ASSIGNMENT 4

Date	4/10/22
Project Name	Smart Waste Management System for metropolitan cities

Write code and connections in wokwi for ultrasonic sensor.

Whenever distance is less than 100 cms send "alert" to ibm cloud and displayin device recent events.

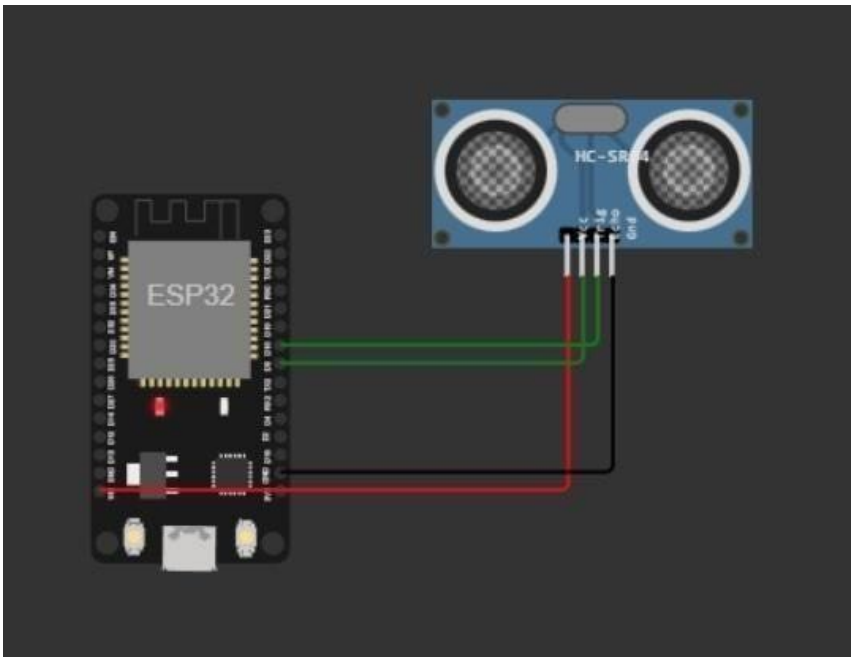
Upload document with wokwi share link and images of ibm cloud **CODE:**

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

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

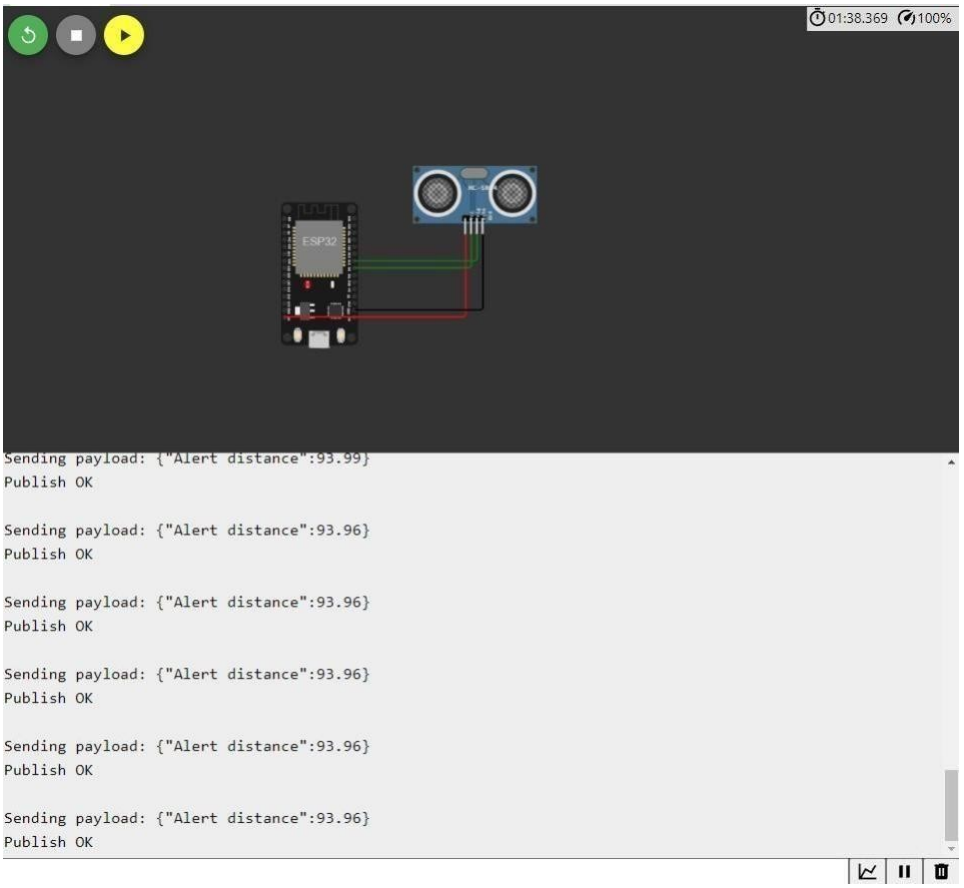
```
  pinMode(echopin, INPUT);
  wifiConnect();mqttConnect();
} void loop()

  {  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
    cmdOK");
  } else {
    Serial.println("subscribe to cmd FAILED"); } }
voidpublishData()
{ digitalWrite(trigpin,LOW); digitalWrite(trigpin,HIGH);
```

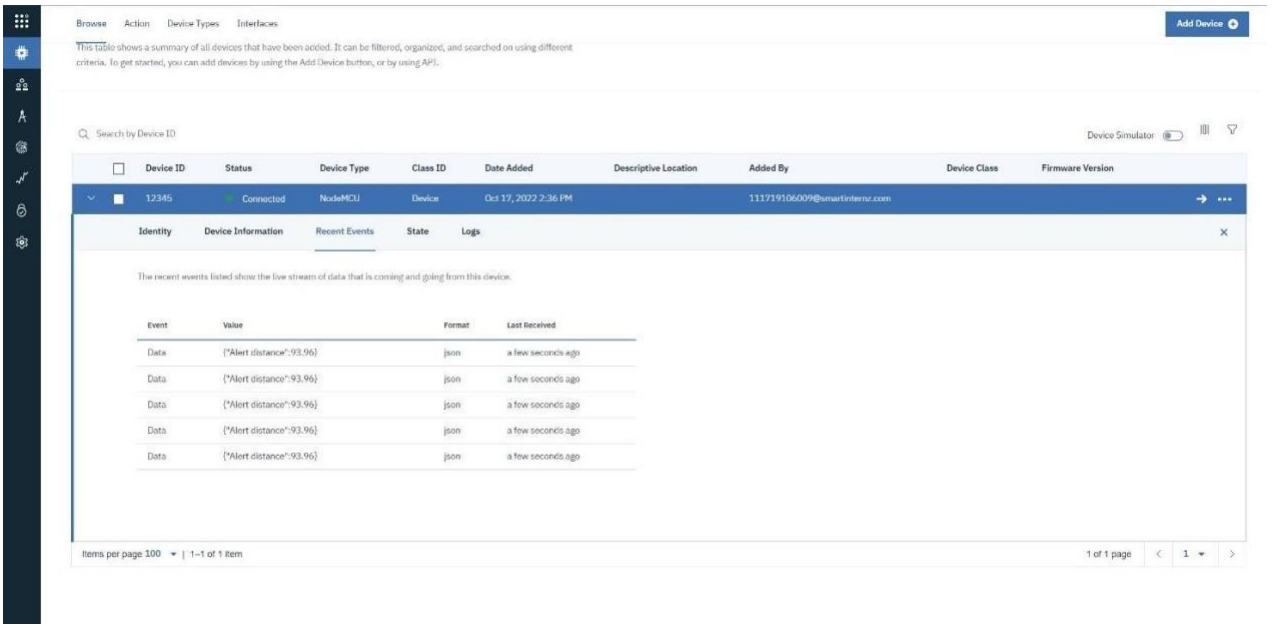
```
  delayMicroseconds(10);
  digitalWrite(trigpin,LOW);
  duration=pulseIn(echopin,HIGH);
  dist=duration*speed/2; if(dist<100)
  {  Stringpayload = "{\"Alert
  distance\":"; payload +=dist;  payload
  += "}";
    Serial.print("\n");
    Serial.print("Sending payload: "); Serial.println(payload);  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