ASSIGNMENT 4

Date	24 Oct 22
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Project Name	Smart waste management for metropolitan cities-IOT based

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 share link and images of ibm cloud **CODE:**

```
#include <WiFi.h>
#include <PubSubClient.h> WiFiClient
wifiClient;


#define ORG "nhpwjc"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "USE YOUR ID"
#define TOKEN "USE YOUR TOKEN"
#define speed 0.034
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-tokenauth";
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;
```

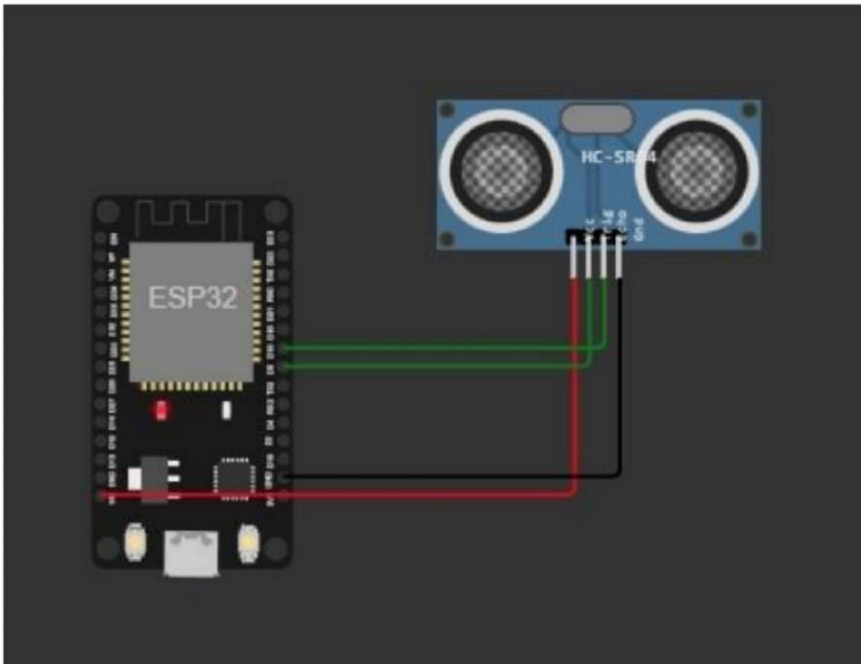
```
 void
setup()
{
  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
```

```
  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("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("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){
```

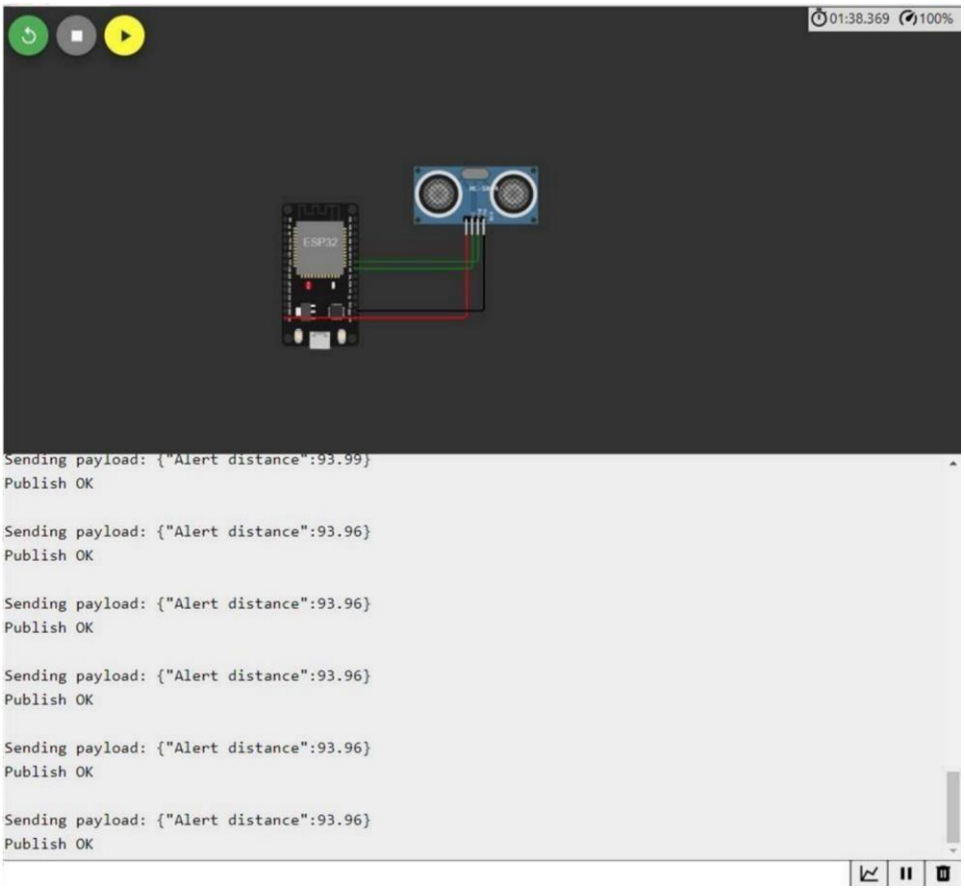
```
    String payload = "{\"Alert distance\":";
    payload += dist;  payload += "}";
    Serial.print("\n");
    Serial.print("Sending payload: "); Serial.println(payload);
```

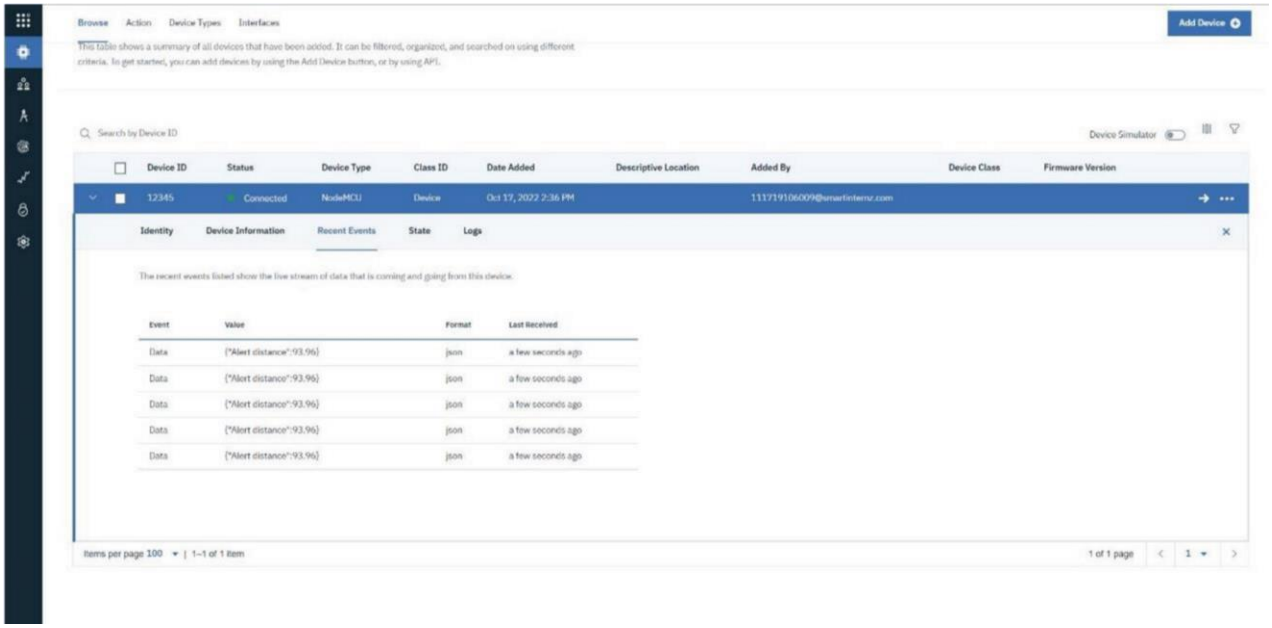
```
    if (client.publish(publishTopic, (char*) payload.c_str())) {
      Serial.println("Publish OK");
    } else {
      Serial.println("Publish FAILED"); }
  }
}
```

CONNECTIONS:



OUTPUT:





WOKWI LINK -
https://wokwi.com/projects/346405970317935188