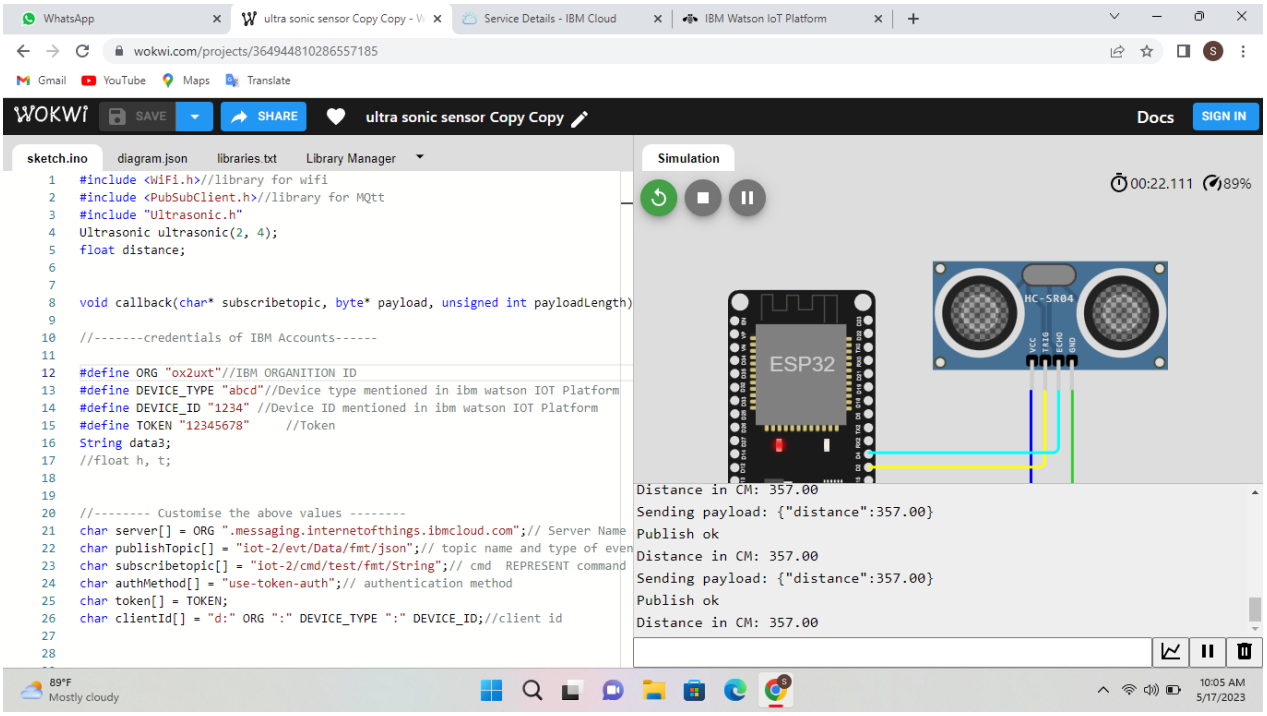
ASSIGNMENT-3

ASSIGNMENT LINK IN WOKWI:

https://wokwi.com/projects/364944810286557185

CONNECTIONS IMAGE:



CODE:

