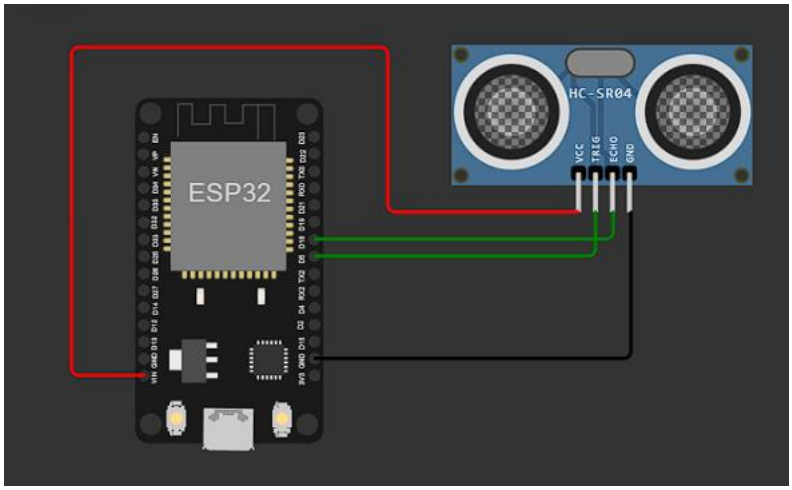
Naan Mudhalvan Assignment – 3

Wokwi link: https://wokwi.com/projects/364984964803134465

Wokwi connections image:



Source code:

```
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic, byte* payload, unsigned intpayloadLength);
//-------credentials of IBM Accounts- - - -
#define ORG "yzoyjz"//IBM ORGANITION ID
#define DEVICE_TYPE "test"//Device type mentioned in ibm watson IOTPlatform
#define DEVICE_ID "1234"//Device ID mentioned in ibm watson IOTPlatform
#define TOKEN "123456789" //Token
String data3;
char server[] = ORG ".messaging.internetofthings.ibmcloud.com";
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/test/fmt/String";
```

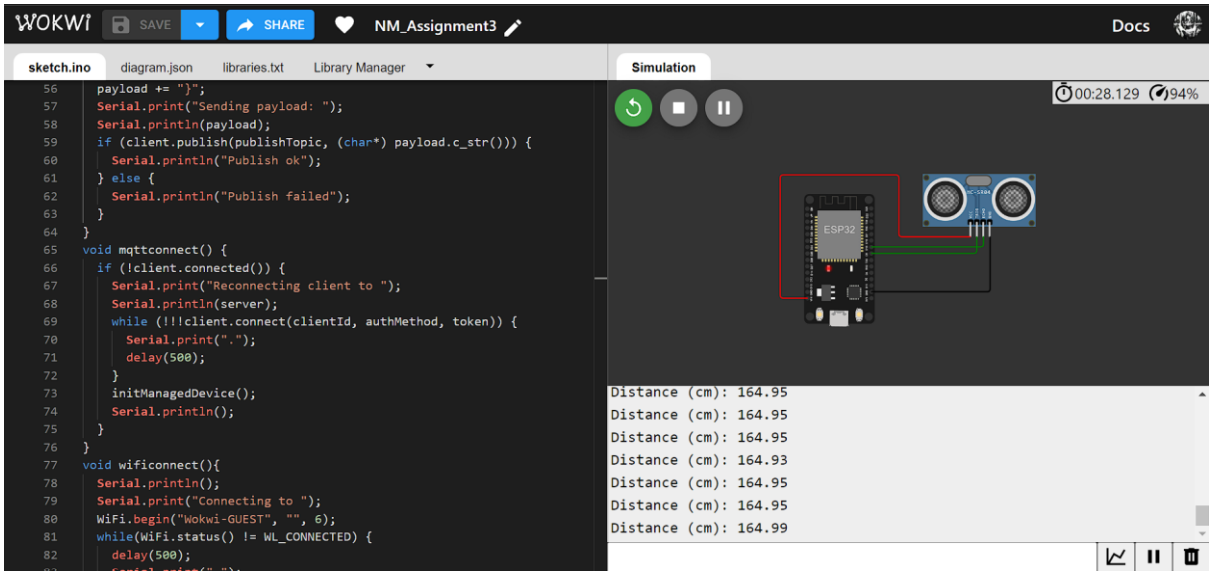
```
char authMethod[] = "use-token-auth";
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;
WiFiClient wifiClient;
PubSubClient client(server, 1883, callback ,wifiClient);
const int trigPin = 5;
const int echoPin = 18;
#define SOUND_SPEED 0.034
long duration;
float distance;
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!!");
```

