ASSIGNMENT 4

NAME : SANTHOSHI S

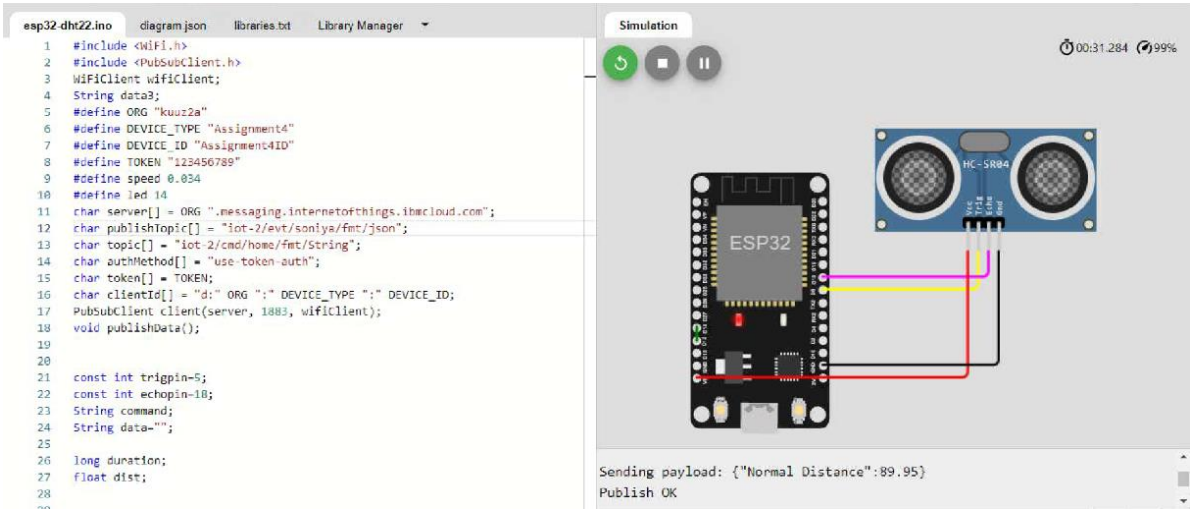
COLLEGE : BANNARI AMMAN INTITUTE OF TECHNOLOGY

```
#include <WiFi.h> #include
<PubSubClient.h>
WiFiClient wifiClient;
String data3;
#define ORG "kuuz2a"
#define DEVICE_TYPE "Assignment4"
#define DEVICE_ID "Assignment4ID"
#define TOKEN "123456789"
#define speed 0.034
#define led 14
char server[] = ORG ".messaging.internetofthings.ibmcloud.com"; char
publishTopic[] = "iot-2/evt/soniya/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 trigpin=5;
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 < 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_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("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");

    }
    else {
      Serial.println("Publish FAILED");
    }

  }


  }
```

OUTPUT :


esp32-dht22.ino
diagram.json
libraries.txt
Library Manager
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#include <PubSubClient.h>
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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;
Simulation
00:31.284
99%
HC-SR04
ESP32
Sending payload: {"Normal Distance":89.95}
Publish OK