Assignment -4

Python Programming

Assignment Date	31 October 2022
Student Name	Sowmiya. R
Student Roll Number	922519205111
Maximum Marks	2 Marks

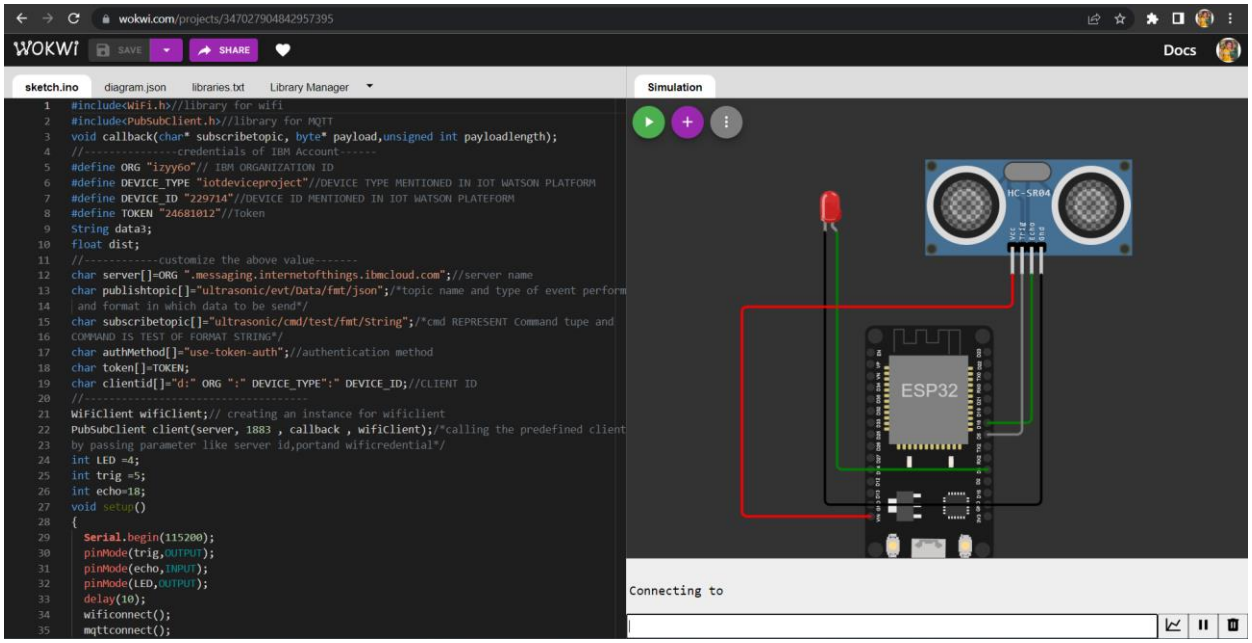
Question-1:

