ASSIGNMENT-4

WOKWI PROGRAM

ASSIGNMENT DATE	26 OCT
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MAXIMUM MARK	2 MARK

CODE

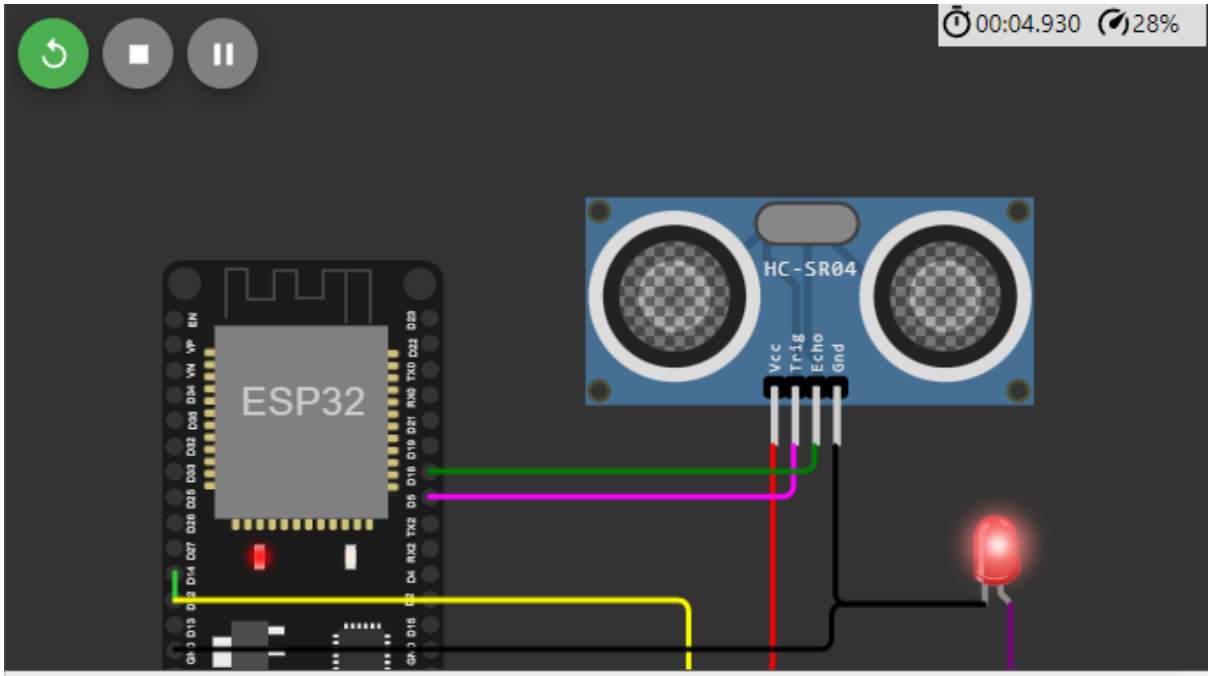
```
#include <WiFi.h>
#include <PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "alx5o6"
#define DEVICE_TYPE "SAKTHIVEL"
#define DEVICE_ID "1436"
#define TOKEN "1234567890"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/SAKTHIVEL/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String";
char authMethod[] = "use-token-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(led, OUTPUT);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin, INPUT);
  wifiConnect();
  mqttConnect();
}

void loop() {
  bool isNearby = dist < 100;
  digitalWrite(led, isNearby);

  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("IBM 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 = "{\"Normal 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");
    }

  }
  if (dist > 101 )  {
    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("Warning crosses 110cm -- it automaticaly of the loop");
      digitalWrite(led, HIGH);
    } else {
      Serial.println("Publish FAILED");
    }

  }


}
void callback(char* subscribeTopic, byte* payload, unsigned int payloadLength)
{
```

```
  Serial.print("callback invoked for topic:");
  Serial.println(subscribeTopic);
  for (int i = 0; i < payloadLength; i++) {
    dist += (char)payload[i];
  }
  Serial.println("data:" + data3);
  if (data3 == "lighton") {
    Serial.println(data3);
    digitalWrite(led, HIGH);
  }
  data3 = "";
}
```

