Assignment -4

Assignment Date	25 October 2022
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Student Roll Number	813819106025
Maximum Marks	2 Marks

Question-1:

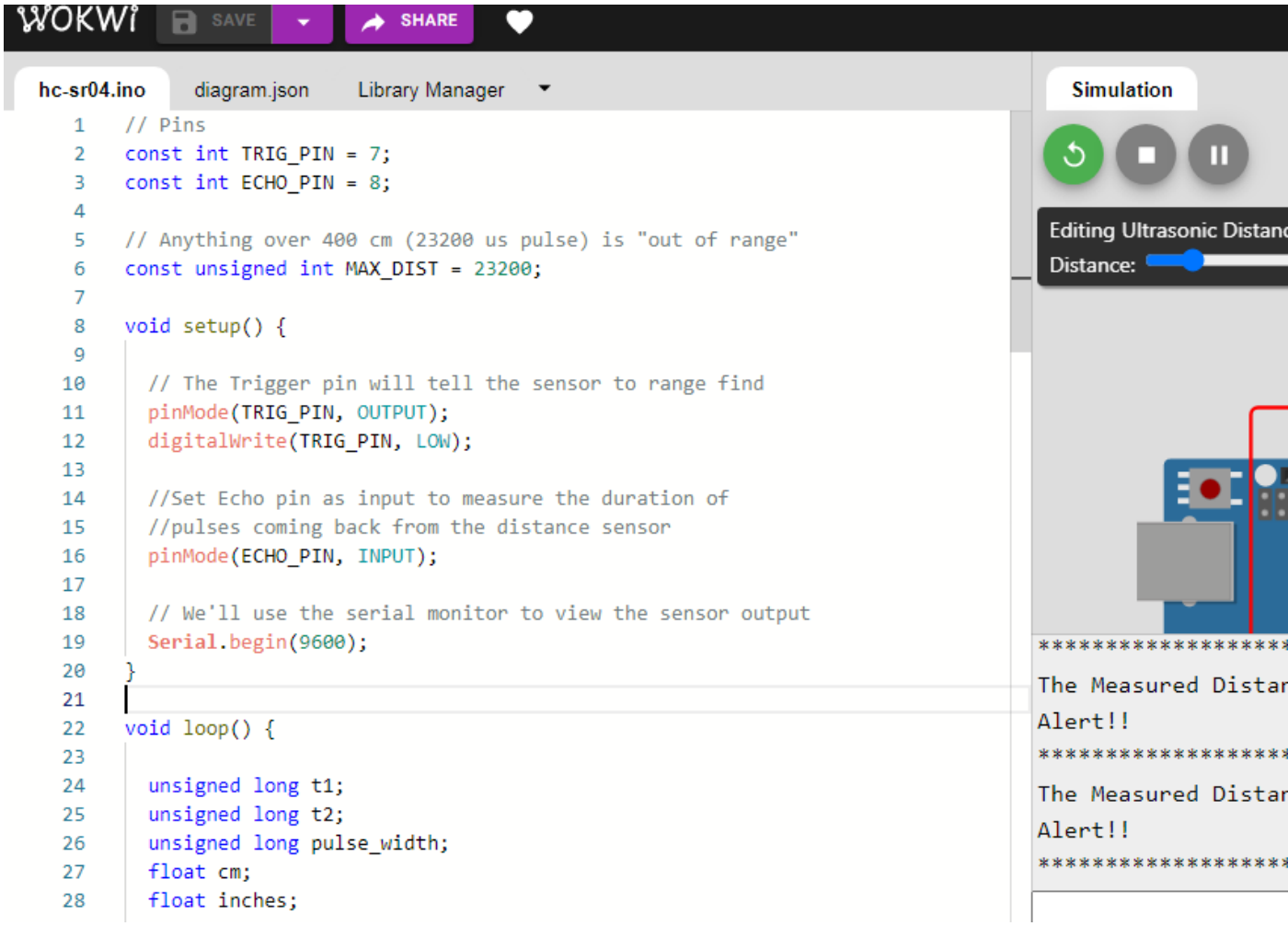
Write code and connections in wokwi for ultrasonic sensor. whenever distance is less than 100 cms send “alert” to ibm cloud and display in device recent events.

```
//Pins
const int TRIG_PIN = 7;
constintECHO_PIN=8;

//Anythingover400cm(23200 uspulse)is"outofrange"
const unsigned int MAX_DIST = 23200;

voidsetup(){

  //TheTriggerpinwilltellthesensortorange find
  pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN,LOW);

  //SetEchopinasinputtomeasurethedurationof
  //pulsescomingbackfromthedistancesensor
  pinMode(ECHO_PIN, INPUT);

  //We'llusetheserialmonitortoview thesensoroutput
  Serial.begin(9600);
}


voidloop(){

  unsignedlongt1;
  unsignedlongt2;
  unsignedlongpulse_width;
  float cm;
  floatinches;

  //Holdthetriggerpinhighforatleast10us
  digitalWrite(TRIG_PIN,HIGH);
```