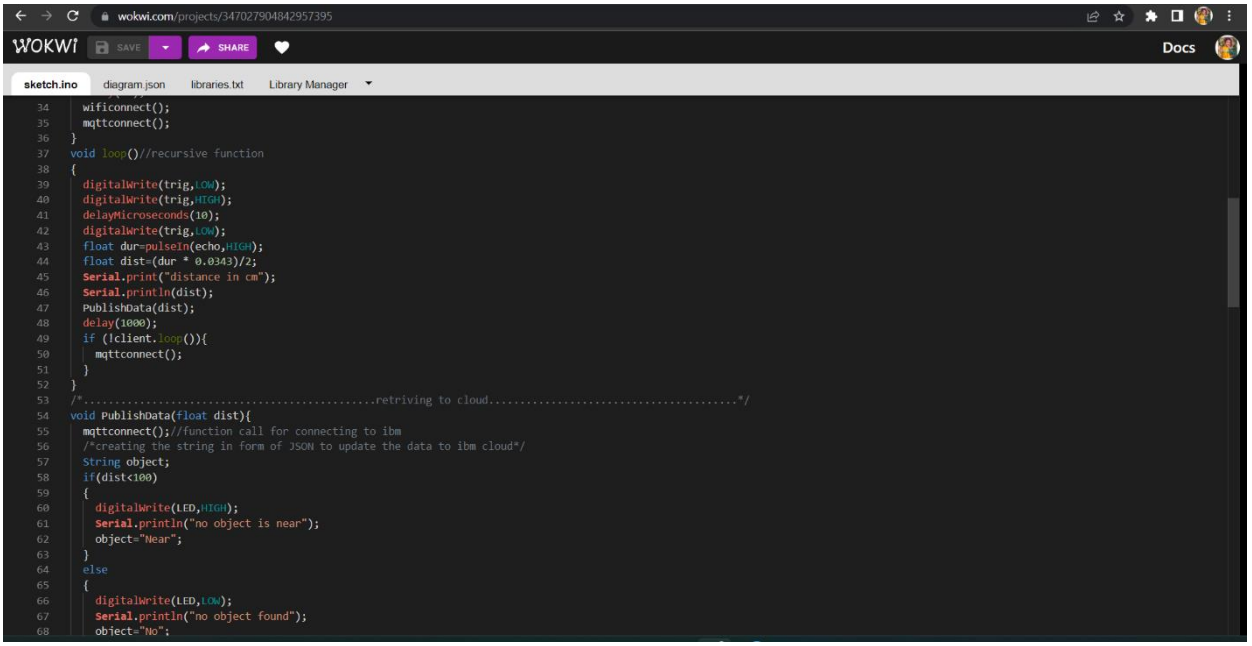
Write code and connections in wokwi for the ultrasonic sensor.

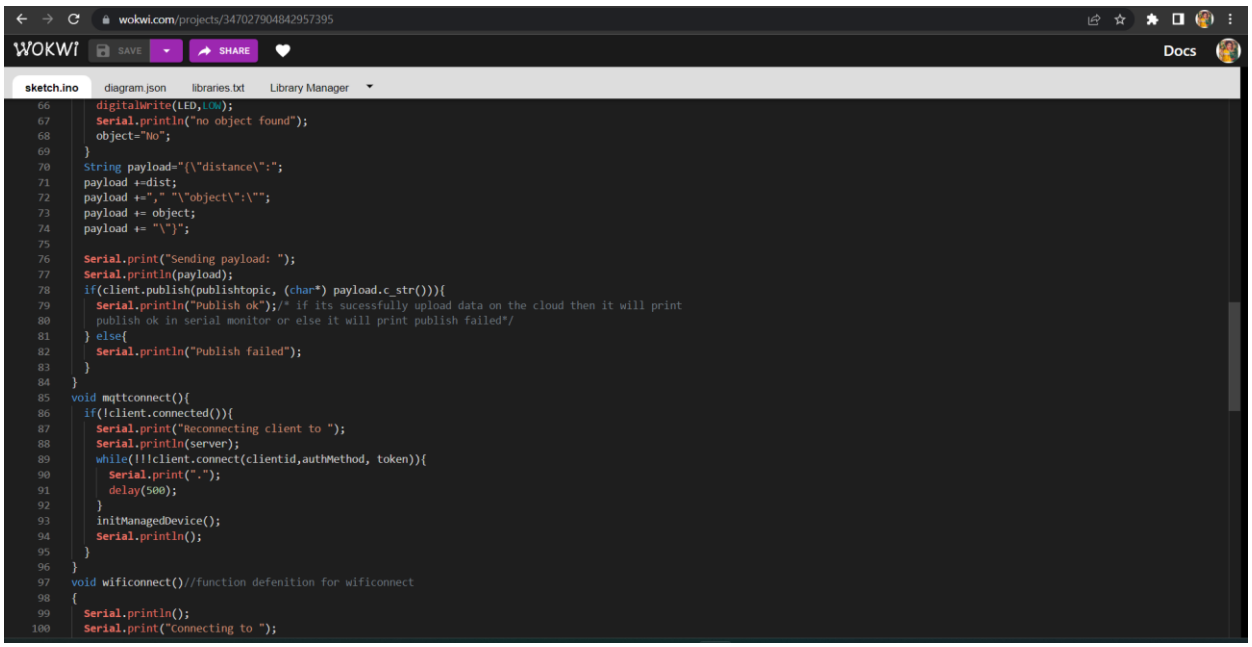
Whenever the distance is less than 100 cms send an "alert" to the IBM cloud and display in the devicerecent events.

