Assignment -4

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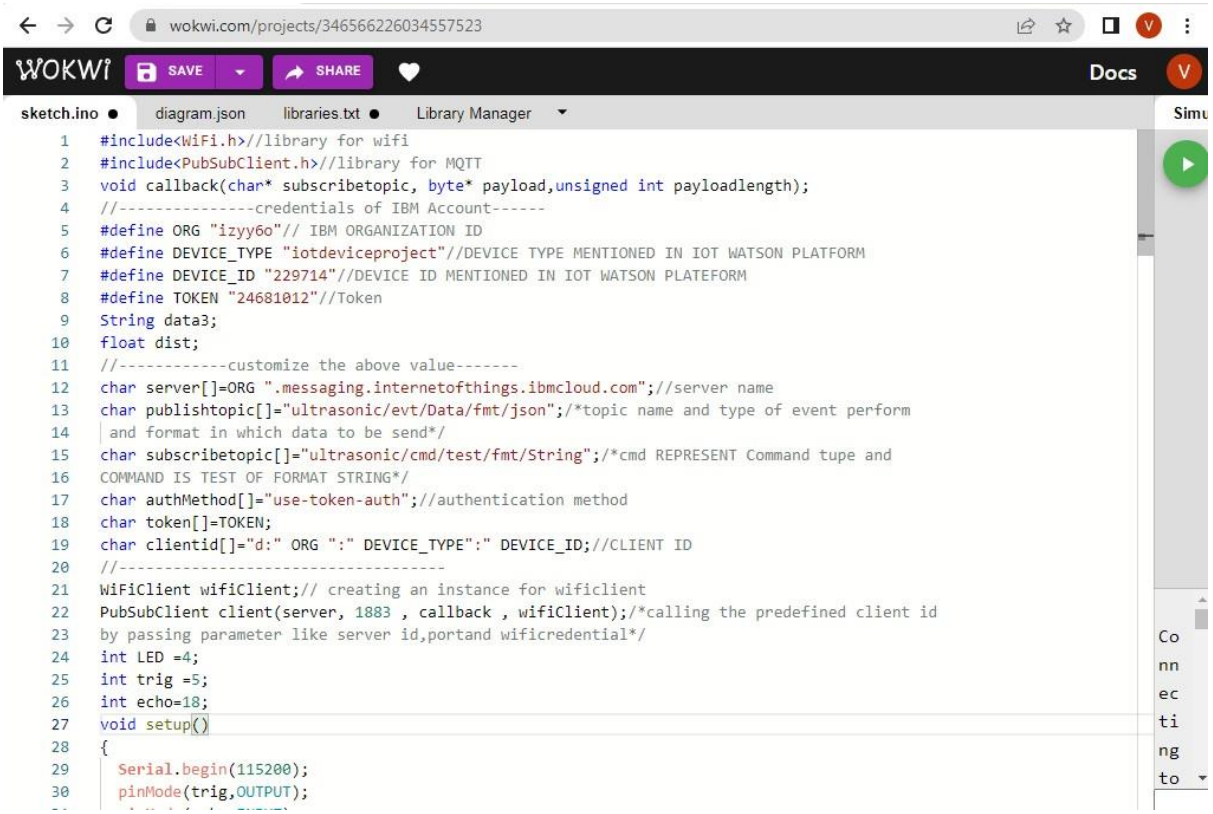
Python Programming

