IBM NALAIYA THIRAN

Assignment – 4

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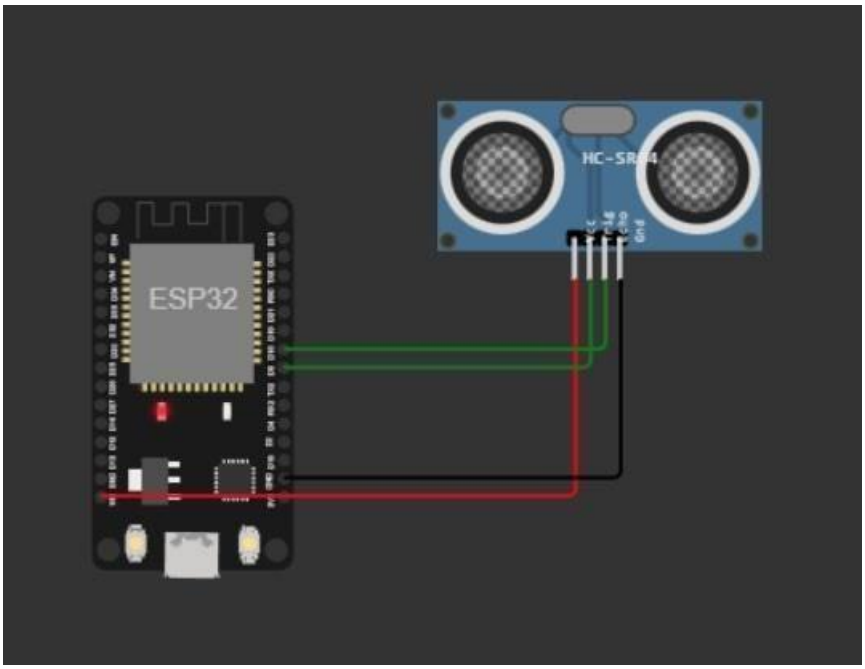
CODE:

```
#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);
```

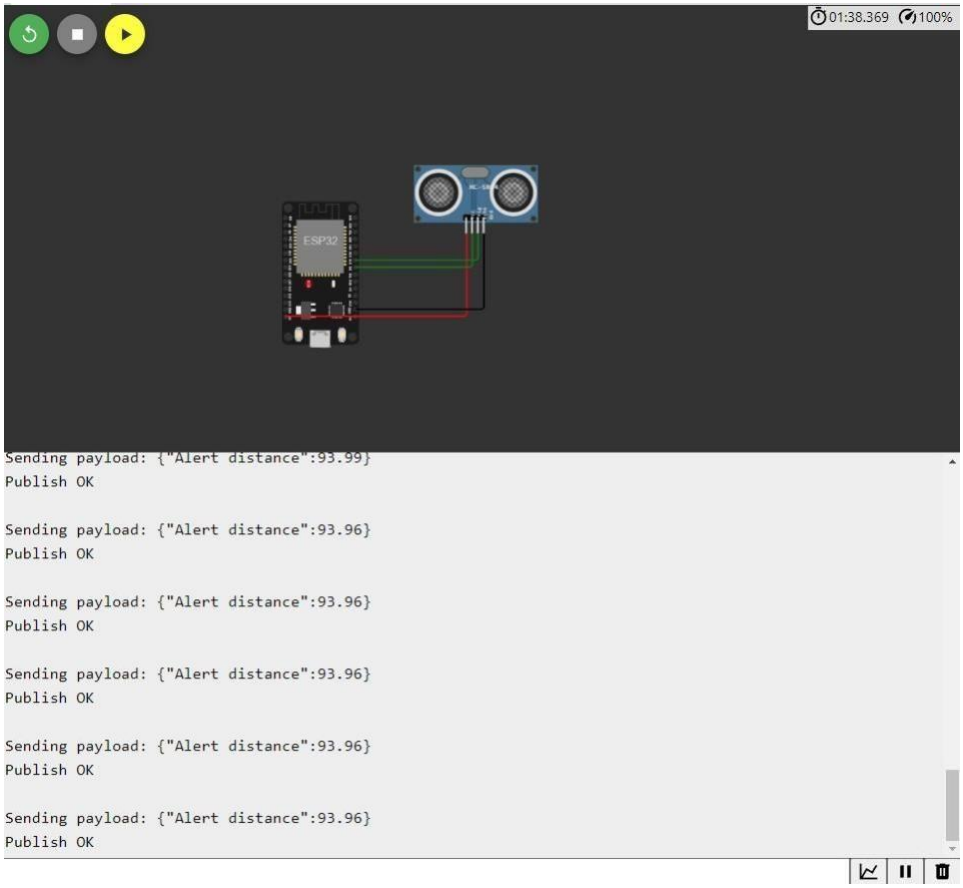
```
  pinMode(echopin, INPUT); wifiConnect();
  mqttConnect();
} void loop() {  publishData();

  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:


01:38.369
100%
ESP32
Sending payload: {"Alert distance":93.99}
Publish OK
Sending payload: {"Alert distance":93.96}
Publish OK
Sending payload: {"Alert distance":93.96}
Publish OK
Sending payload: {"Alert distance":93.96}
Publish OK
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Publish OK