ASSIGNMENT IV
Ultrasonic Sensor

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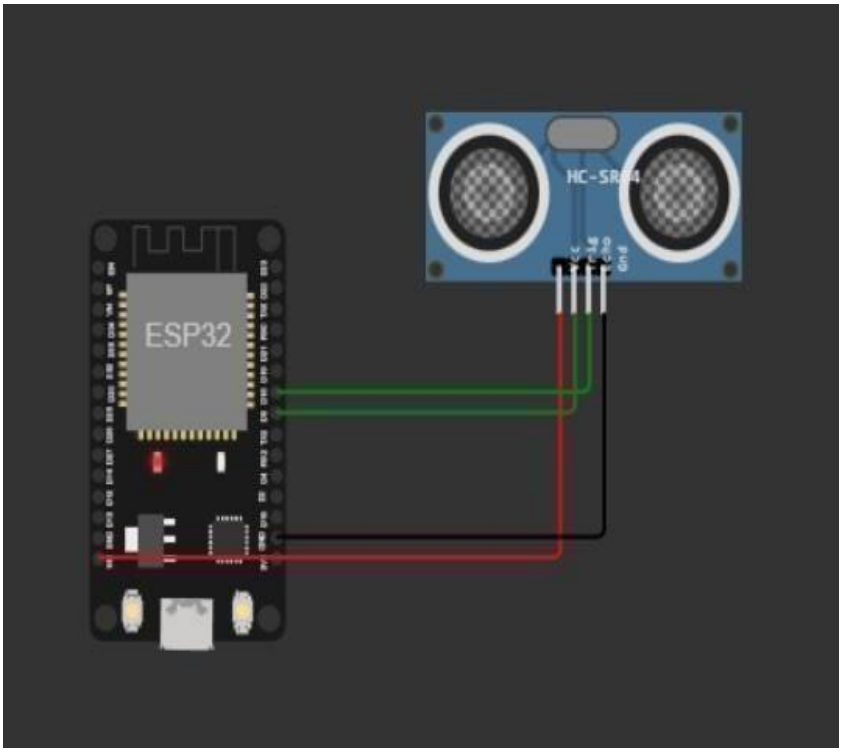
CODE:

```
#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);
```

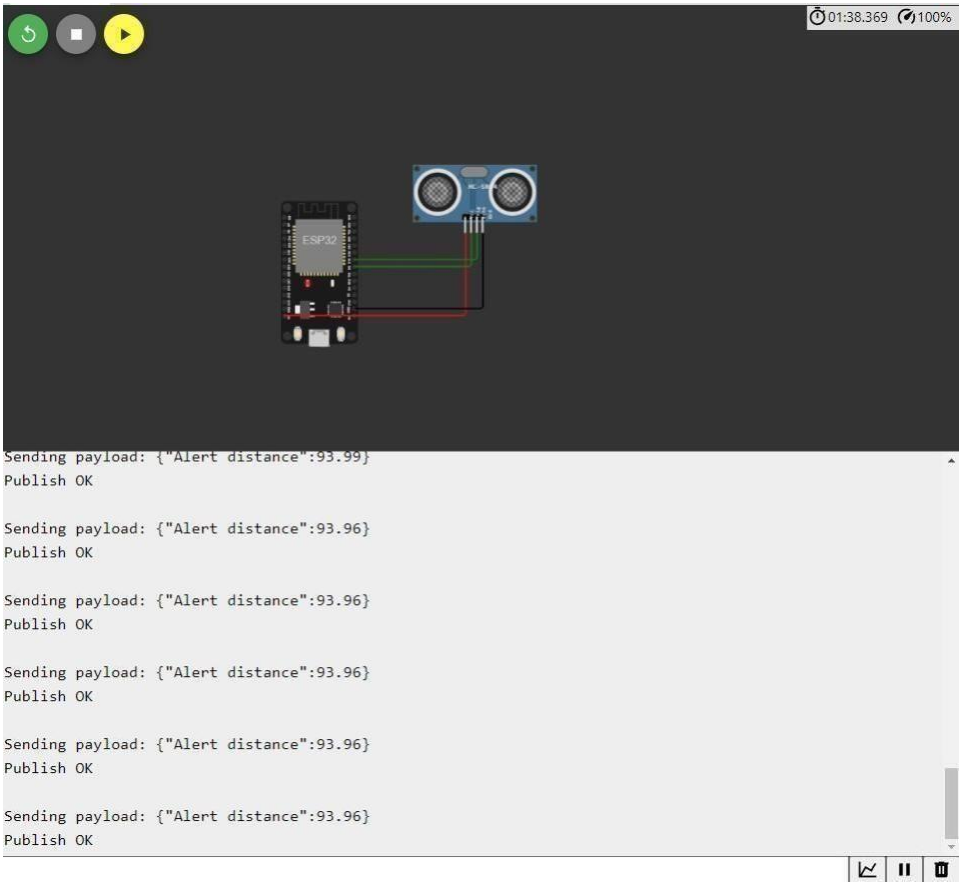
```
  delayMicroseconds(10); digitalWrite(trigpin,LOW);                                {
  duration=pulseIn(echopin,HIGH); dist=duration*speed/2; if(dist<100){  String
    payload = "{\"Alert distance\":"; payload += dist; payload +=
    "}";
    Serial.print("\n");
    Serial.print("Sending payload: "); Serial.println(payload);  if
    (client.publish(publishTopic,  (char*)    payload.c_str()))
    Serial.println("Publish OK");
    } else {
      Serial.println("Publish FAILED"); } }
}
```