Upload document with wokwi share link and images of IBM cloud

Solution:




wokwi.com/projects/347027904842957395
WOKWI
SAVE
SHARE
Docs
sketch.ino
diagram.json
libraries.txt
Library Manager
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);
Serial.println("no object is near");
object="Near";
}
else
{
digitalWrite(LED,LOW);
Serial.println("no object found");
object="No";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WOKWI
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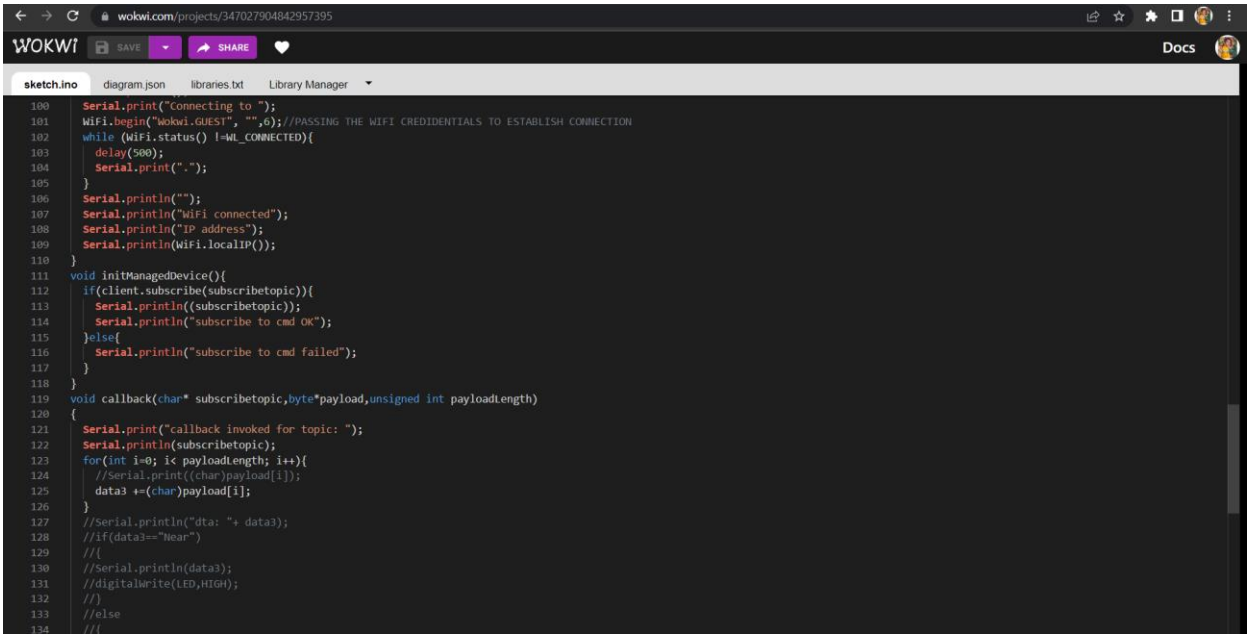
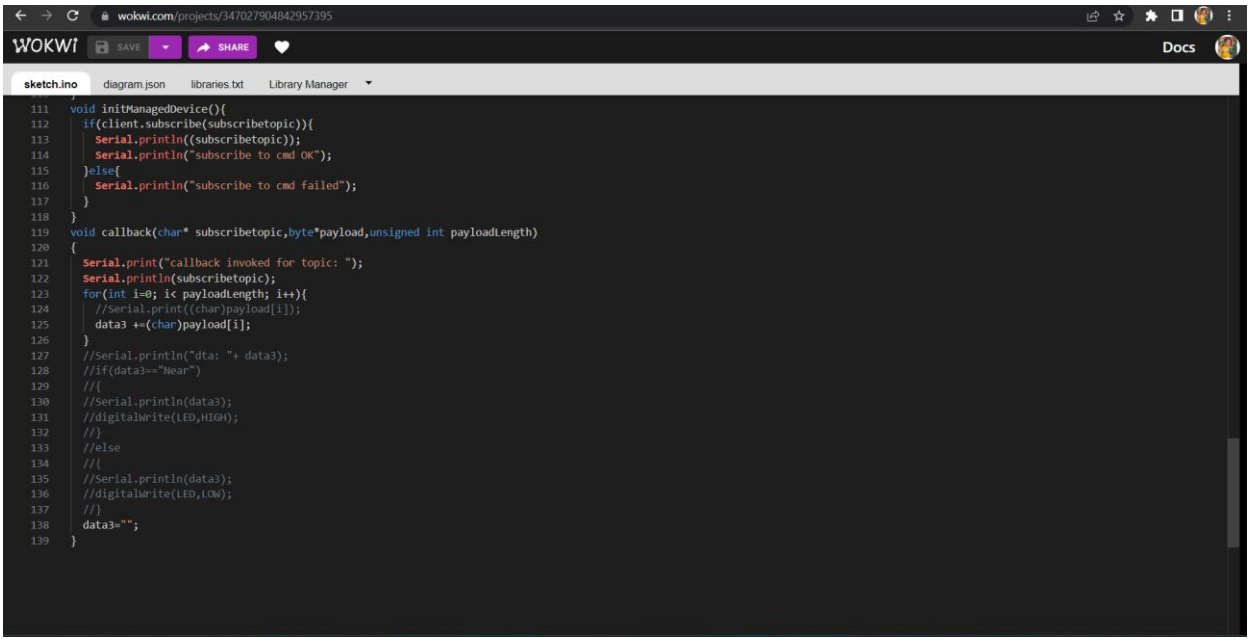
Library Manager
digitalWrite(LED,LOW);
Serial.println("no object found");
object="No";
}
String payload="{\"distance\":";
payload +=dist;
payload +="," "\"object\":\"";
payload += object;
payload += "\"}";
Serial.print("Sending payload: ");
Serial.println(payload);
if(client.publish(publishtopic, (char*) 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);
}
initManagedDevice();
Serial.println();
}
}
void wificonnect()//function defenition for wificonnect
{
Serial.println();
Serial.print("Connecting to ");

