Assignment 4
WOKWI PROGRAM

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Maximum Mark	2 marks

CODE:

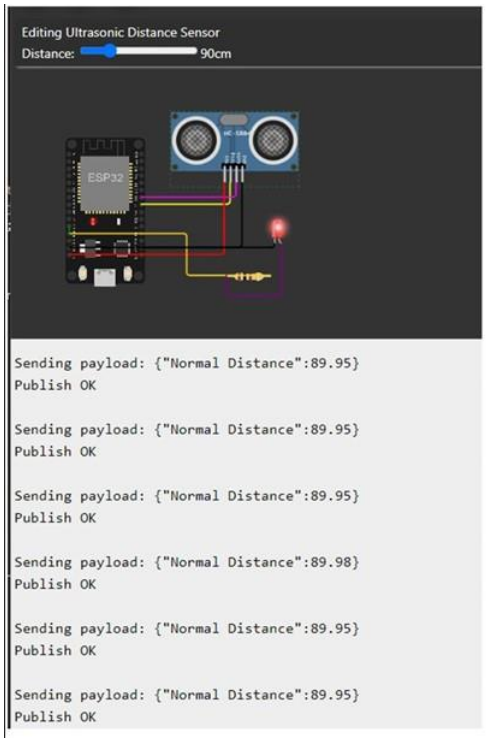
```
#include<WiFi.h>
#include<PubSubClient.h>
WIFIClient wificlient;
String data 3;
#define ORG “4yi0vc”
#define DEVICE_TYPE “nodeMcu”
#define DEVICE-ID “Assignment4”
#define TOKEN “123456789”
#define speed 0.034
#define led 14
char server[] = ORG“.messaging.internetogthings.ibmcloud.com”;
char publishTopic[] = “iot-2/evt/Data/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 tripin =5;
const int echopin =18;
String command;
String data=””;
long duration;
float dist;
void setup()
{
 Serial.begin(115200);
 pinMode(led,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_CONNECT) {
       delay(500);
       Serial.print(".");
    }
Serial.print("WIFI connected ,IP address:");
}
void mqttConnect(){
  if (!client.connect() {
   Serial.print("Reconnecting MQTT client to"); Serial.println(server);
   while (!client.connect(clientId,authMethod,token)){
      Serial.print(".");
      delay(500);
    }
    intiManageddevice();
    Serial.println();
   }
}
void initManagedDevice() {
   if (client.subscribe(topic)) {
     // serial.priintln(client.subscribe(topic));
     Serial.println("IBM subscribe to cmd OK");
   } else {
     Serial.println("subscribe to cmd FAILED ");
    }
```

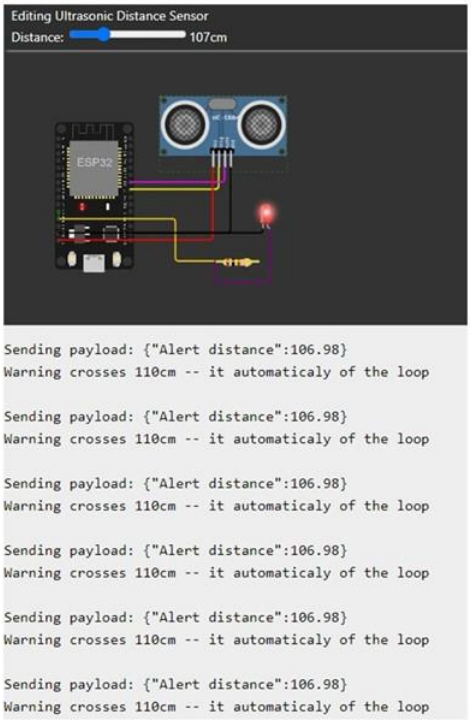
```
}
void publishData()
{
  digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);
  delayMicroseconds(10);
  digitalWrite(trigpin,LOW);
  duration=pulseIn(echopin,HIGH);
  dist=duration*speed/2;
  if(dist<100){
    String payload =”{/”Normal Distance\”:”);
    payload += dist;
    payload += “}”;

    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 && dist<111){
   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 automatically 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:”);
```

```
Serail.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= "";
}
```

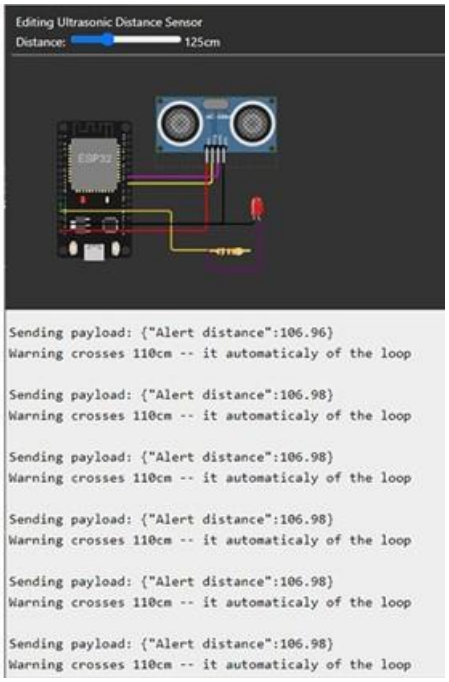
OUTPUT:



1)When distance under 100 cm it will show normal distance



2) When diatance cross 100 cm it will show ALERT with warning message distance



when it cross above 110 cm it totally move to iff state once it reduce to 110 it on again.

IBM CLOUD OUPUT

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
Data	{"Normal Distance":89.95}	json	a few seconds ago
Data	{"Normal Distance":89.95}	json	a few seconds ago
Data	{"Normal Distance":89.95}	json	a few seconds ago
Data	{"Normal Distance":89.95}	json	a few seconds ago
Data	{"Normal Distance":89.95}	json	a few seconds ago

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
Data	{"Alert distance":106.98}	json	a few seconds ago
Data	{"Alert distance":107.03}	json	a few seconds ago
Data	{"Alert distance":106.98}	json	a few seconds ago
Data	{"Alert distance":106.98}	json	a few seconds ago
Data	{"Alert distance":106.98}	json	a few seconds ago