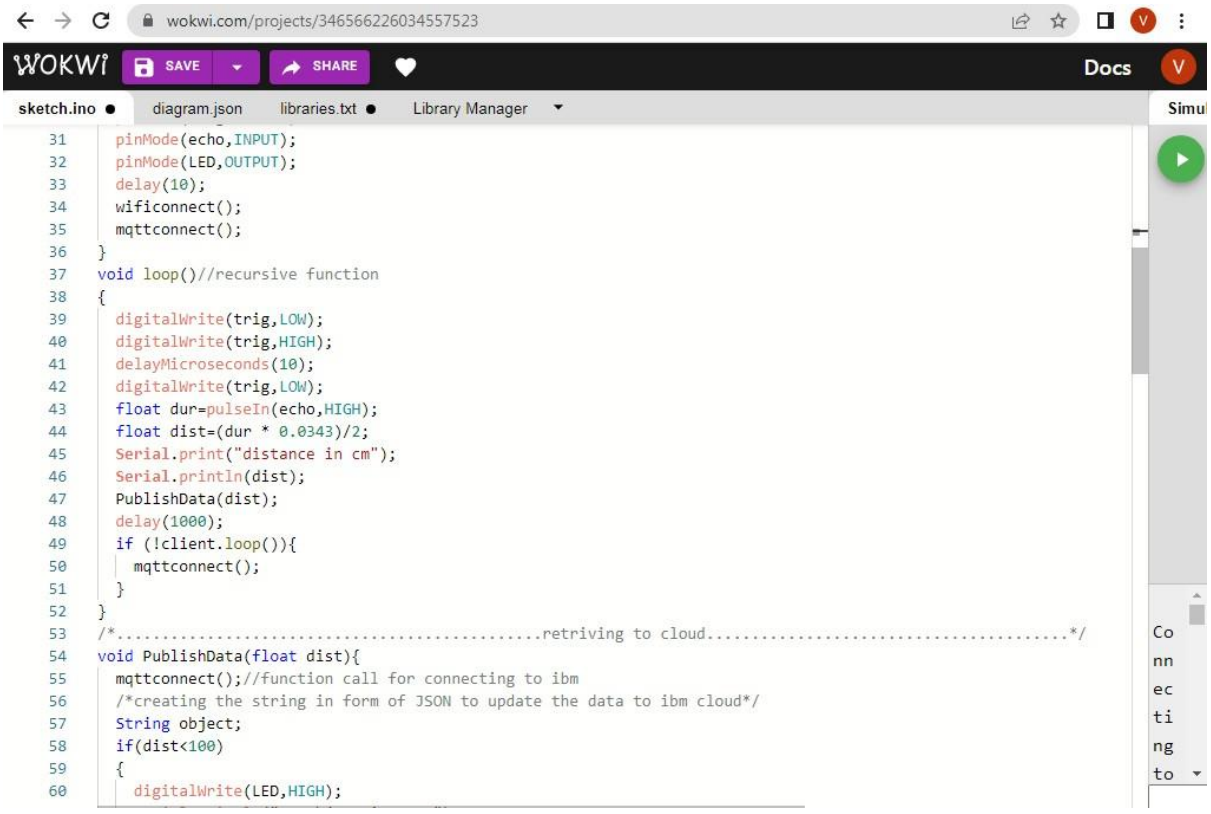
Question

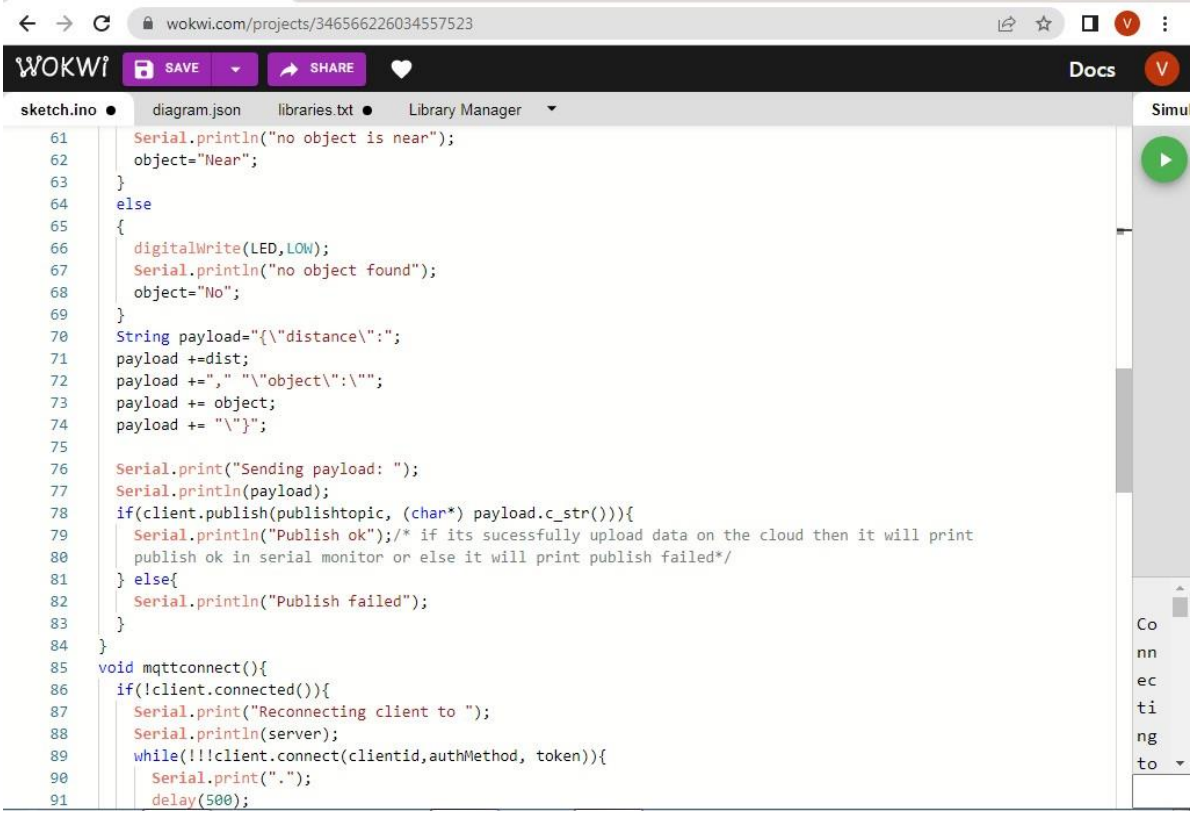
Write code and connections in wokwi for ultrasonic sensor. Whenever distance is less than 100 cms send "alert" to ibm cloud and display in devicerecent events.

