

ASSIGNMENT IV

Ultrasonic Sensor

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CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
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[] = "usetoken-
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(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);

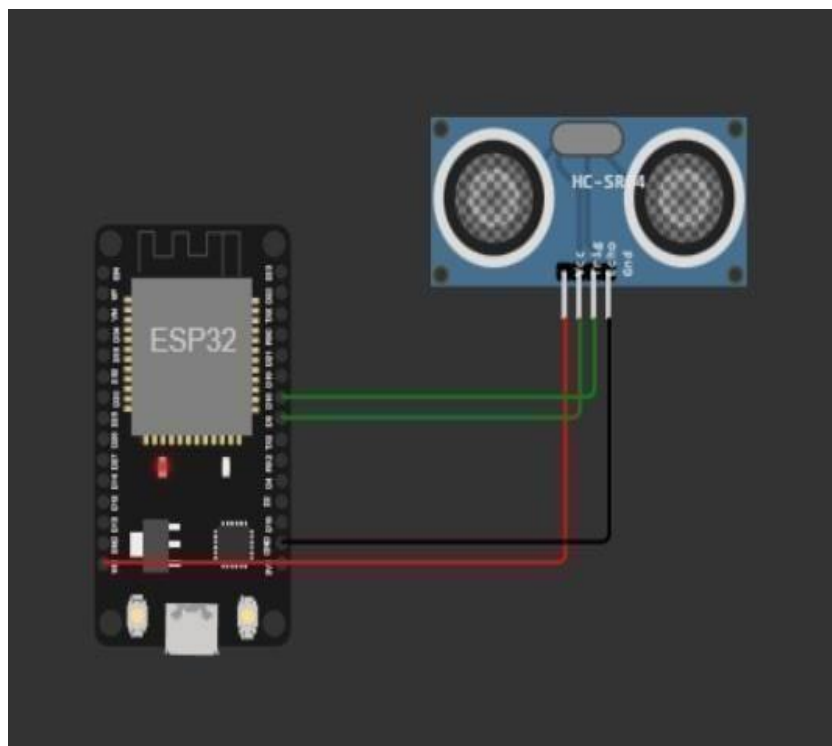
```

```

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"); } }
}

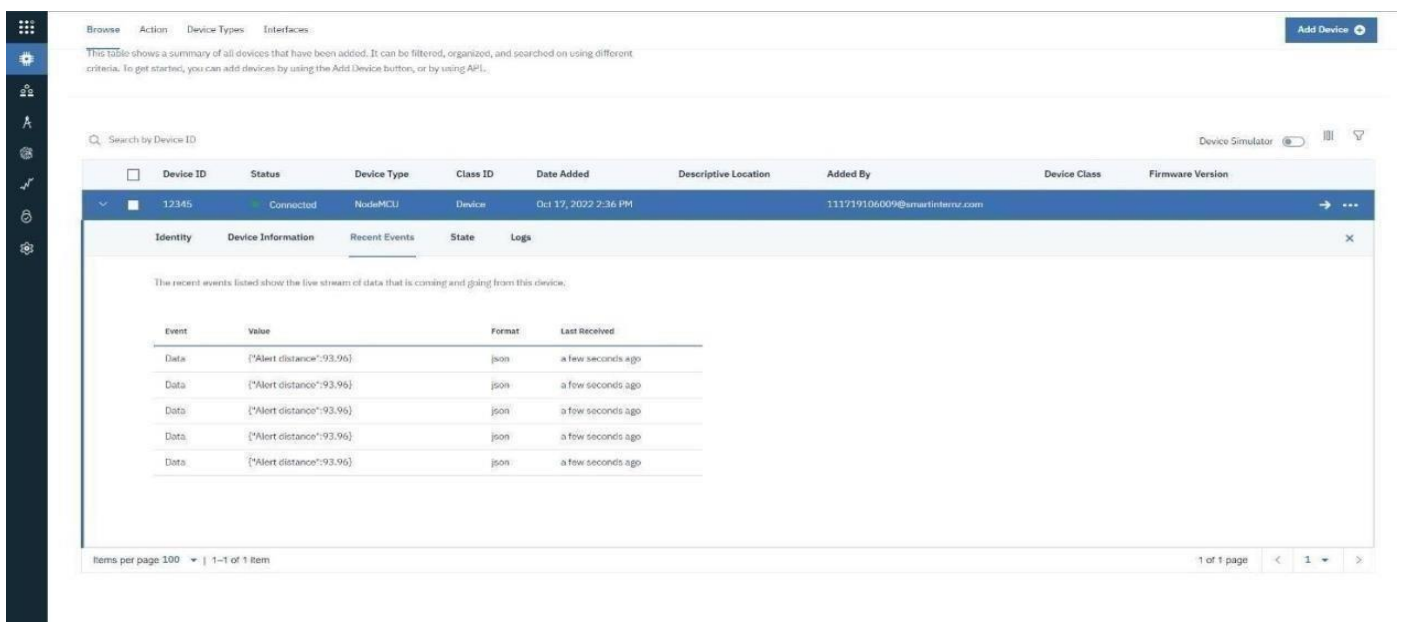
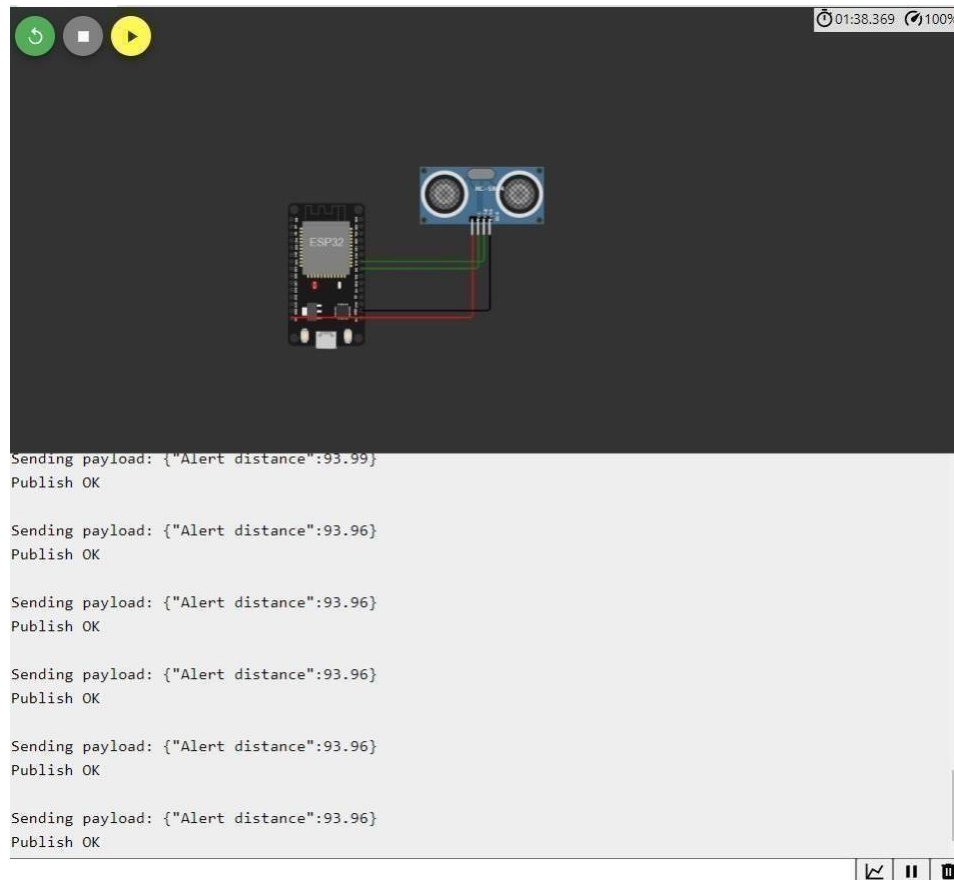
```

CONNECTIONS:



X

OUTPUT:



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