IBM ASSIGNMENT-3 IOT DOMAIN

LINK:

https://wokwi.com/projects/364540012436747265

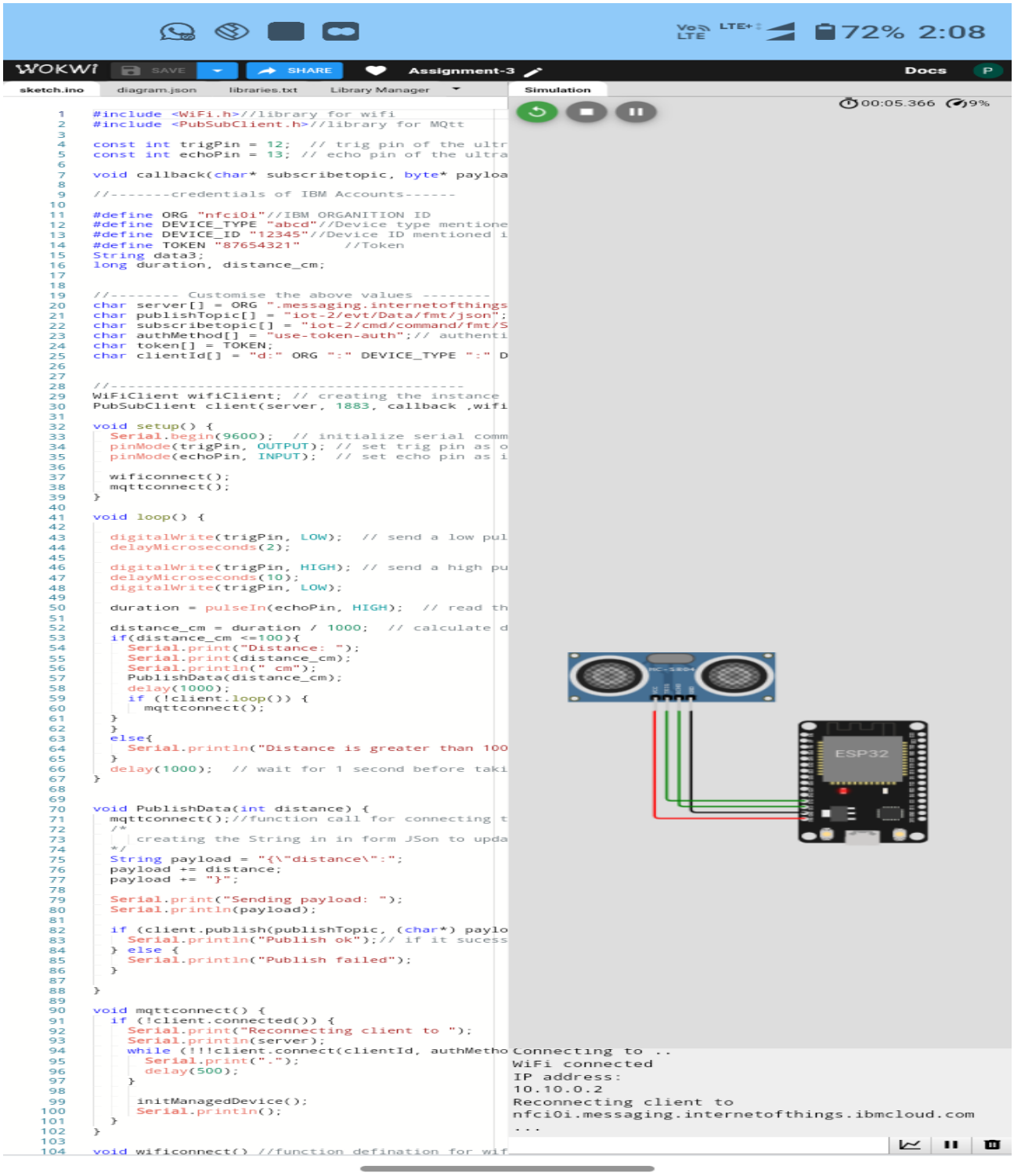
CODE:

```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt

const int trigPin = 12; // trig pin of the ultrasonic sensor
const int echoPin = 13; // echo pin of the ultrasonic sensor

void callback(char* subscribetopic, byte* payload, unsigned int
payloadLength);

//-------credentials of IBM Accounts------

#define ORG "dc8x19"//IBM ORGANITION ID
#define DEVICE_TYPE "abcde"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "123"//Device ID mentioned in ibm watson IOT Platform
#define TOKEN "87654321" //Token
String data3;
long duration, distance_cm;

//-------- Customise the above values --------

char server[] = ORG ".messaging.internetofthings.ibmcloud.com";// Server Name
char publishTopic[] = "iot-2/evt/Data/fmt/json";// topic name and type of
event perform and format in which data to be send
char subscribetopic[] = "iot-2/cmd/command/fmt/String";// cmd REPRESENT
command type AND COMMAND IS TEST OF FORMAT STRING
char authMethod[] = "use-token-auth";// authentication method
char token[] = TOKEN;
char clientId[] = "d:" ORG ":" DEVICE_TYPE ":" DEVICE_ID;//client id

//-----------------------------------------

WiFiClient wifiClient; // creating the instance for wificlient
PubSubClient client(server, 1883, callback ,wifiClient);
void setup() {
Serial.begin(9600); // initialize serial communication
pinMode(trigPin, OUTPUT); // set trig pin as output
pinMode(echoPin, INPUT); // set echo pin as input
wificonnect();
mqttconnect();
}
```

```
void loop() {
  digitalWrite(trigPin, LOW); // send a low pulse to trig pin
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH); // send a high pulse to trig pin for 10
microseconds
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);

  duration = pulseIn(echoPin, HIGH); // read the duration of the pulse from
  echo pin

distance_cm = duration / 1000; // calculate distance in cm

if(distance_cm <=100){
  Serial.print("Distance: ");
  Serial.print(distance_cm);
  Serial.println(" cm");
  PublishData(distance_cm);
  delay(1000);
  if (!client.loop()) {
    mqttconnect();
}
}