Upload document with wokwi share link and images of ibm cloud

Solution:




wokwi.com/projects/346566226034557523
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
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("distance in cm");
Serial.println(dist);
PublishData(dist);
delay(1000);
if (!client.loop()){
mqttconnect();
}
}
/*.....retriving to cloud.....*/
void PublishData(float dist){
mqttconnect();//function call for connecting to ibm
/*creating the string in form of JSON to update the data to ibm cloud*/
String object;
if(dist<100)
{
digitalWrite(LED,HIGH);


wokwi.com/projects/346566226034557523
WOKWI
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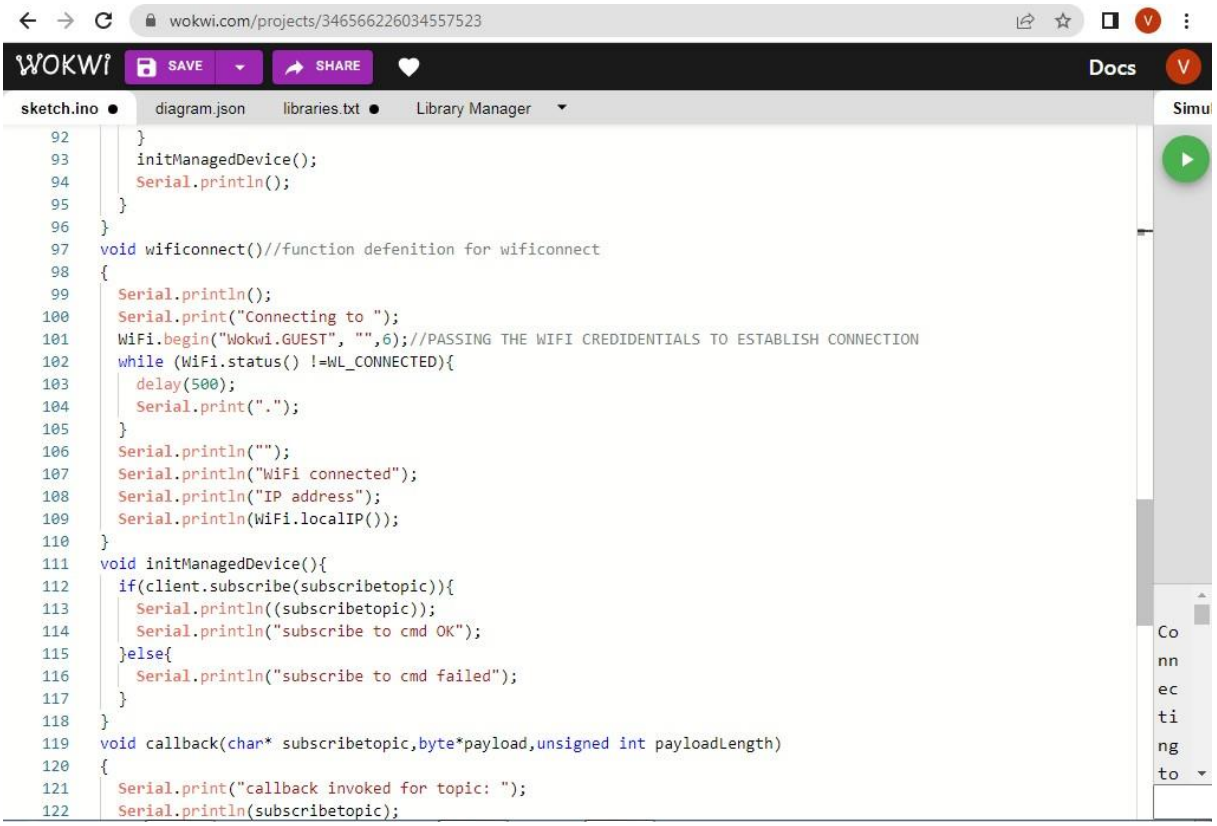
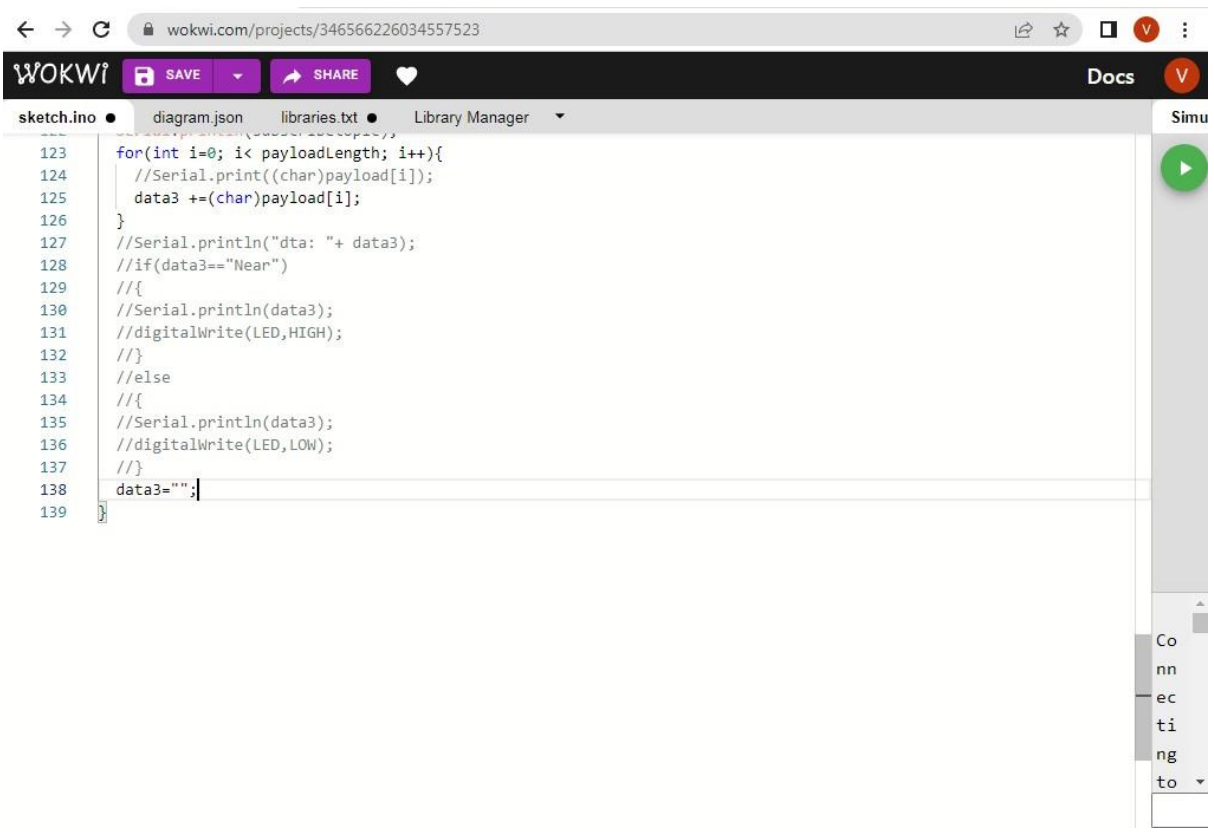
Library Manager
Serial.println("no object is near");
object="Near";
}
else
{
digitalWrite(LED,LOW);
Serial.println("no object found");
object="No";
}
String payload="{\"distance\":";
payload +=dist;
payload +="," "\"object\":\"";
payload += object;
payload += "\"}";
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishtopic, (char*) payload.c_str())){
Serial.println("Publish ok");/* if its 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);

