# ASSIGNMENT-4 DISTANCEDETECTIONUSINGULTRASONICSENS OR

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MaximumMarks	2Marks

#### Question1:

Write code and connections in wokwiforul trasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display indevice recent events.

#### CODE:

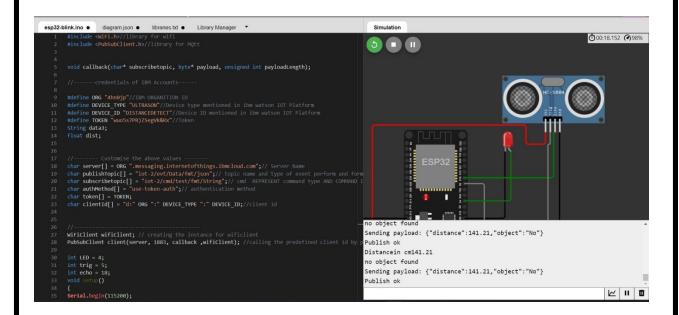
```
#include 
#inclu
```

```
esp32-blink.ino
                  diagram.json •
                                   libraries.txt ●
                                                  Library Manager *
       pinMode(trig,OUTPUT);
       pinMode(echo,INPUT);
       pinMode(LED, OUTPUT);
       delay(10);
       wificonnect();
       mqttconnect();
       void loop()// Recursive Function
        digitalWrite(trig,LOW);
         digitalWrite(trig,HIGH);
         delayMicroseconds(10);
         digitalWrite(trig,LOW);
         float dur = pulseIn(echo,HIGH);
         float dist = (dur * 0.0343)/2;
         Serial.print ("Distancein cm");
         Serial.println(dist);
         PublishData(dist);
         delay(1000);
         if (!client.loop()) {
         mqttconnect();
       void PublishData(float dist) {
         mqttconnect();//function call for connecting to ibm
```

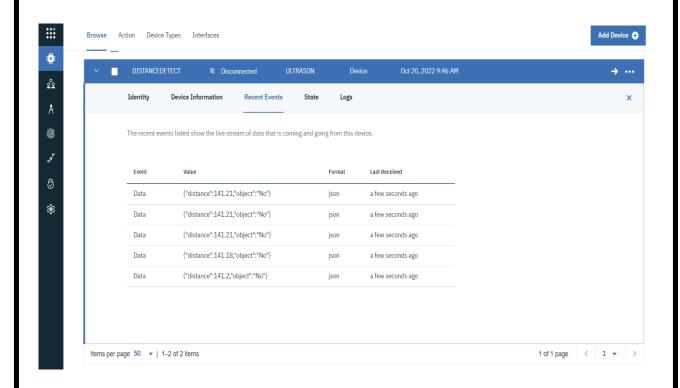
```
| creating the String in in form JSon to update the data to ibm cloud
| "/
| String object;
| if (dist cloe) {
| digitalWrite(LED,HIGH);
| Serial.println("object is near");
| object = "Near";
| }
| else {
| digitalWrite(LED,LOM);
| Serial.println("no object found");
| object = "No";
| }
| String payload = "{\"distance\":";
| payload += dist;
| payload += dist;
| payload += "," "\"object\":\"";
| payload += object;
| payload += "\")";
| Serial.println("Sending payload: ");
| Serial.println(payload);
```

```
esp32-blink.ino •
                   diagram.json •
                                   libraries.txt ●
                                                  Library Manager
         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");
           Serial.println("subscribe to cmd FAILED");
       void callback(char* subscribetopic, byte* payload, unsigned int payloadLength)
         Serial.print("callback invoked for topic: ");
 148
         Serial.println(subscribetopic);
         for (int i = 0; i < payloadLength; i++) {</pre>
           data3 += (char)payload[i];
```

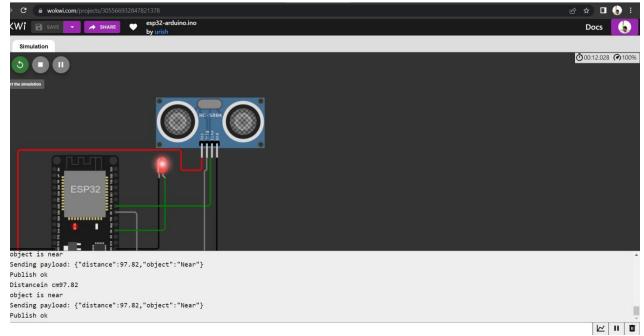
### **OUTPUT:**



## Datas end to the IBM cloud device when the object is far



# when object is near to the ultrasonic sensor



## Datas ent to the IBM Cloud Device when the object is near

