ASSIGNMENT 4

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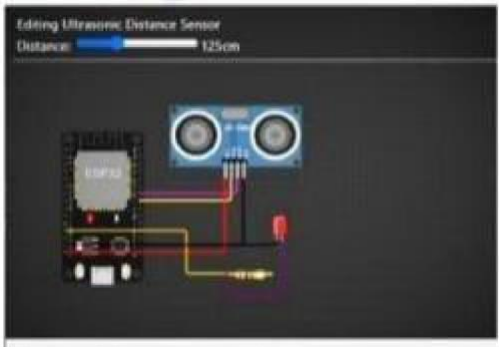
CODE:

```
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic,
byte* payload, unsigned int
payloadLength);
//-------credentials of IBM Accounts-----
-
#define ORG "46d2e1"//IBM
ORGANITION ID
#define DEVICE_TYPE
"87654321"//Device type mentioned in
ibm watson IOT
#define DEVICE_ID
"12345678"//Device ID mentioned in
ibm watson IOT
#define TOKEN "123123123" //Token
String data3;
char server[] = ORG
".messaging.internetofthings.ibmcloud.c
om";
char publishTopic[] = "iot-
2/evt/Data/fmt/json";
char subscribetopic[] = "iot-
2/cmd/test/fmt/String";
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":"
DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883,
callback ,wifiClient);
const int trigPin = 5;
const int echoPin = 18;
#define SOUND_SPEED 0.034
long duration;
float distance;
void setup() {
Serial.begin(115200);
pinMode(trigPin, OUTPUT);
```

```
pinMode(echoPin, INPUT);
wificonnect();
mqttconnect();
}
void loop()
{
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = duration *
SOUND_SPEED/2;
Serial.print("Distance (cm): ");
Serial.println(distance);
if(distance<100)
{
Serial.println("ALERT!!");
delay(1000);PublishData(distance);
delay(1000);
if (!client.loop()) {
mqttconnect();
}}
delay(1000);
}
void PublishData(float dist) {
mqttconnect();
String payload = "{\"Distance\":";
payload += dist;
payload += ",\"ALERT!!\":""\"Distance
less than 100cms\"";
payload += "}";
Serial.print("Sending payload: ");
Serial.println(payload);
if (client.publish(publishTopic, (char*)
payload.c_str())) {
Serial.println("Publish ok");
}
else {
Serial.println("Publish  failed");
}}
void mqttconnect() {
if (!client.connected()) {
Serial.print("Reconnecting client to ");
Serial.println(server);
while (!!!client.connect(clientId,
authMethod, token)) {
Serial.print(".");
delay(500);
}initManagedDevice();
Serial.println();
```

```
}}
void wificonnect()
{
Serial.println();
Serial.print("Connecting to ");
WiFi.begin("Wokwi-GUEST", "", 6);
while (WiFi.status() !=
WL_CONNECTED) {
delay(500);
Serial.print(".");
}
Serial.println("");
Serial.println("WiFi connected");
Serial.println("IP address: ");
Serial.println(WiFi.localIP());
}
void initManagedDevice() {
if (client.subscribe(subscribetopic)) {
Serial.println((subscribetopic));
Serial.println("subscribe to cmd OK");
} else {
Serial.println("subscribe to cmd
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++)
{//Serial.print((char)payload[i]);
data3 += (char)payload[i];
}
Serial.println("data: "+ data3);
data3="";
}
```

OUTPUT




```
Sending payload: {"Alert distance":106.96}
Warning crosses 110cm -- it automaticaly of the loop

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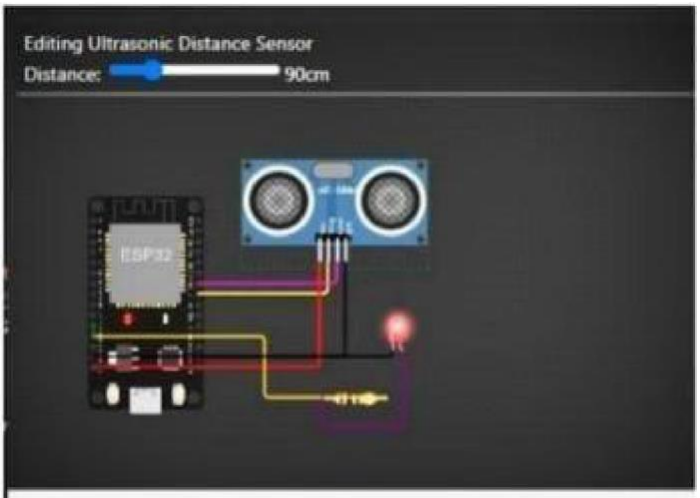



