ASSIGNMENT 4

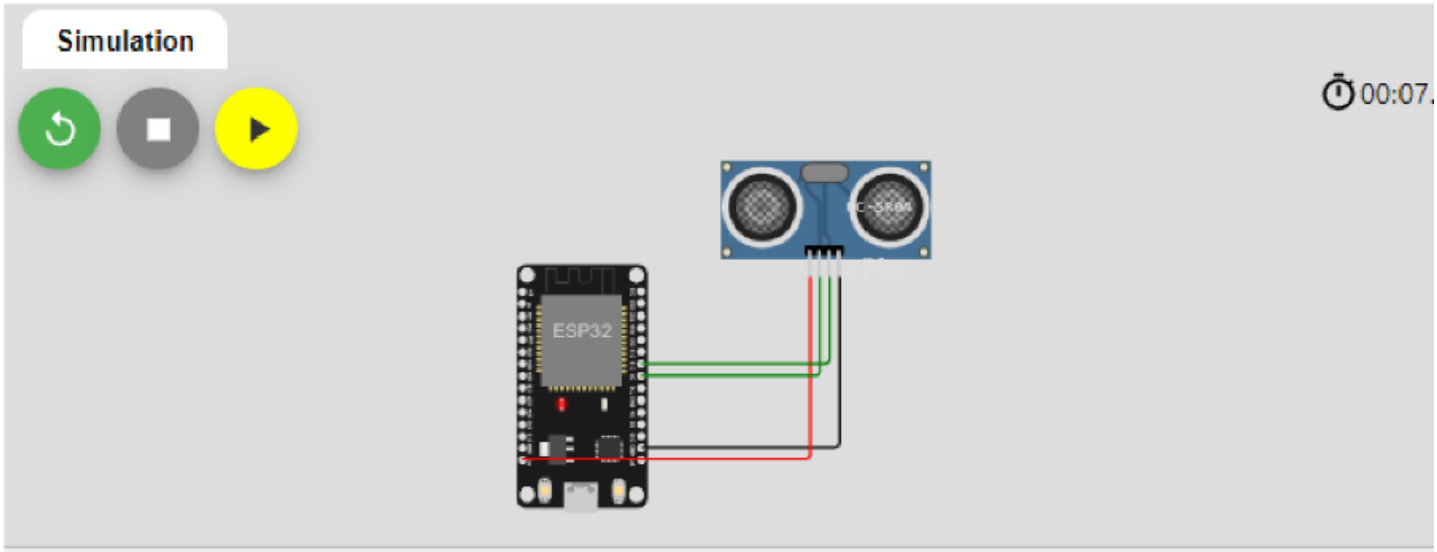
Date	13 November 2022
Team ID	PNT2022TMID43224
Project Name	IoT Based Smart Crop Protection System for Agriculture
Maximum Marks	2 marks

```
#include<WiFi.h>
#include<PubSubClient>
WiFiClient;


#define ORG"nhpwjc"
#define DEVICE_TYPE"NodeMCU"
#define DEVICE_ID"USE YOUR ID"
#define TOKEN"USE YOUR TOKEN"
#define speed 0.034


char server[]=ORG".messaging.internetofthings.ibmcloud.com";
char publishTopic[]="iot-2/evt/Data/fmt/json";
char topic[]="iot-2/cmd/home/fmt/String";
char authMethod[]="use-token-auth";
char token[]=TOKEN;
char clientid[]="d:" ORG "." DEVICE_TYPE"."DEVICE_ID;
 PubSubClient client(server, 1883,wificlient);
void publishData();
  const int trigpin=5;
  const int echopin=18;
  String command;
  String data="";
  long duration;
  float dist;

 void setup() {

  Serial.begin(115200);
  pinMode(trigpin, OUTPUT);
  pinMode(echopin,INPUT);
```

```
  wifiConnect();
  mqttConnect();

}

void loop()
 {
  publishData();
  delay(500);
  if(!client.loop())
  {
    mqttConnect();
  }
 }
 void wifiConnect(){
   Serial.print("Connecting to");
   Serial.print("Wifi");
   WiFi.begin("Wokwi-GUEST","",6);
   while(WiFi.status()!=WL_CONNECTED){
     delay(500);
     Serial.print(".");
   }
   Serial.print("WiFi coonected,IP address:");
   Serial.println(WiFi.localIP());
 }
 void mqttConnect(){
   if(!client.connected()){
     Serial.print("Reconnecting MQTT client to");
     Serial.println(server);
     while(!client.connect(clientid,authMethod,token)){
       Serial.print(".");
       delay(500);
```

```
    }
    initManagedDevice();
    Serial.println();
  }
}

void initManagedDevice(){
  if(client.subscribe(topic)){
    Serial.println("subscribe to cmd OK");

  }else{
    Serial.println("subscribe to cmd FAILED");
  }
}

void publishData()
{
  digitalWrite(trigpin,LOW);
  digitalWrite(trigpin,HIGH);
}

 delayMicroseconds(10);
 digitalWrite(trigpin,LOW);
 duration=pulseIn(echopin,HIGH);
 dist=duration*speed/2;
 if(dist<100){
   String payload="{\"Alert distance\":";payload+=dist,payload+="}";
   Serial.print("\n");
   Serial.print("Sending payload:");
   Serial.println(payload);
   if(client.publish(publishTopic,(char*)payload.c_str()))
   {
```

```
    {
      Serial.println("publish OK");
    }
    else{
      Serial.println("Publish FAILED")
    }
  }
```




```
Sending payload: {"Distance":399.96}
Publish OK

Sending payload: {"Distance":399.92}
Publish OK

Sending payload: {"Distance":399.96}
Publish OK
```