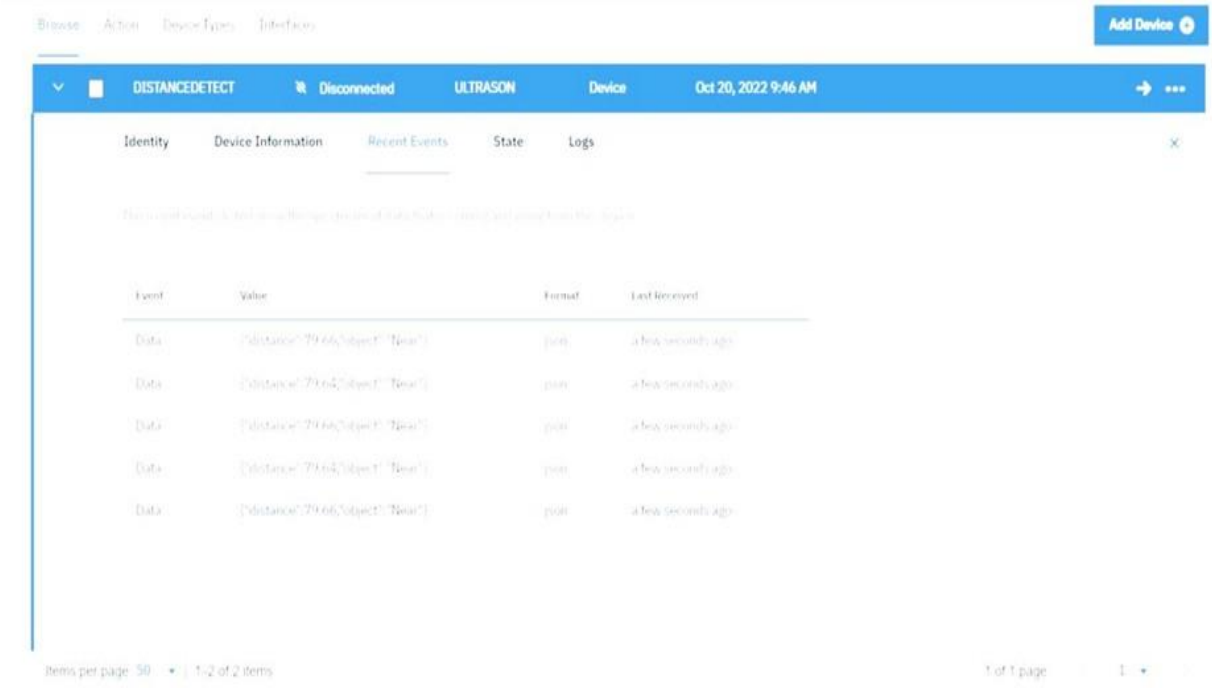




