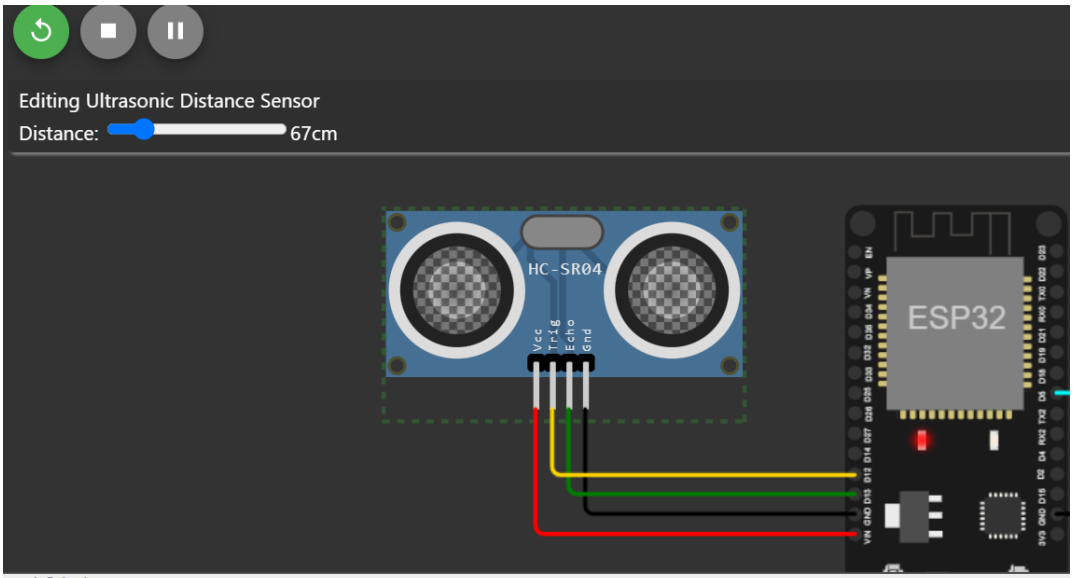
Assignment 4

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

const char* ssid = "Wokwi-GUEST";
const char* password = "";

#define ORG "***"
#define DEVICE_TYPE "***"
#define DEVICE_ID "***"
#define TOKEN "***"

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char pubTopic[] = "iot-2/event_1/status1/fmt/json";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;

WiFiClient wifiClient;
PubSubClient client(server, 1883, NULL, wifiClient);


#define ECHO_PIN 13
#define TRIG_PIN 12
#define LED_BUILTIN 5
#define DHT_PIN 15

void setup()
{
  Serial.begin(115200);
  pinMode(LED_BUILTIN, OUTPUT);
  pinMode(TRIG_PIN, OUTPUT);
  pinMode(ECHO_PIN, INPUT);

  Serial.print("Connecting to ");
  Serial.print(ssid);
  WiFi.begin(ssid, password);
  while (WiFi.status() != WL_CONNECTED)
  {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
```

```
  Serial.print("WiFi connected, IP address: ");
  Serial.println(WiFi.localIP());

  if (!client.connected())
  {
    Serial.print("Reconnecting client to ");
    Serial.println(server);
    while (!client.connect(clientId, authMethod, token))
    {
      Serial.print(".");
      delay(500);
    }
    Serial.println("Bluemix connected");
  }
}

float readDistanceCM() {
  digitalWrite(TRIG_PIN, LOW);
  delayMicroseconds(2);
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);
  int duration = pulseIn(ECHO_PIN, HIGH);
  return duration * 0.034 / 2;
}

void loop() {
  float distance = readDistanceCM();

  bool isNearby = distance < 100;
  digitalWrite(LED_BUILTIN, isNearby);

  Serial.print("Measured distance: ");
  Serial.println(readDistanceCM());

  if(distance<100)
  {
    String payload = "{\"d\":{\"Name\":\"" DEVICE_ID "\"";
    payload += ",\"Distance\":";
    payload += distance;
    payload += "}}";

    Serial.print("Sending value: ");
    Serial.println(payload);
```

```
    if (client.publish(pubTopic, (char*) payload.c_str()))
    {
      Serial.println("Publish Success");
    }
    else
    {
      Serial.println("Publish Failed");
    }

  }

  delay(100);
}
```




```
Publish Success
Measured distance: 66.98
Sending value: {"d":{"Name":"ultrasonic_sensor","Distance":66.98}}
Publish Success
Measured distance: 66.98
Sending value: {"d":{"Name":"ultrasonic_sensor","Distance":66.98}}
Publish Success
```

Browse Action Device Types Interfaces

Event	Value	Format	Last Received
status1	{"d":{"Name":"ultrasonic_sensor","Distance":56....	json	a few seconds ago
status1	{"d":{"Name":"ultrasonic_sensor","Distance":56....	json	a few seconds ago
status1	{"d":{"Name":"ultrasonic_sensor","Distance":56....	json	a few seconds ago
status1	{"d":{"Name":"ultrasonic_sensor","Distance":56....	json	a few seconds ago
status1	{"d":{"Name":"ultrasonic_sensor","Distance":56....	json	a few seconds ago