OUTPUT



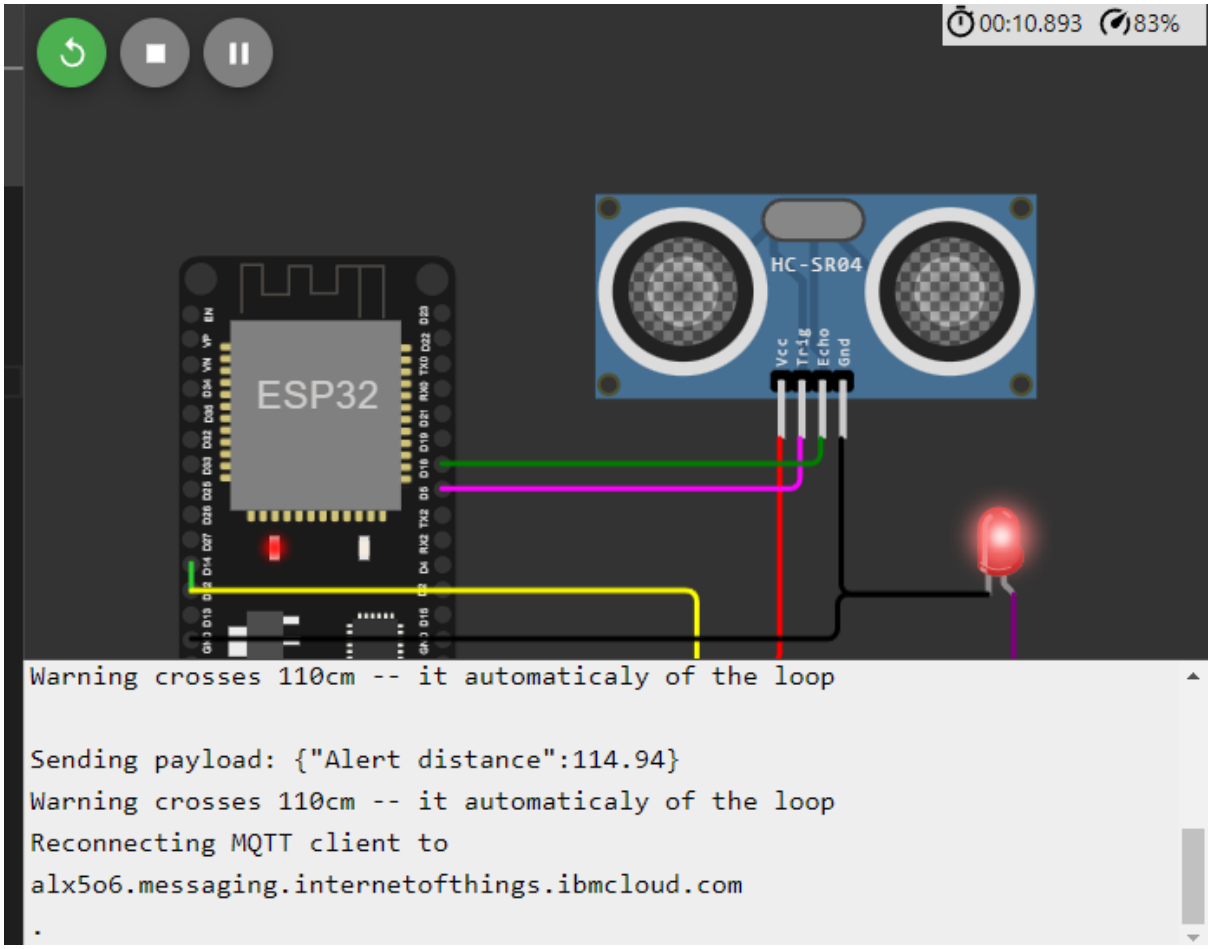

```
Sending payload: {"Normal Distance":75.96}
Publish OK

Sending payload: {"Normal Distance":75.96}
Publish OK

Sending payload: {"Normal Distance":75.96}
```

Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
SAKTHIVEL	{"Normal Distance":75.96}	json	a few seconds ago
SAKTHIVEL	{"Normal Distance":75.99}	json	a few seconds ago
SAKTHIVEL	{"Normal Distance":75.96}	json	a few seconds ago
SAKTHIVEL	{"Normal Distance":75.96}	json	a few seconds ago
SAKTHIVEL	{"Normal Distance":75.94}	json	a few seconds ago

1.LESS THAN 100



Recent Events

The recent events listed show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
SAKTHIVEL	{"Alert distance":114.94}	json	a few seconds ago
SAKTHIVEL	{"Alert distance":114.94}	json	a few seconds ago
SAKTHIVEL	{"Alert distance":114.99}	json	a few seconds ago

2.GREATER THAN 100