```
Sending payload: {"Normal Distance":89.95}
Publish OK

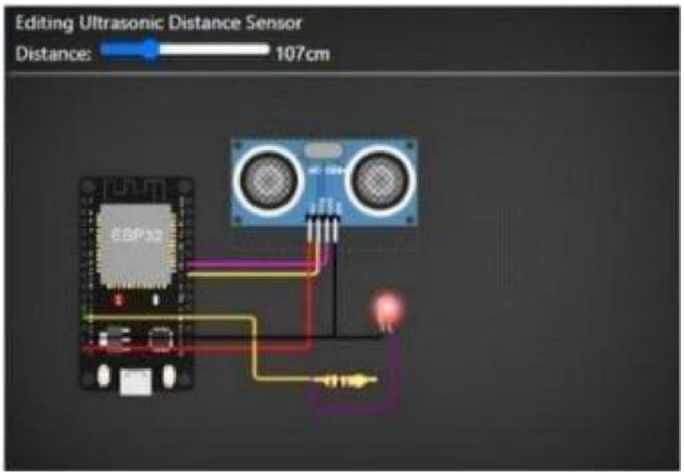
Sending payload: {"Normal Distance":89.95}
Publish OK

Sending payload: {"Normal Distance":89.95}
Publish OK

Sending payload: {"Normal Distance":89.98}
Publish OK

Sending payload: {"Normal Distance":89.95}
Publish OK

Sending payload: {"Normal Distance":89.95}
Publish OK
```




```
Sending payload  {"Alert distance":106.98}
Warning crosses JI                                • 1

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Sending paylo d: ("Alert distance":106.98}
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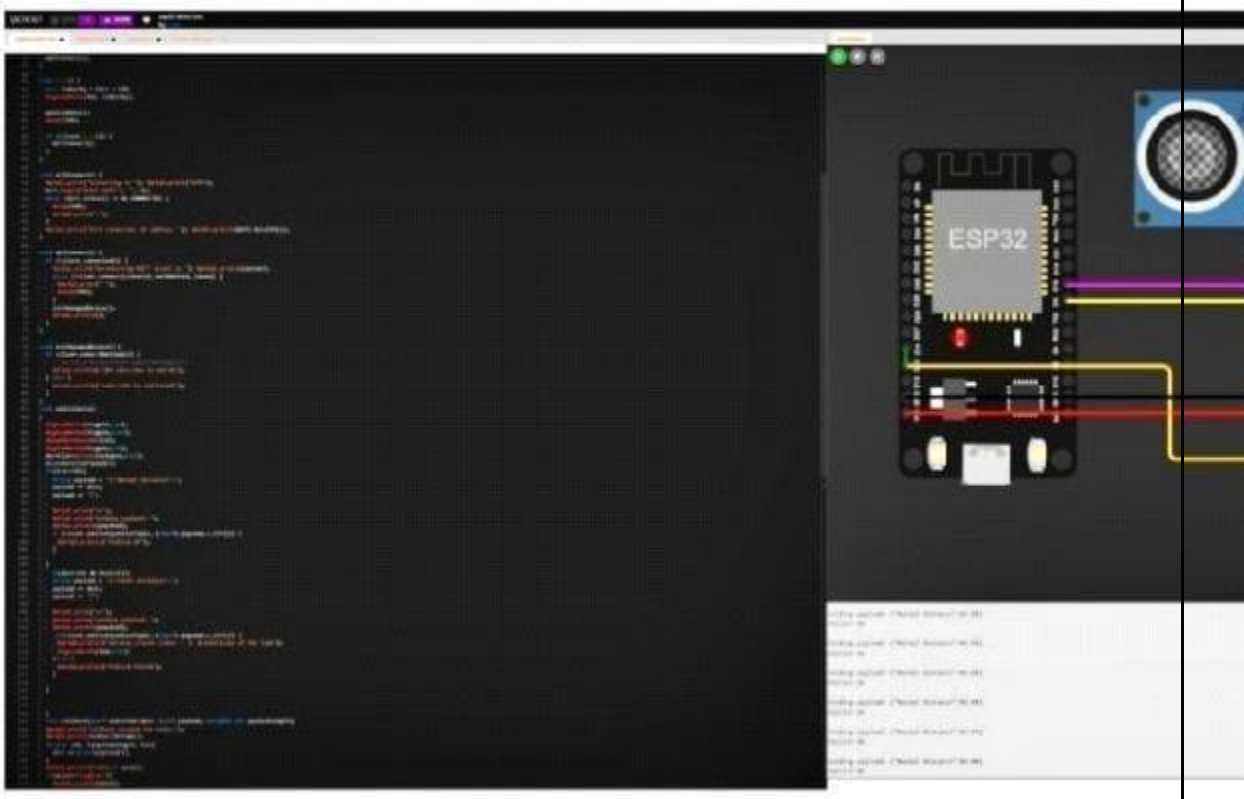
ESP32