

ASSIGNMENT-4

WOKWI PROGRAM

ASSIGNMENT DATE	26 OCTOBER 2022
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MAXIMUM MARK	2 MARKS

Smart Waste Management System for Metropolitan Cities

ASSIGNMENT 4:

Write code and connections in wokwi for ultrasonic sensors.
Whenever distance is less than 100 cms send "alert" to ibm cloud and display in device recent events.
Upload document with wokwi share link and images of ibm cloud

```
CODE
#include <WiFi.h>
#include <PubSubClient.h> WiFiClient
wifiClient;
String data3;
#define ORG "4yi0vc"

#define DEVICE_TYPE 11 nodeMcu 11 #define
DEVICE_ID 11 Assignment4" #define TOKEN
11 123456789"

#define speed 0.034
#define led 14

char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; char publishTopic[] = 11 iot-
2/evt/Data/fmt/json";
char topic[] = "iot-2/cmd/home/fmt/String"; char authMethod[]
= 11 Use-token-auth";
char token[] = IOKEN;

char clientid[] = 11 d: 11 ORG 11 11 DEVICE_TYPE 11 1 DEVICE_ID;
PubSubClient client(server_1 1883, wifiClient); void
publishData();
const int trigpin=S; 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< 1010;
  digitalWrite(led, isNearby);

  publishData(); delay(S010);

  if (!client.loop()) { mqttCon1nect();
  }
}

void wifiC011nect() {
  Serial.print(11 Connecting to"); serial.print("Wifi"); WiFi.begin("Wokwi-
