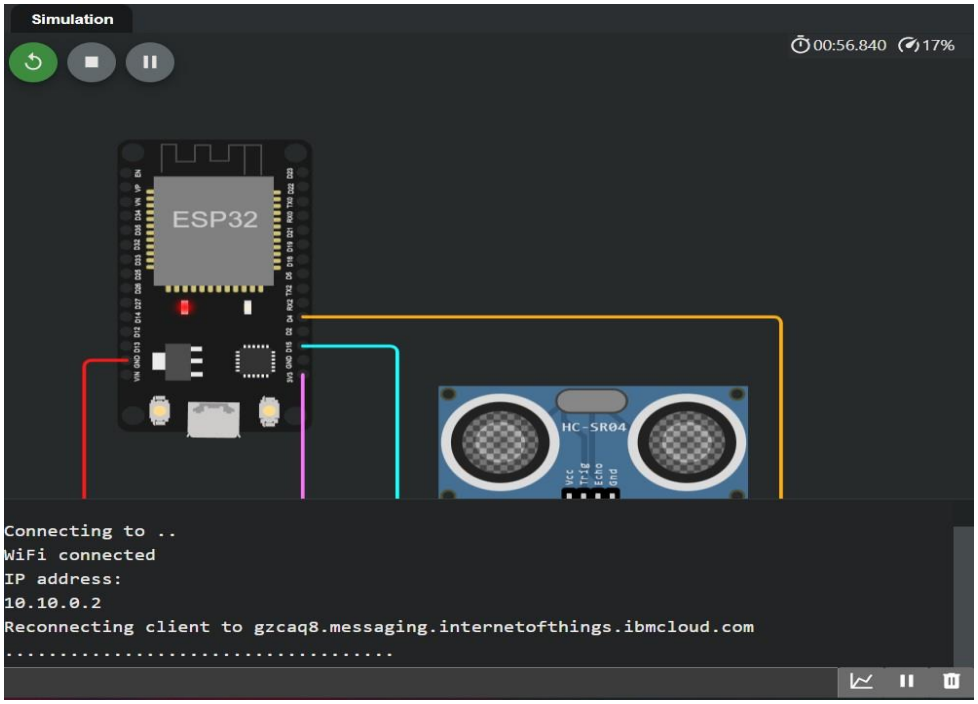
ASSIGNMENT-4

CODE:

```
#include <WiFi.h>//library for wifi
#include <PubSubClient.h>//library for MQtt
#include "DHT.h"// Library for dht11
#define TrigPIN 15
#define EchoPIN 4
#define MINDIST 100


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

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

#define ORG "gzcaq8"//IBM ORGANITION ID
#define DEVICE_TYPE "abcd"//Device type mentioned in ibm watson IOT Platform
#define DEVICE_ID "12"//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/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); //calling the predefined client
id by passing parameter like server id,portand wificredential


void setup()// configureing the ESP32
{
  Serial.begin(115200);
  pinMode(TrigPIN, OUTPUT);
  digitalWrite(TrigPIN, LOW);
  pinMode(EchoPIN, INPUT);
delay(10);   Serial.println();
wificonnect();
mqttconnect();
}  void loop()// Recursive
Function
{   unsigned long t1;
unsigned long t2;   unsigned
```

```
long pulse_Width;   float
distance;
   digitalWrite(TrigPIN,
HIGH);
delayMicroseconds(10);
digitalWrite(TrigPIN, LOW);
   pulse_Width =
pulseIn(EchoPIN,HIGH);
   distance= pulse_Width *0.034 /
2;

if(distance<100)
{
    PublishData();
  }    delay(1000);
if (!client.loop()) {
mqttconnect();
  }
}



/*.....................................retrieving to
Cloud.............................*/

void PublishData() {
  mqttconnect();//function call for connecting to ibm
  /*      creating the String in in form JSon to update the data to ibm
cloud
  */
  String payload = "{\"MESSAGE\":\"ALERT\"}";


  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)
{

} OUTPUT:
```



DATA SENT TO IBM CLOUD: