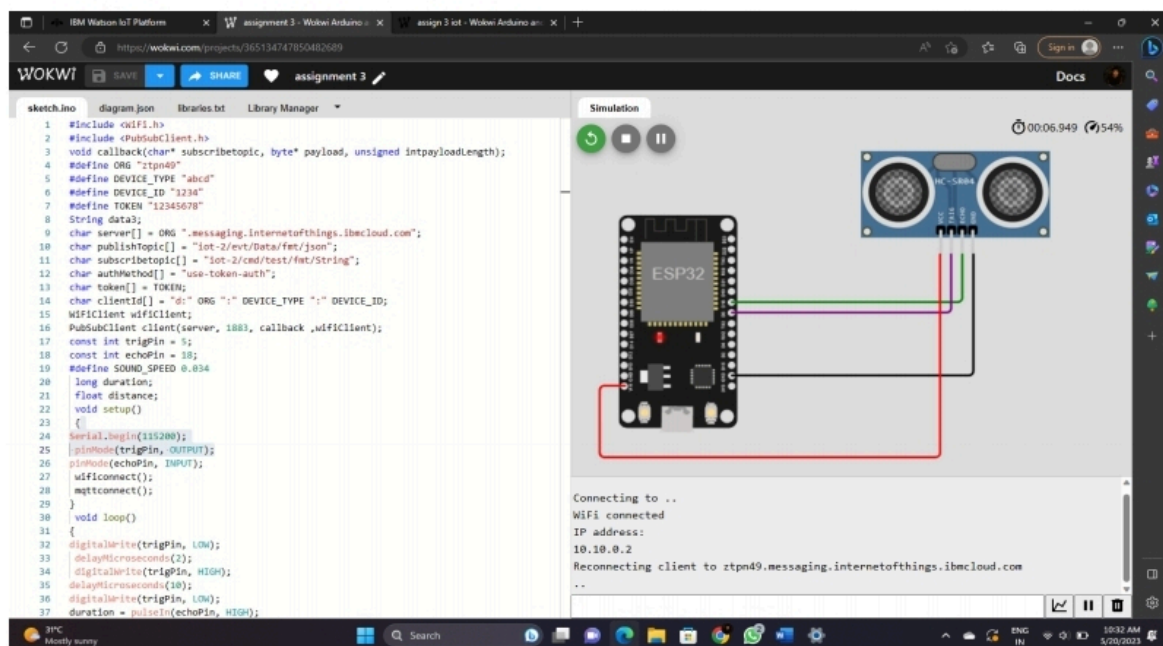


ASSIGNMENT NO-:3

Diagram:



Code:

```
#include <WiFi.h>

#include <PubSubClient.h>

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

#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 (lclient.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=" ";
}

```