  GUEST", "", 6);

  while (WiFi.status() != WL_CONNECTED) { delay(S00);
    Serial.println(.);
  }
}
```

```

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("IPublish 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 automaticaly of the loop"); digitalWrite(led,HIGH);
    }else {
      Serial.println("IPublish FAILED");
    }
  }

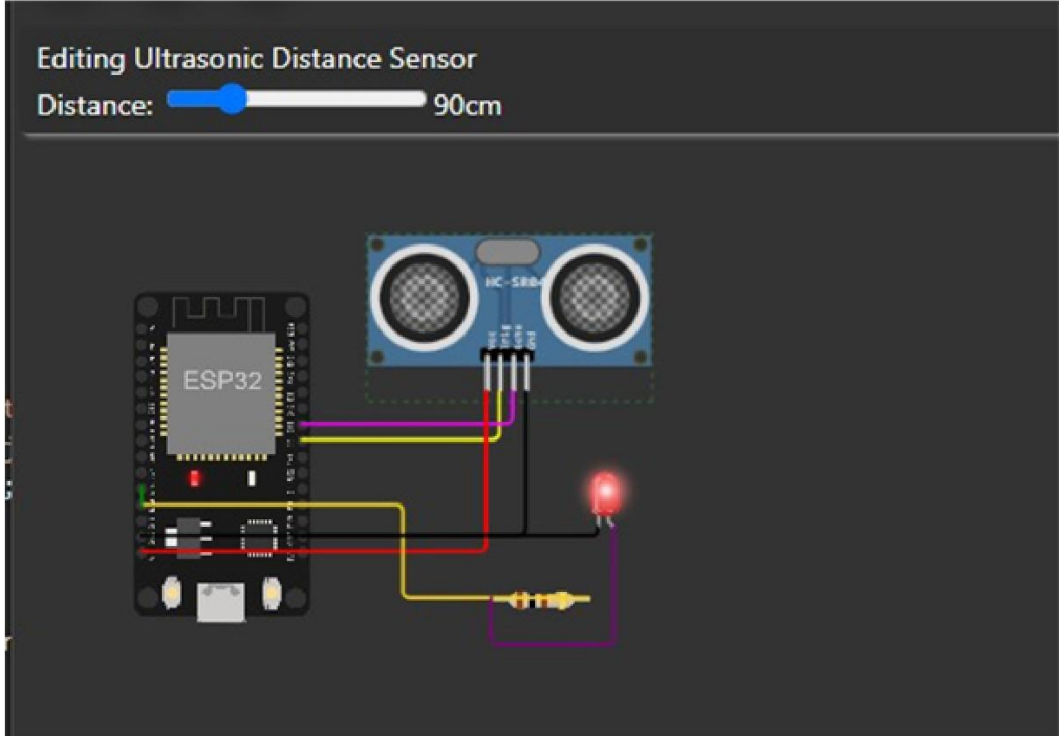
}

}

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":89.95}
Publish OK

Sending payload:{"Normal Distance":89.95}
Publish-OTKI

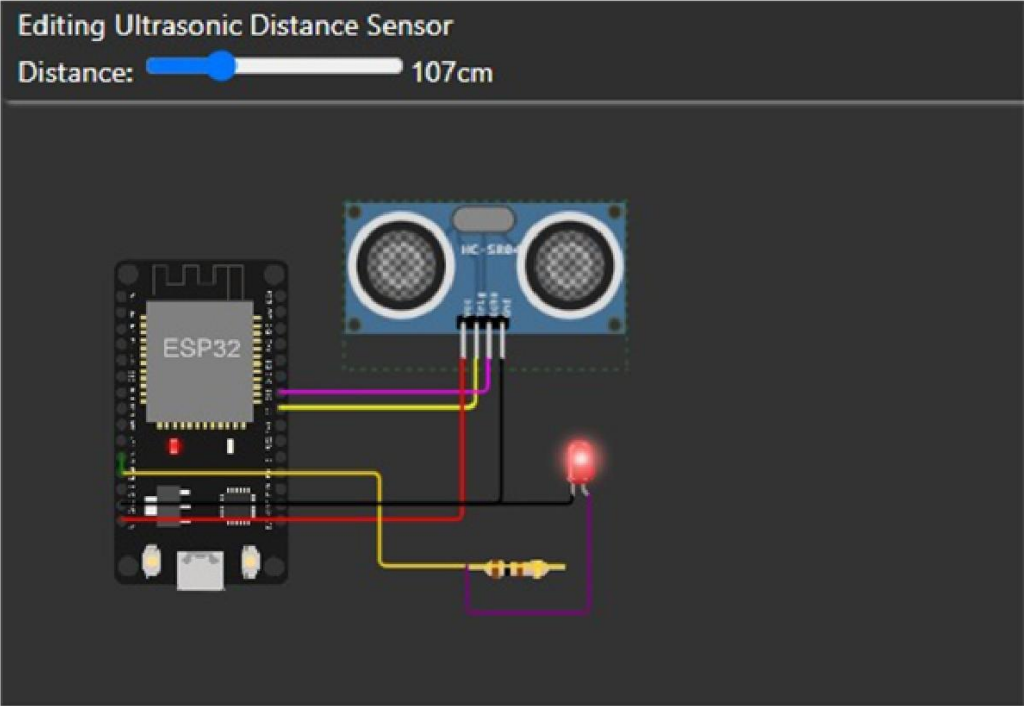
Sending payload:{"Normal Distance":89.95}
Publish-TI OK

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Publish OK

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Publish-TI OK

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

1) when distance under 100cm
it wil show normal distance



Sending payload: {"Alert distance":106.98}
Warning crosses 110cm -- it automatically of the loop

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Warning crosses 110cm -- it automatically of the loop

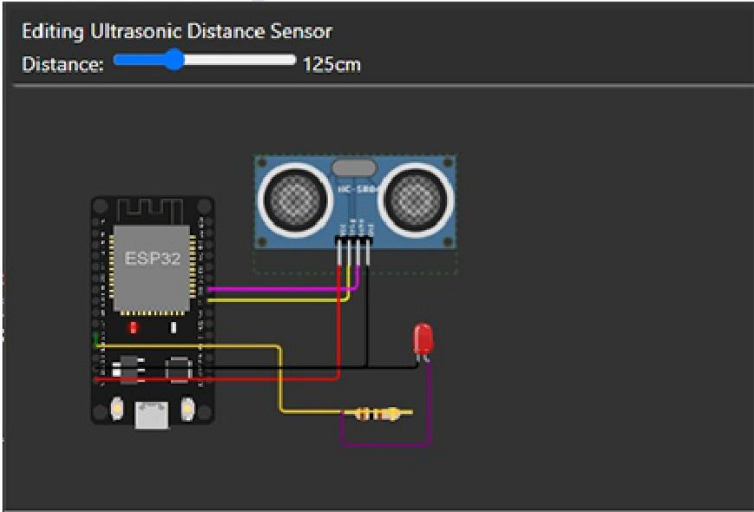
Sending payload: {"Alert distance":105.98}
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2) when distance cross 100 cm
it wil show ALERT with warning message