else{
  Serial.println("Distance is greater than 100 ,we cannot print and sent to
cloud");
}
  delay(1000); // wait for 1 second before taking the next measurement
}

void PublishData(int distance) {
mqttconnect();//function call for connecting to ibm
/*
creating the String in in form JSon to update the data to ibm cloud
*/

String payload = "{\"distance\":";
payload += distance;
payload += "}";

Serial.print("Sending payload: ");
Serial.println(payload);

if (client.publish(publishTopic, (char*) payload.c_str())) {
  Serial.println("Publish ok");// if it sucessfully upload data on the cloud then it will print publish ok
in Serial monitor or else it will print publish
failed
}   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() //function defination for wificonnect
{
  Serial.println();
  Serial.print("Connecting to ");
  WiFi.begin("Wokwi-GUEST", "", 6);//passing the wifi credentials to establish
the connection

   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);
}
```

CONNECTION:


72% 2:08
WOKWI
SAVE
SHARE
Assignment-3
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
Simulation
00:05.366
9%
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const int echoPin = 13; // echo pin of the ultra
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//-------credentials of IBM Accounts------
#define ORG "nfci0i"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentione
#define DEVICE_ID "12345"//Device ID mentioned i
#define TOKEN "87654321" //Token
String data3;
long duration, distance_cm;
//-------- Customise the above values --------
char server[] = ORG ".messaging.internetofthings
char publishTopic[] = "iot-2/evt/Data/fmt/json";
char subscribetopic[] = "iot-2/cmd/command/fmt/S
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Serial.println("Publish ok");// if it sucess
} else {
Serial.println("Publish failed");
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initManagedDevice();
Serial.println();
}
}
void wificonnect() //function defination for wif
ESP32
Connecting to ..
WiFi connected
IP address:
10.10.0.2
Reconnecting client to
nfci0i.messaging.internetofthings.ibmcloud.com
...

IBM CLOUD RECENTS EVENTS SCREENSHOT: