ASSIGNMENT 4

TEAM ID : PNT2022TMID26692

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CODE:

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

#define ORG "nhpwjc"
#define DEVICE_TYPE "NodeMCU"
#define DEVICE_ID "USE YOUR ID"
#define TOKEN "USE YOUR TOKEN"
#define speed 0.034
char server[] = ORG
".messaging.internetofthings.ibmcloud.com"; char publishTopic[] = "iot-
2/evt/Data/fmt/json"; char topic[] = "iot-2/cmd/home/fmt/String"; char
authMethod[] = "usetoken- 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(trigpin, OUTPUT);
```

```
pinMode(echopin,            INPUT);  wifiConnect();  mqttConnect();
}          void           loop()               {

  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("subscribe  to  cmd OK");
  } else {
    Serial.println("subscribe    to    cmd    FAILED");    }    }  void
publishData()
{ digitalWrite(trigpin,LOW); digitalWrite(trigpin,HIGH);
```
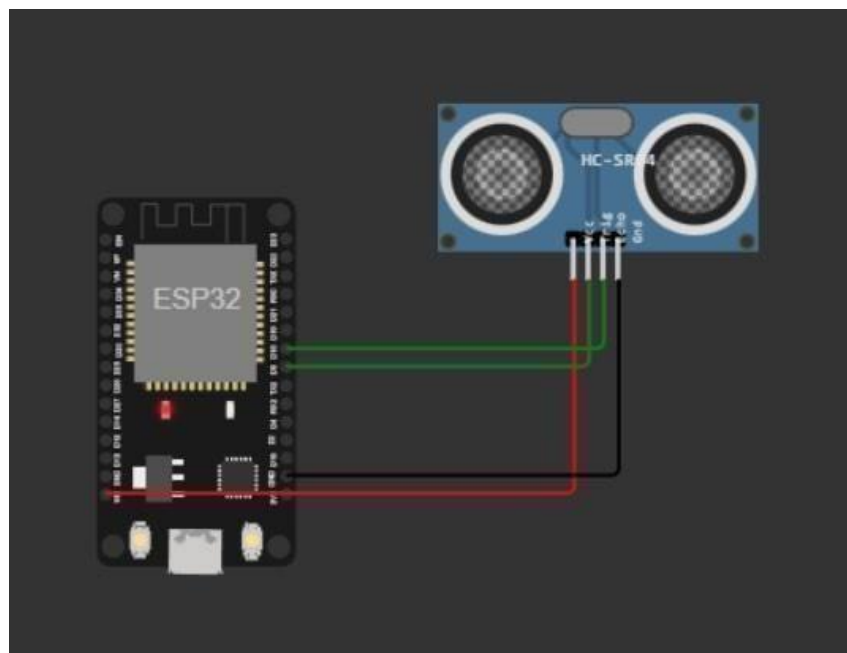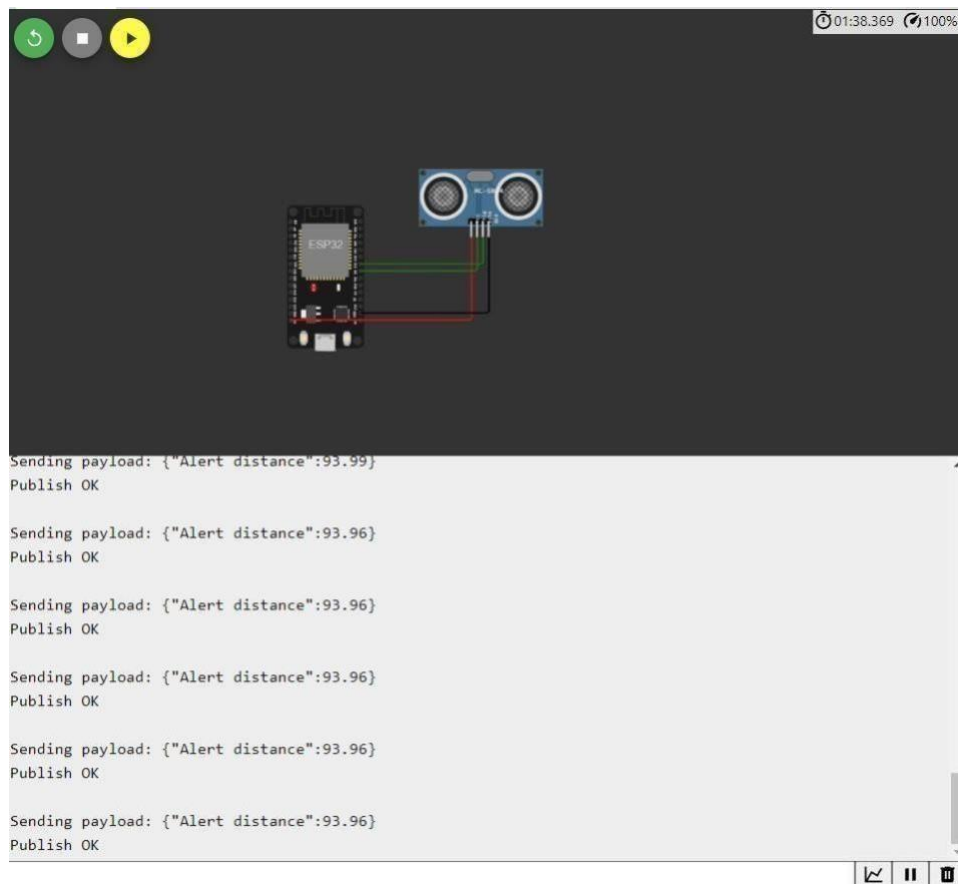
```
delayMicroseconds(10); digitalWrite(trigpin,LOW);                                    {
duration=pulseIn(echopin,HIGH);  dist=duration*speed/2;  if(dist<100){ String  payload  =
  "{\"Alert distance\":"; payload += dist; payload +=
  "}";
  Serial.print("\n");
          Serial.print("Sending payload: "); Serial.println(payload);              if
          (client.publish(publishTopic,          (char*)             payload.c_str()))
  Serial.println("Publish OK");
  } else {
    Serial.println("Publish FAILED"); } } }
```

CONNECTIONS:

OUTPUT:

Sending payload: {"Alert distance":93.99}
Publish OK

Sending payload: {"Alert distance":93.96}
Publish OK

Sending payload: {"Alert distance":93.96}
Publish OK

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Publish OK

Sending payload: {"Alert distance":93.96}
Publish OK

Sending payload: {"Alert distance":93.96}
Publish OK

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Browse   Action   Device Types   Interfaces   Add Device ⊕

This table shows a summary of all devices that have been added. It can be filtered, organized, and searched on using different
criteria. To get started, you can add devices by using the Add Device button, or by using API.

Search by Device ID   Device Simulator

Device ID	Status	Device Type	Class ID	Date Added	Descriptive Location	Added By	Device Class	Firmware Version
12345	Connected	NodeMCU	Device	Oct 17, 2022 2:36 PM		111719106009@smartinternz.com		

Identity   Device Information   Recent Events   State   Logs   ×

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":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago
Data	{"Alert distance":93.96}	json	a few seconds ago

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WOKWI LINK - https://wokwi.com/projects/346405970317935188