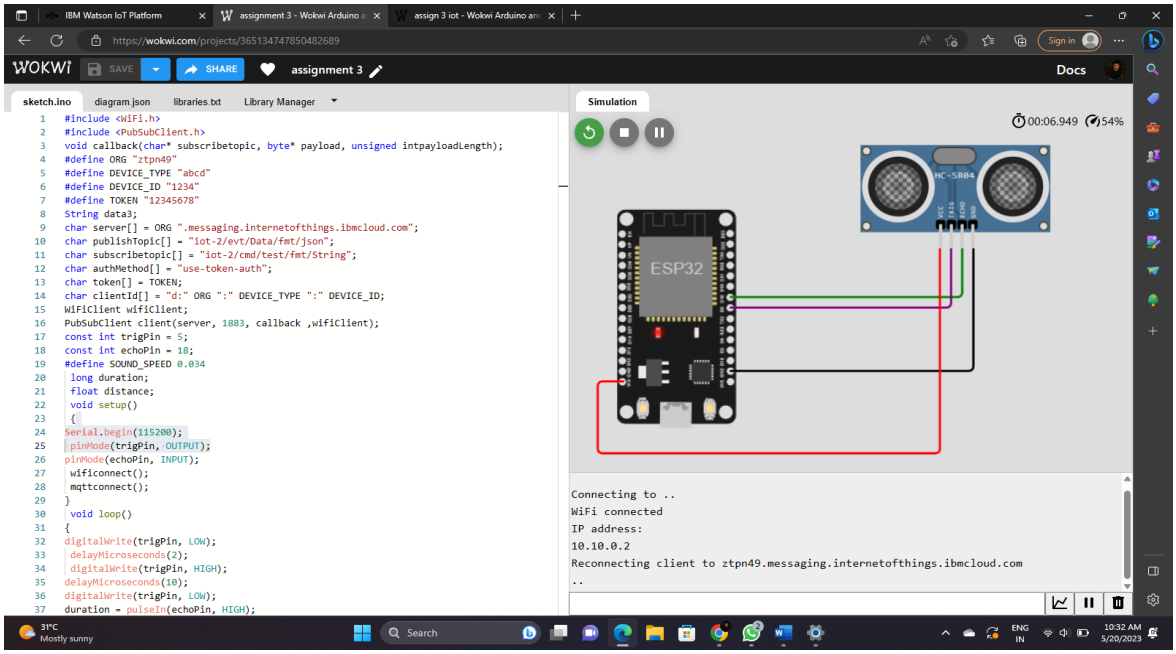
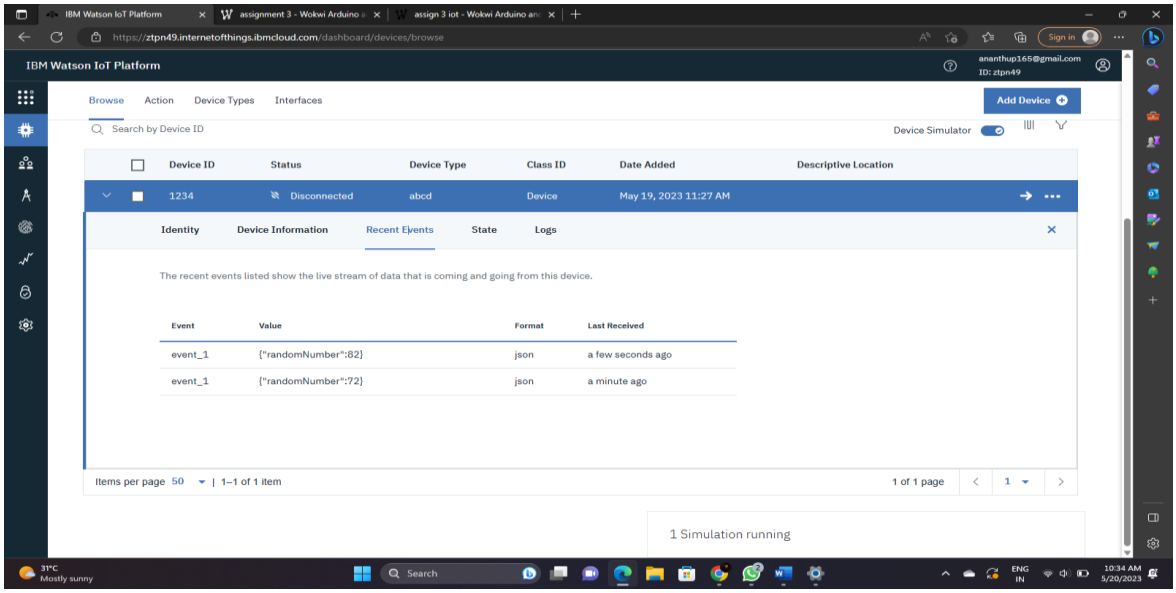
ASSIGNMENT NO-:3

Link:

https://wokwi.com/projects/365134747850482689

Diagram:





Code:

```
#include <WiFi.h>
#include <PubSubClient.h>
void callback(char* subscribetopic, byte* payload, unsigned intpayloadLength);
#define ORG "ztpn49"
#define DEVICE_TYPE "abcd"
#define DEVICE_ID "1234"
#define TOKEN "12345678"
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 += ",\"ALERT!!\":""\"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=" ";
}
```