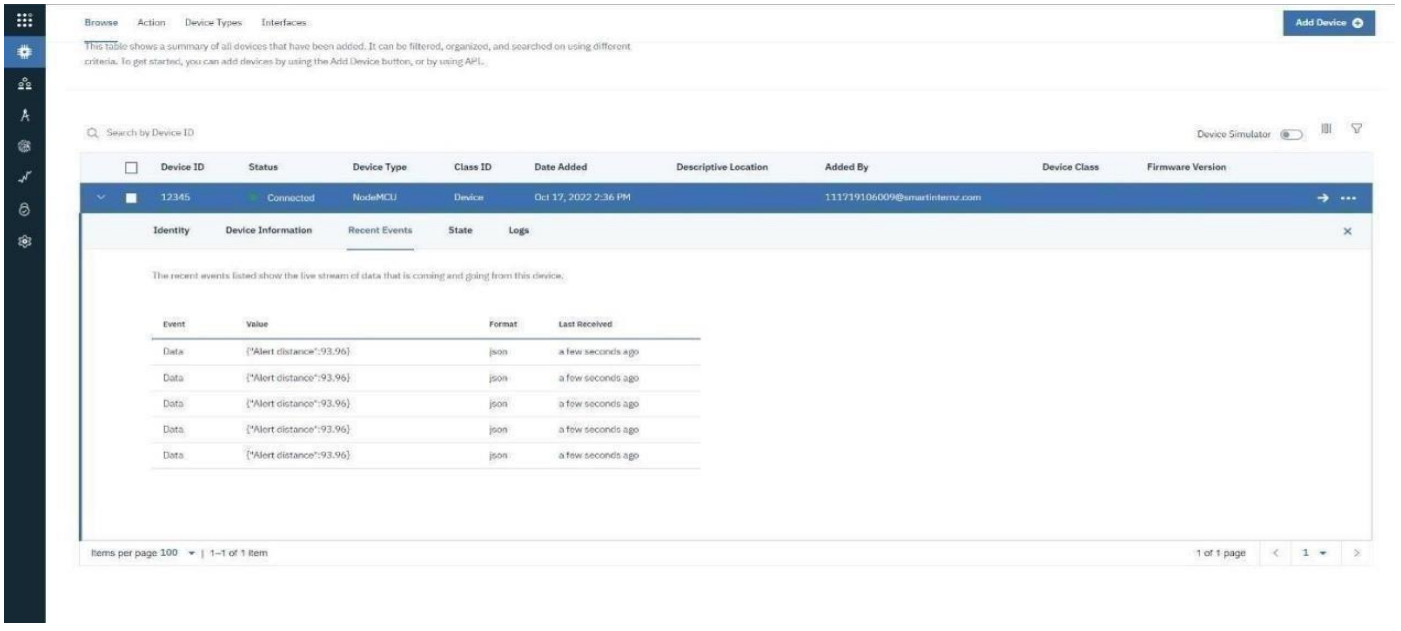
CONNECTIONS:



X

OUTPUT:





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