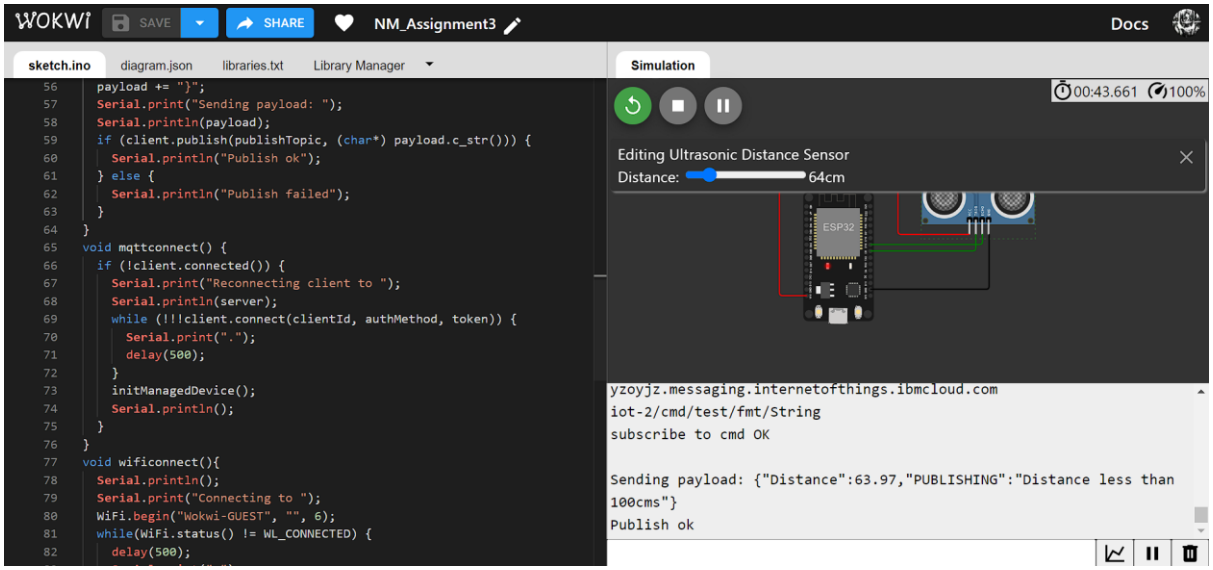
```
    delay(1000);
    PublishData(distance);
    delay(1000);
    if (!client.loop()) {
      mqttconnect();
    }
  }
  delay(1000);
}
void PublishData(float dist) {
  mqttconnect();
  String payload = "{\"Distance\":";
  payload += dist;
  payload += ",\"PUBLISHING\":""\"Distance less than 100cms\"";
  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(".");
```

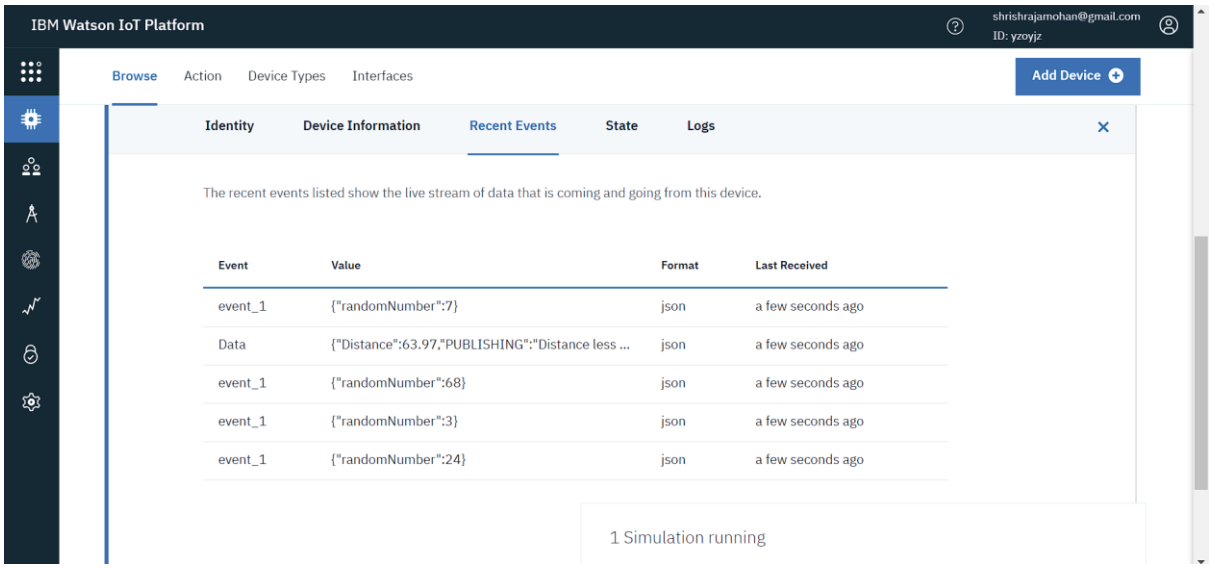
```
      delay(500);
    }
    initManagedDevice();
    Serial.println();
  }
}
void wificonnect(){
  Serial.println();
  Serial.print("Connecting to ");
  WiFi.begin("Wokwi-GUEST", "", 6);
  while(WiFi.status() != WL_CONNECTED) {
    delay(500);
    Serial.print(".");
  }
  Serial.println("");
  Serial.println("WiFi 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="";
}
```

Screenshots:




WOKWi
SAVE
SHARE
NM_Assignment3
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
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);
Simulation
00:43.661
100%
Editing Ultrasonic Distance Sensor
Distance:
64cm
ESP32
yzoyjz.messaging.internetofthings.ibmcloud.com
iot-2/cmd/test/fmt/String
subscribe to cmd OK
Sending payload: {"Distance":63.97,"PUBLISHING":"Distance less than 100cms"}
Publish ok


IBM Watson IoT Platform
shrishrajamohan@gmail.com
ID: yzoyjz
Browse
Action
Device Types
Interfaces
Add Device
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
event_1
{"randomNumber":7}
json
a few seconds ago
Data
{"Distance":63.97,"PUBLISHING":"Distance less ...
json
a few seconds ago
event_1
{"randomNumber":68}
json
a few seconds ago
event_1
{"randomNumber":3}
json
a few seconds ago
event_1
{"randomNumber":24}
json
a few seconds ago
1 Simulation running