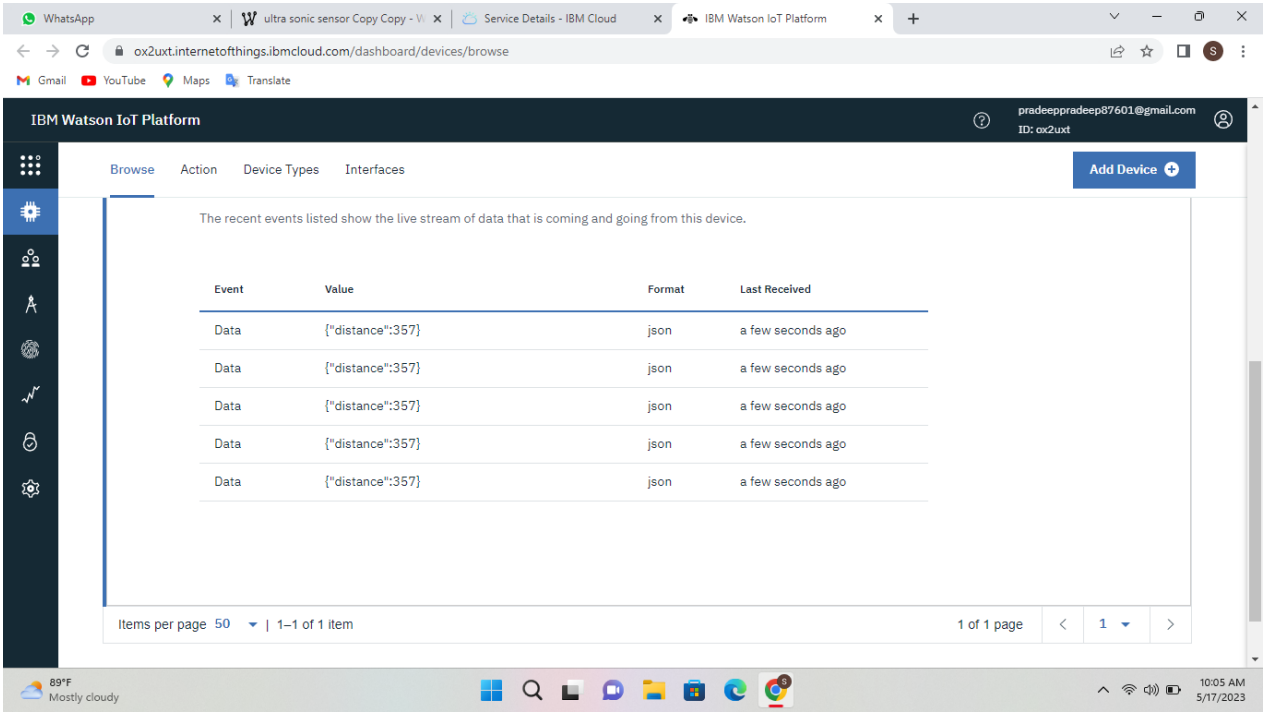
```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include "Ultrasonic.h" Ultrasonic
ultrasonic(2, 4); float distance;
 void callback(char* subscribetopic, byte* payload, unsigned int

payloadLength);  //-------credentials of IBM Accounts------
```

```
#define ORG "ox2uxt"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "1234" //Device ID mentioned in ibm watson IOT Platform
#define TOKEN "12345678"     //Token
String data3;
//float h, t;


//-------- 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/test/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); //calling the predefined
client id by passing parameter like server id,portand wificredential void
setup()// configureing the ESP32
{
  Serial.begin(115200);

  delay(10);
Serial.println();
wificonnect();
mqttconnect();
}
void loop()// Recursive Function
{    distance =
ultrasonic.read(CM);

  Serial.print("Distance in CM: ");
  Serial.println(distance);
  delay(1000);

  PublishData(distance);
delay(1000);   if
(!client.loop()) {
mqttconnect();
  }
```

```
}



/*.....................................retrieving to
Cloud.............................*/
 void PublishData(float 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);

data3="";


}
```

SCREENSHOT:


WhatsApp
ultra sonic sensor Copy Copy -
Service Details - IBM Cloud
IBM Watson IoT Platform
ox2uxt.internetofthings.ibmcloud.com/dashboard/devices/browse
Gmail
YouTube
Maps
Translate
IBM Watson IoT Platform
pradeeppradeep87601@gmail.com
ID: ox2uxt
Browse
Action
Device Types
Interfaces
Add Device
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Received
Data
{"distance":357}
json
a few seconds ago
Data
{"distance":357}
json
a few seconds ago
Data
{"distance":357}
json
a few seconds ago
Data
{"distance":357}
json
a few seconds ago
Data
{"distance":357}
json
a few seconds ago
Items per page 50
1–1 of 1 item
1 of 1 page
1
89°F
Mostly cloudy
10:05 AM
5/17/2023