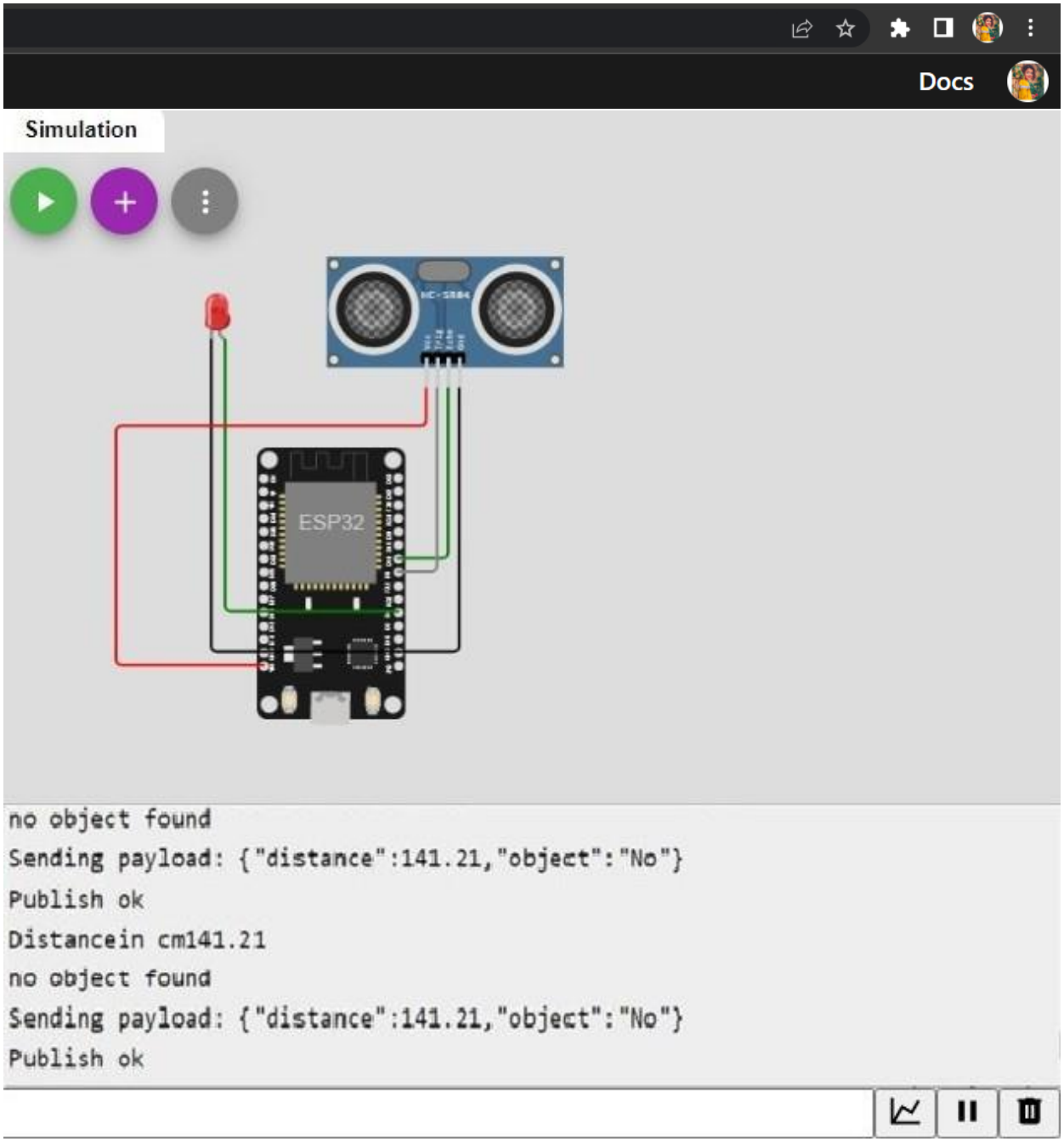
OUTPUT:

