NAME : SAKTHIVEL K

REG NO : 210619205040

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);
```

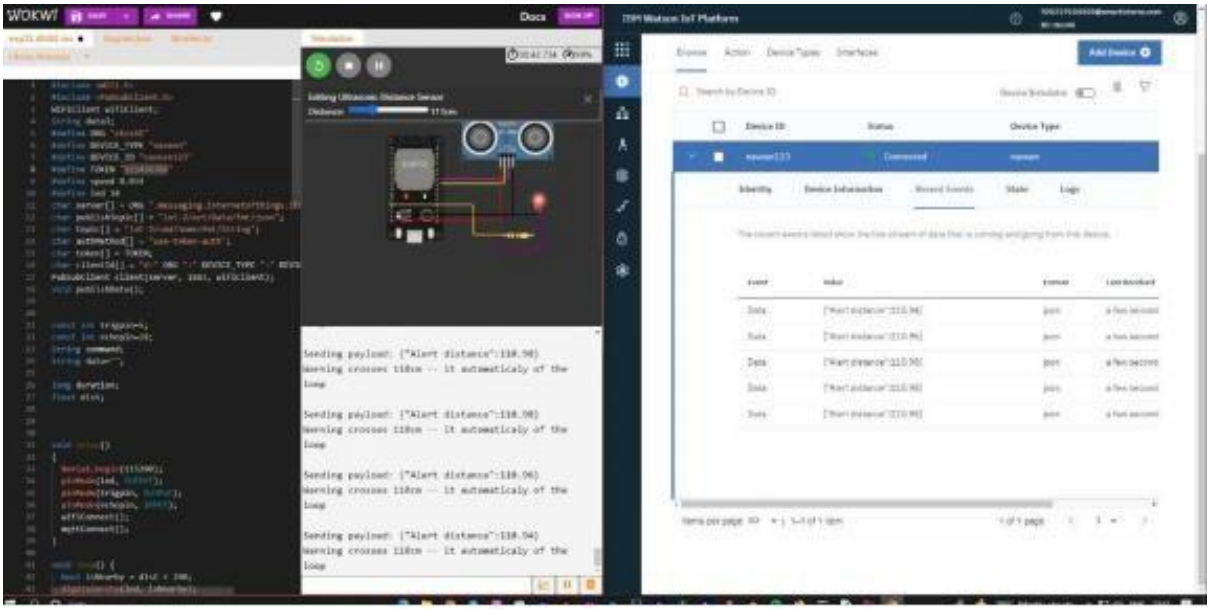
```
void publishData();
const int trigpin=5;
const int
echopin=18; String
command; String
data=""; long
duration; float dist;
void setup()
{
 Serial.begin(115200);
pinMode(led, OUTPUT);
pinMode(trigpin, OUTPUT);
 …
[10:32 pm, 23/10/2022] Gogul B.E CSE:
} void mqttConnect() { if
(!client.connected()) {
 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.subscrib
e(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");
 }
```

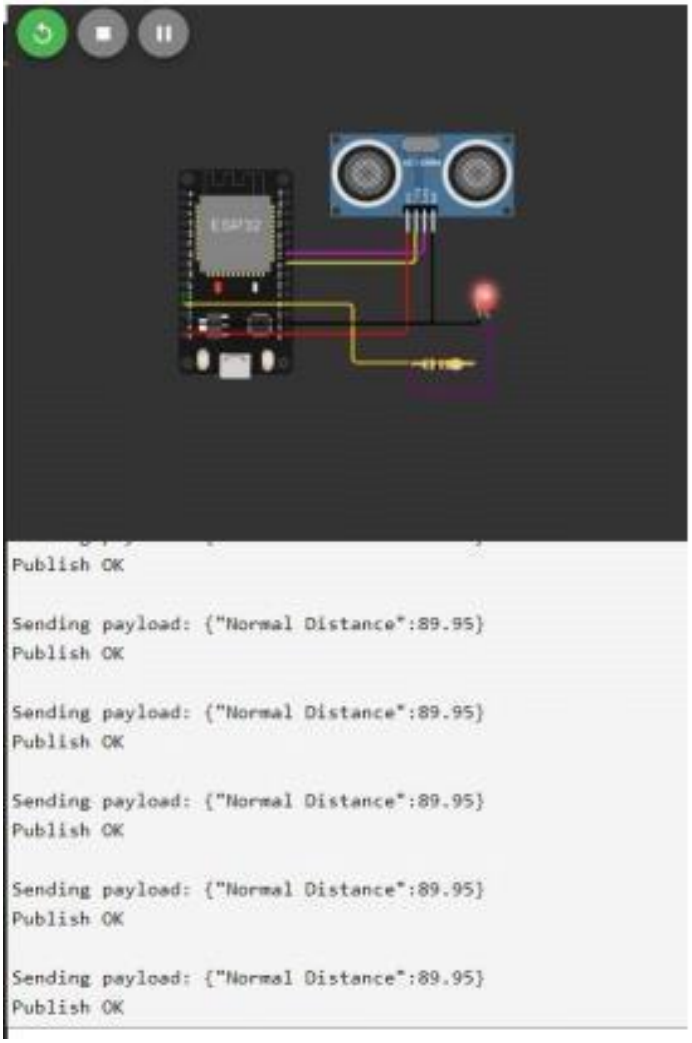
```
 }
if(dist>101 && dist<111){
String payload = "{\"Alert distance\":";
payload += dist;  payload += "}";
 Serial.print("\n");
 Serial.print("Sending payload: ");
Serial.println(payload);   if(client.publish(publishTopic,
(char*) payload.c_str())) {
 Serial.println("Warning crosses 110cm -- it automaticaly 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(led,HIGH);

}

data3="";

}
```

output:



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

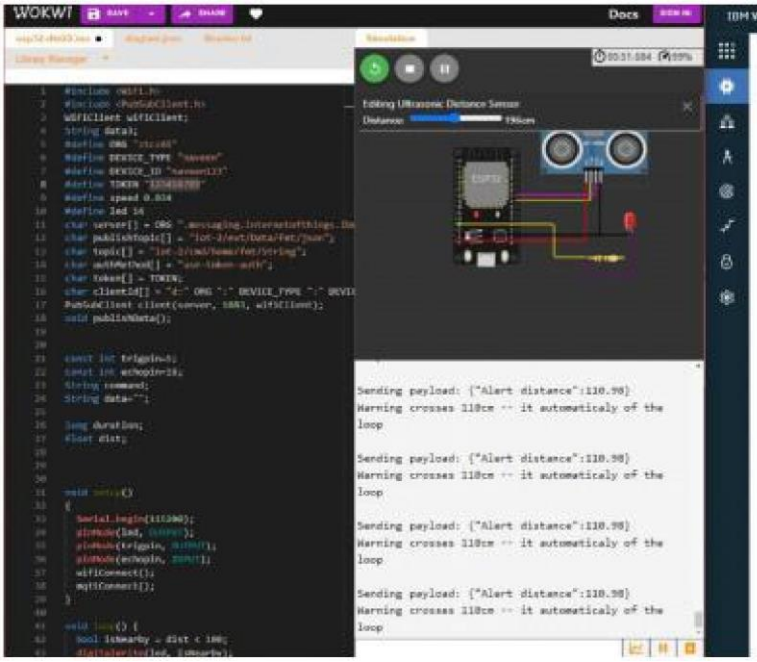


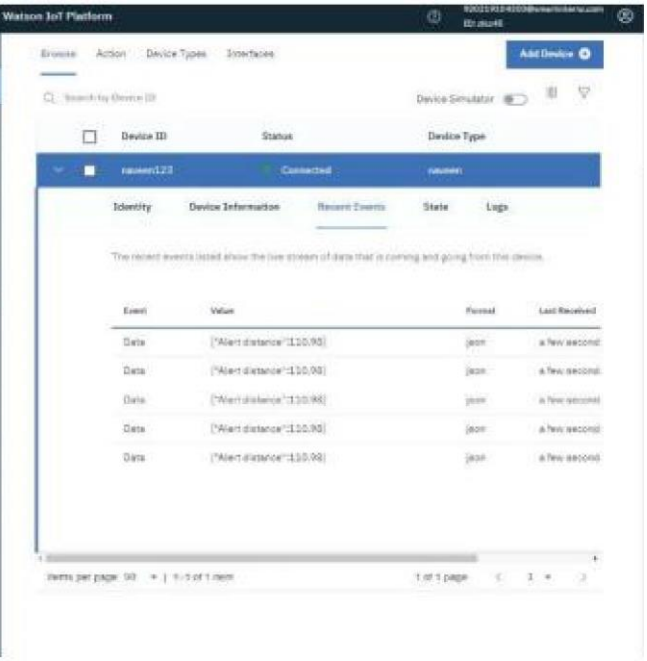
2.When distance cross 100 cm it will show ALERT warning message distance

3.When it cross above 110 cm it today move to iff state once it

reduce to 11o it on again

Connection information:





Basic conntection information about this device.

Organization ID : ztcz45

Device Type : THOL

Device ID : THOL123

Authentication Method : use-token-auth Authentication Token : 123456789