distance



Sending payload: {"Alert distance":106.96}
Warning crosses 110 m -- it automatically of the loop

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

IBM CLOUD DUPUY

Recent Events

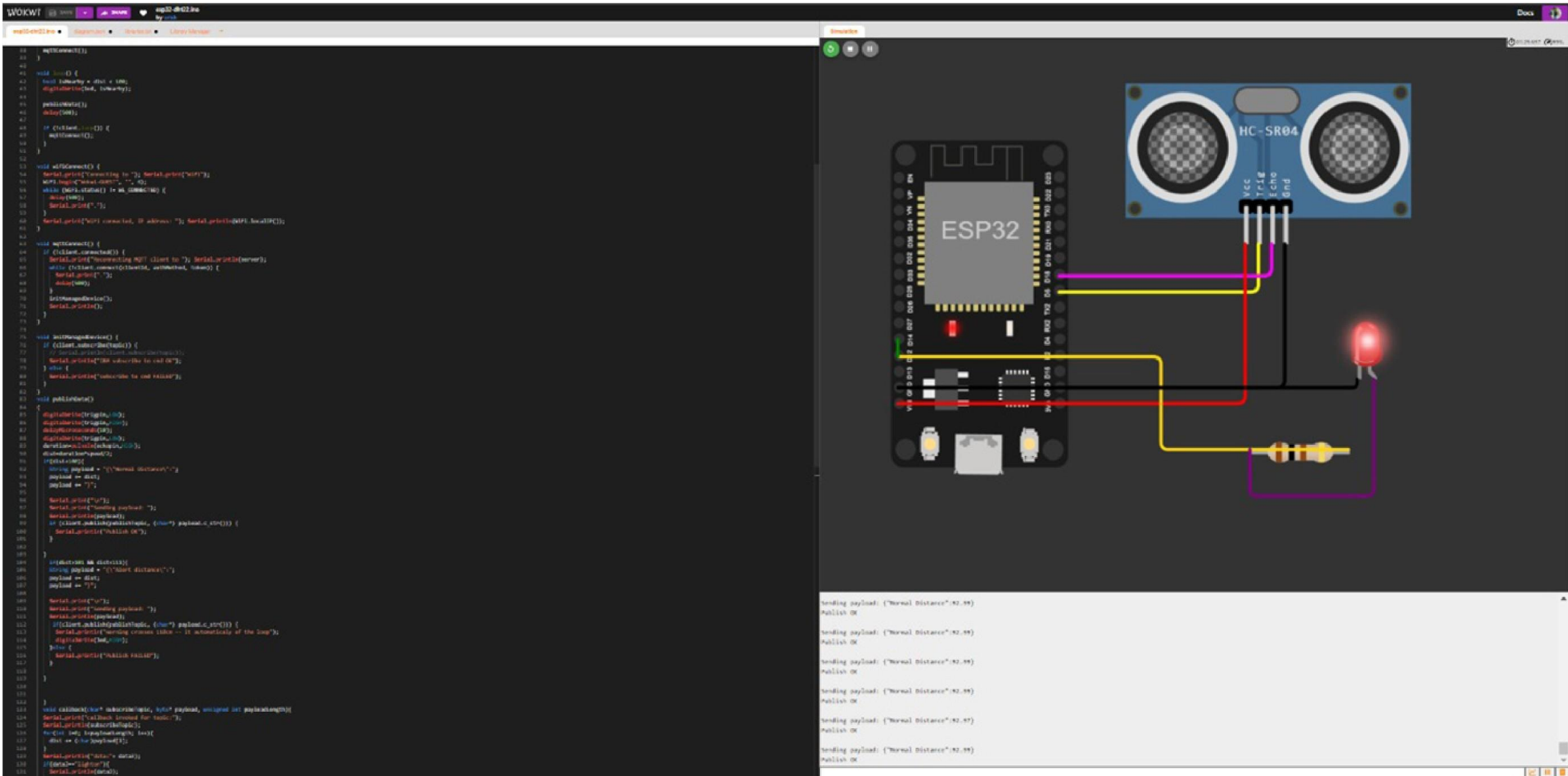
This recent events list will show the live stream of data that is coming and going from this device.

Event	Value	Format	Last Received
Distance	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
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Data	Alert distance: 106.98	JSON	a few seconds ago



Collect Information

Basic connection information about this device.

Device ID	Assignmen 4
Device Type	nodeMcu
Date Added	23 Oct 2022 07:20
Added By	92021910302@smartinternz.com
Connection Status	Disconnected
	Last Connected: 01 NOV 202216:57
	Client Address: 145.40.94.93 Insecure
	Duration: 4 minutes
	Data Transferred: 1.4 KB

Recent Events

The recent events Listed shows the live stream of data that is coming and going on this device.

Event	Value	Format	Last Received
Data	{"format": "Distance": 92.99.	JSON	a few seconds ago
Data	{"format": "Distance": 92.99.	JSON	a few seconds ago
Data	{"format": "Distance": 92.99.	JSON	a few seconds ago
Data	{"format": "Distance": 92.99.	JSON	a few seconds ago
Data	{"format": "Distance": 92.99	JSON	a few seconds ago