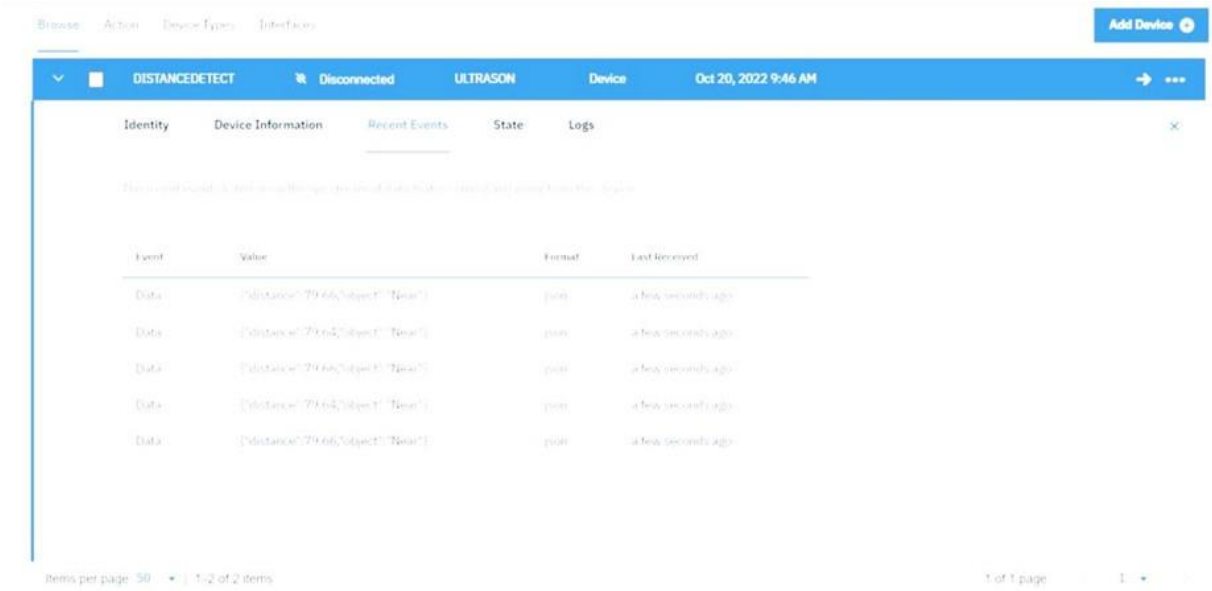




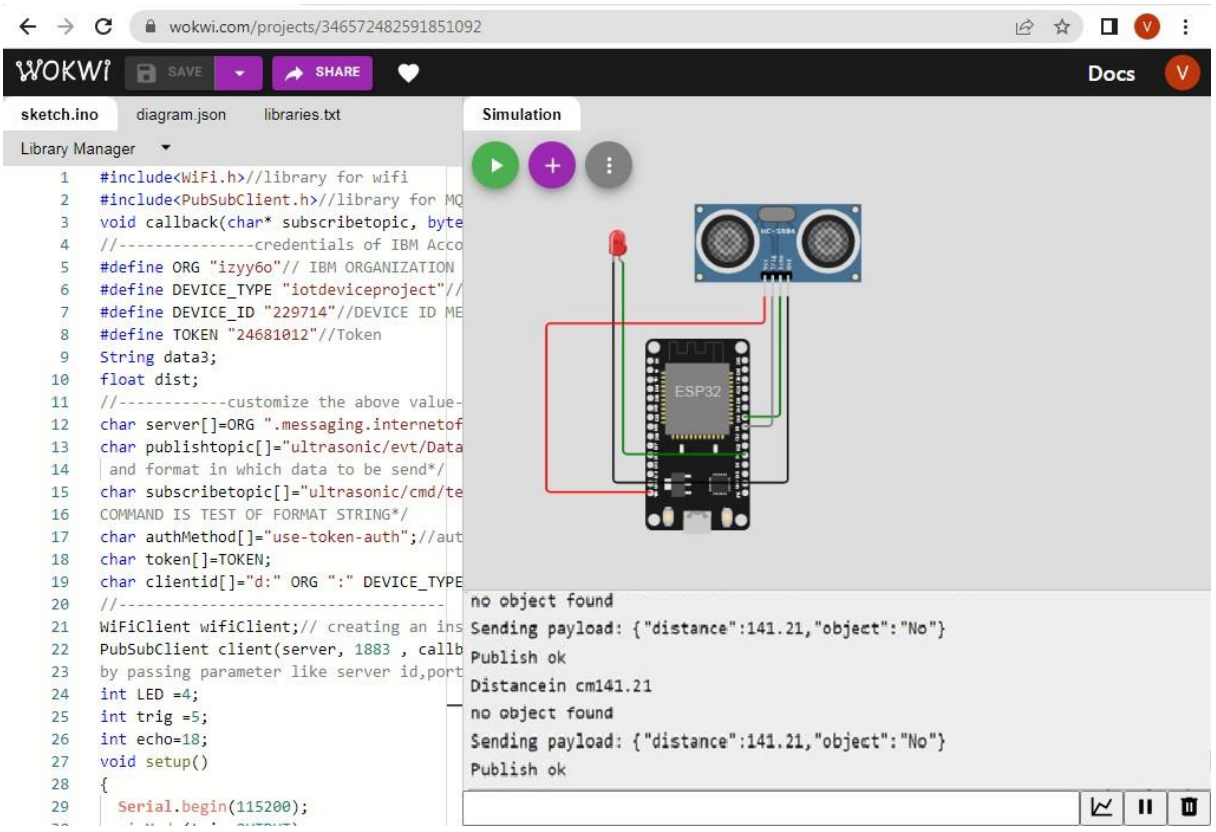
OUTPUT:

https://wokwi.com/projects/346572482591851092

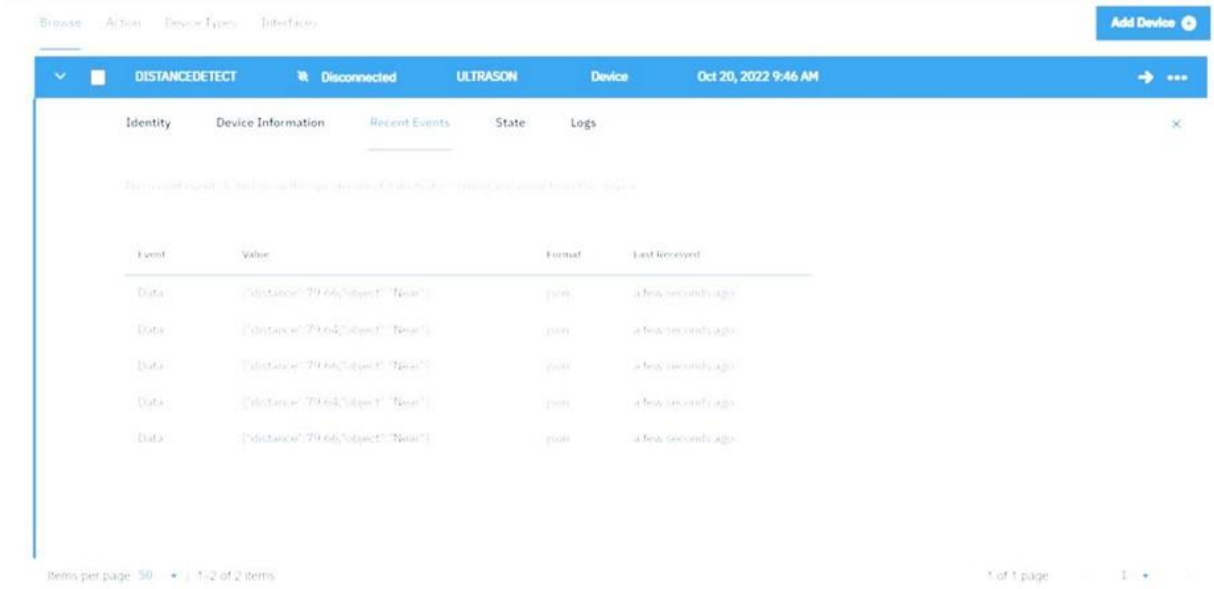
DATA SENT TO IBM CLOUD ON NO OBJECT DETECTED



WHEN NO OBJECT DETECTED BY ULTRASONIC DETECTOR



DATA SENT TO IBM CLOUD ON OBJECT BEING DETECTED



WHEN OBJECT DETECTED BY ULTRASONIC DETECTOR SENSOR