https://wokwi.com/projects/347027904842957395

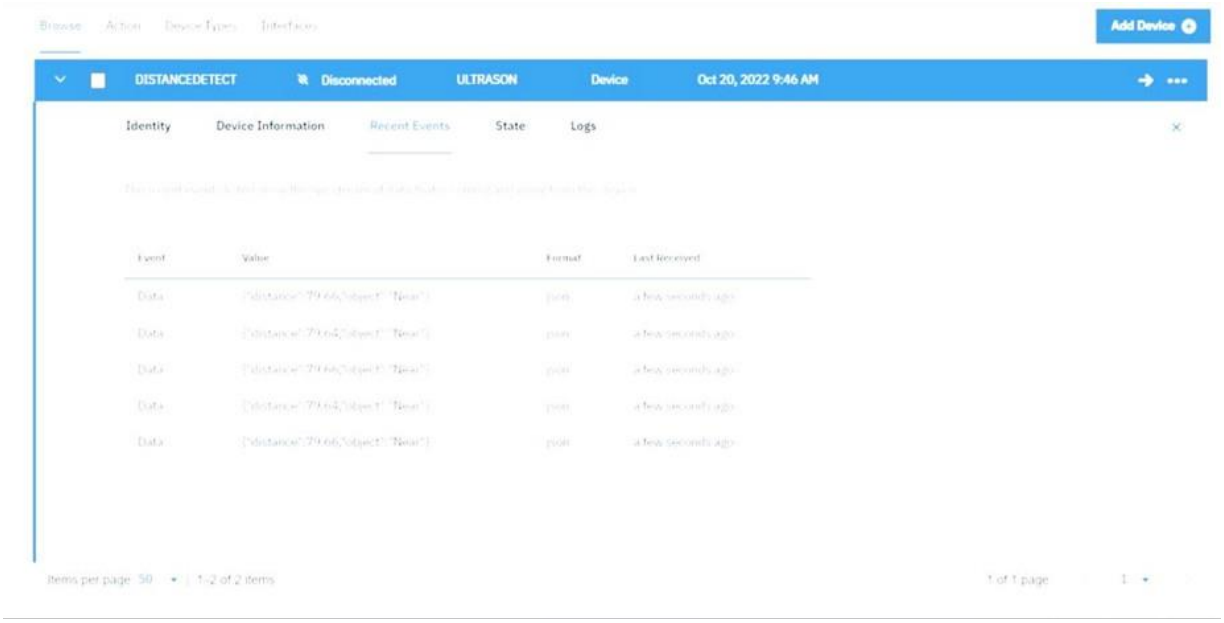
DATA SENT TO IBM CLOUD ON NO OBJECT DETECTED



WHEN NO OBJECT IS DETECTED BY THE ULTRASONIC DETECTOR



DATA SENT TO IBM CLOUD ON OBJECT BEING DETECTED



WHEN AN OBJECT IS DETECTED BY AN ULTRASONIC DETECTOR SENSOR