ASSIGNMENT 4

WOKWI PROGRAM

Assignment Date	**23 OCT 2022**
Student Name	**SURENTHAR N.T**
Student Roll Number	**1902242**
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[] = Not-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);
```

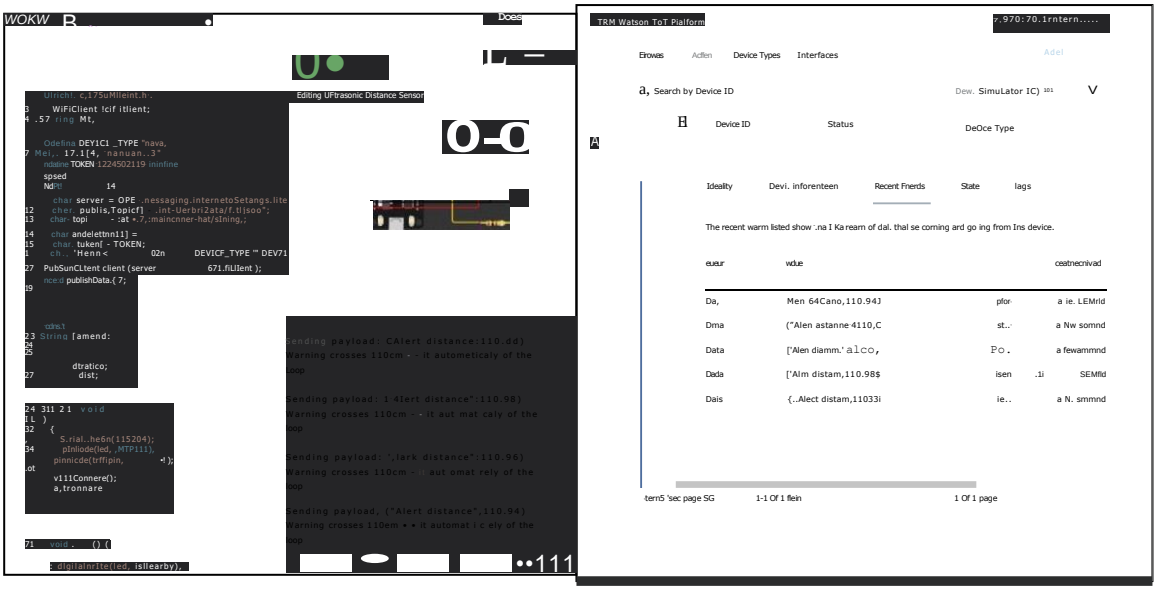
```
void publishData();



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 (Iclient.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");



  }
```

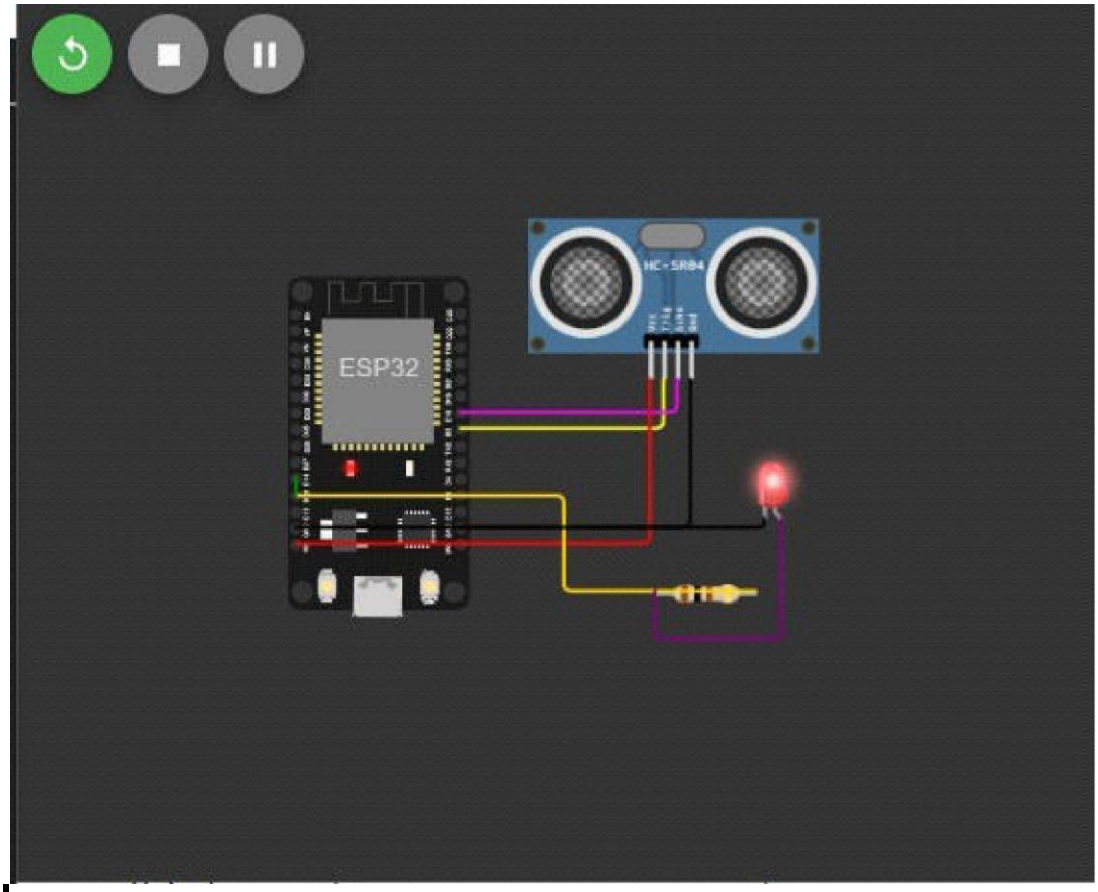
```
)
 if(dist>101 && dist<111){
 String payload = "{\"Alert distance\":";
 payload += dist;
 payload += "}";

