICE_TYPE "naveen"
#define DEVICE_ID "naveen123"
#define TOKEN "123456789"

#define speed 0.034
#define led 14

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/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(led, OUTPUT);
```

```
  pinMode(trigpin, OUTPUT);
```

```
  ...
```

```
[10:32 pm, 23/10/2022] Gogul B.E CSE: }
```

```
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("IBM 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 = "{ \"Normal 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");
    }
  }
}
)

```

```

if(dist>101 && dist<111){
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("Warning crosses 110cm -- it automatically of the loop");
digitalWrite(led,HIGH);
}else {
Serial.println("Publish FAILED");
}

}

void callback(char* subscribeTopic, byte* payload, unsigned int payloadLength){
Serial.print("callback invoked for topic:");

Serial.println(subscribeTopic);

for(int i=0; i<payloadLength; i++){
dist += (char)payload[i];
}

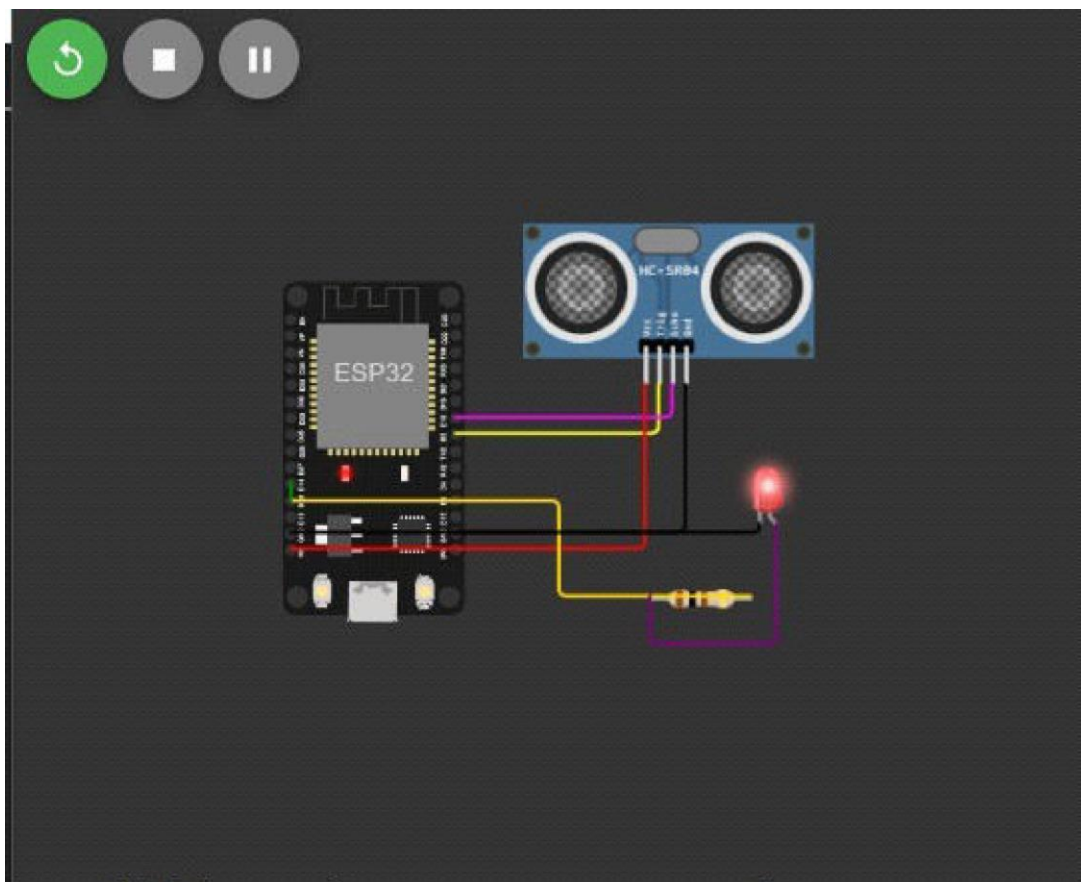
Serial.println("data:" + data3);

if(data3=="lighton"){
Serial.println(data3);
}
}

```

out put:





Publish OK

Sending payload: {"Normal Distance":89.95

Publish OK

Sending payload: t"Normal Distance":89.95

Publish OK

Sending payload: {"Normal Distance" :89.95}-

Publish OK

Sending payload: "Normal Distance":89.95}

Publish OK

Sending payload: := "Normal Distance":89.95}

Publish OK

2. When distance cross 100 cm it wil show ALERT worning message distance

The screenshot displays the DM Workspace IoT Platform interface. On the left, the Arduino IDE shows the following code:

```

1  #include <Arduino.h>
2  #include <Wire.h>
3  #include <OneWire.h>
4  #include <DallasTemperature.h>
5  #include <Adafruit_DS18B20.h>
6  #include <Adafruit_BME280.h>
7  #include <Adafruit_SHT1x.h>
8  #include <Adafruit_SHT3x.h>
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100 #include <Adafruit_SHT3x.h>

```

The right pane shows the device's status and a table of recent events:

Identify	Device Information	Recent Events	Sta.	Logs
The recent events Listed shoal. Ewe stream of data thel is coing and go mg from :Ps device.				
Emp				
Data	1'A:en disnce:110.98;		Por.	a .. second
De.	Meet distance 110.;		Pon	a ren. second
O.	("Mot chatece":110.;		P-	ow second
Data	['Alert distance':1103e;		g*	a heersecc.ad
D.	Meet distance.:110.98)		ism	slew second

Items per page 50 11.1 of them 1 of 1 pa.

3. When it cross above 110 cm it today move to if state once it reduce to 110 it on again

Connection information:

Basic conntection information about this device.

Organization ID

• ztcz45

Device Type
Device ID

• naveen
naveen123

Authentication Method : use-token-auth

Authentication Token ●

123456789

naveen123 Connected naveen

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
Data	{"Normal Distancer":89.96;	json	a =e..v second!
Data	{"Normal Distance":89.95}	json	a :ei.q second!
Data	{"Normal Distancer":89.95}	json	a :e.... second!
Data	{"Normal Distance": 9.9E]	json	a 'ea second!
Data	{"Normal Distance'": 89,95]	json	a few second!

L I N C K :

<https://wokwi.com/projects/346329704680129106>