 Serial.print("\n");
 Serial.print("Sending payload: ");
 Serial.println(payload);

  if(client.publish(publishTopic, (char*) payload.c_str())) {
  Serial.println("Warning crosses 110cm -- it automaticaly 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);
```

```
  digitalWrite(Ied,HIGH);

}

data3=";
}
```

out put:



1.When distance under 100 cm it wil show normal distance.



Publish OK

Sending payload: {""Normal Distanceu:89.95
Publish OK

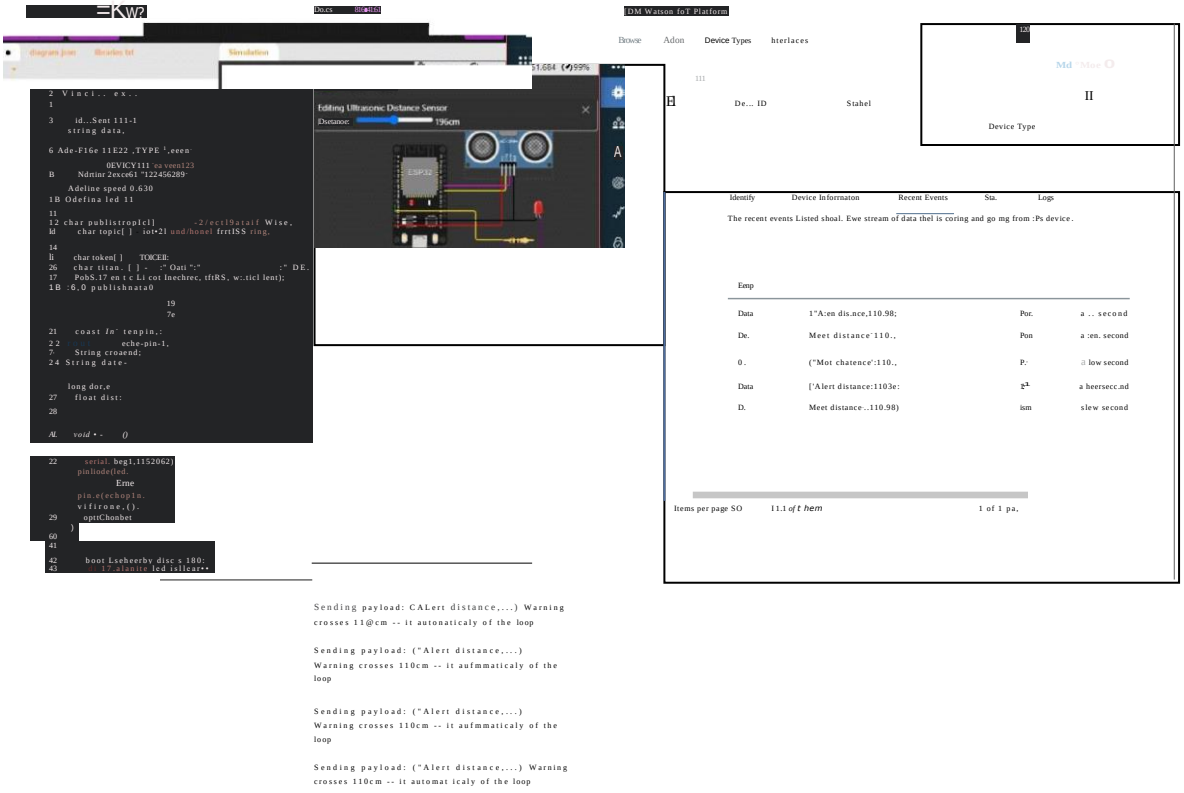
Sending payload: t"Normal Distanceu:89.95
Publish OK

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



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 • **naveen**

Device ID **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 corning and going from this device.

Event	Vatue	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