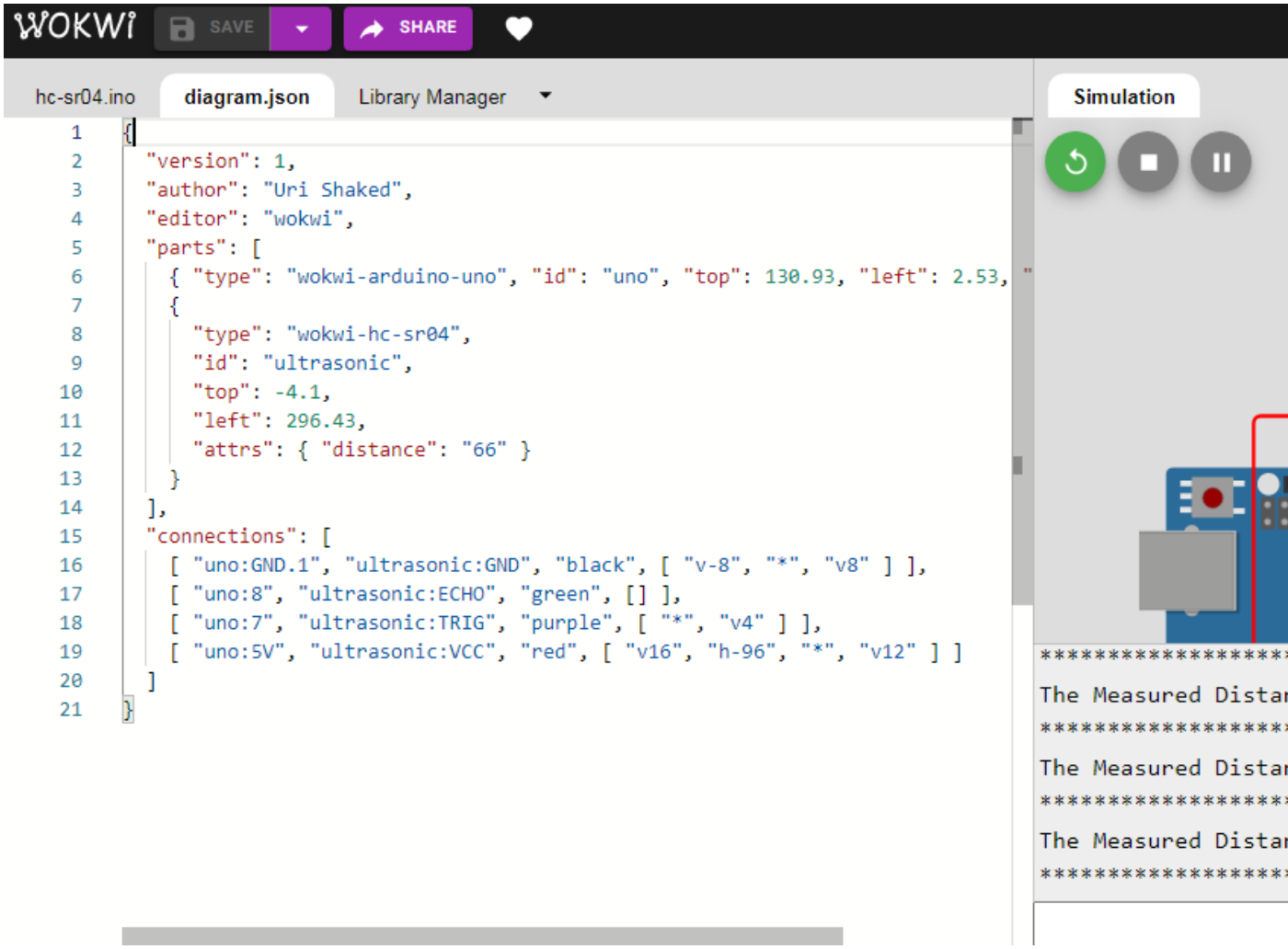
```
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN,LOW);

  //Waitforpulseonechopin
  while(digitalRead(ECHO_PIN)==0);

  //Measurehowlongtheechopinwasheldhigh(pulsewidth)
  //Note:the micros()counterwilloverflowafter~70min t1
  = micros();
  while(digitalRead(ECHO_PIN)==1);
  t2 = micros();
  pulse_width=t2-t1;

  //Calculatedistanceincentimetersandinches.Theconstants
  //arefoundinthedatasheet,andcalculatedfromtheassumedspeed
  //ofsoundinairatsealevel(~340m/s). cm
  = pulse_width / 58.0;
  inches=pulse_width/148.0;

  //Printoutresults
  if(pulse_width>MAX_DIST){
    Serial.println("Out of range");
  } else {
    Serial.println("*********************************");S
    erial.print("The Measured Distance in cm : ");
    Serial.println(cm);

    if(cm<100){
      // while(true){
      Serial.println("Alert!!");
      //}

    }


    Serial.print("*********************************");
  }


  //Waitatleast1000msbeforenextmeasurement
  delay(1000);
}
```

WOKWI SIMULATION:

Case 1:Distance less than 100 cm



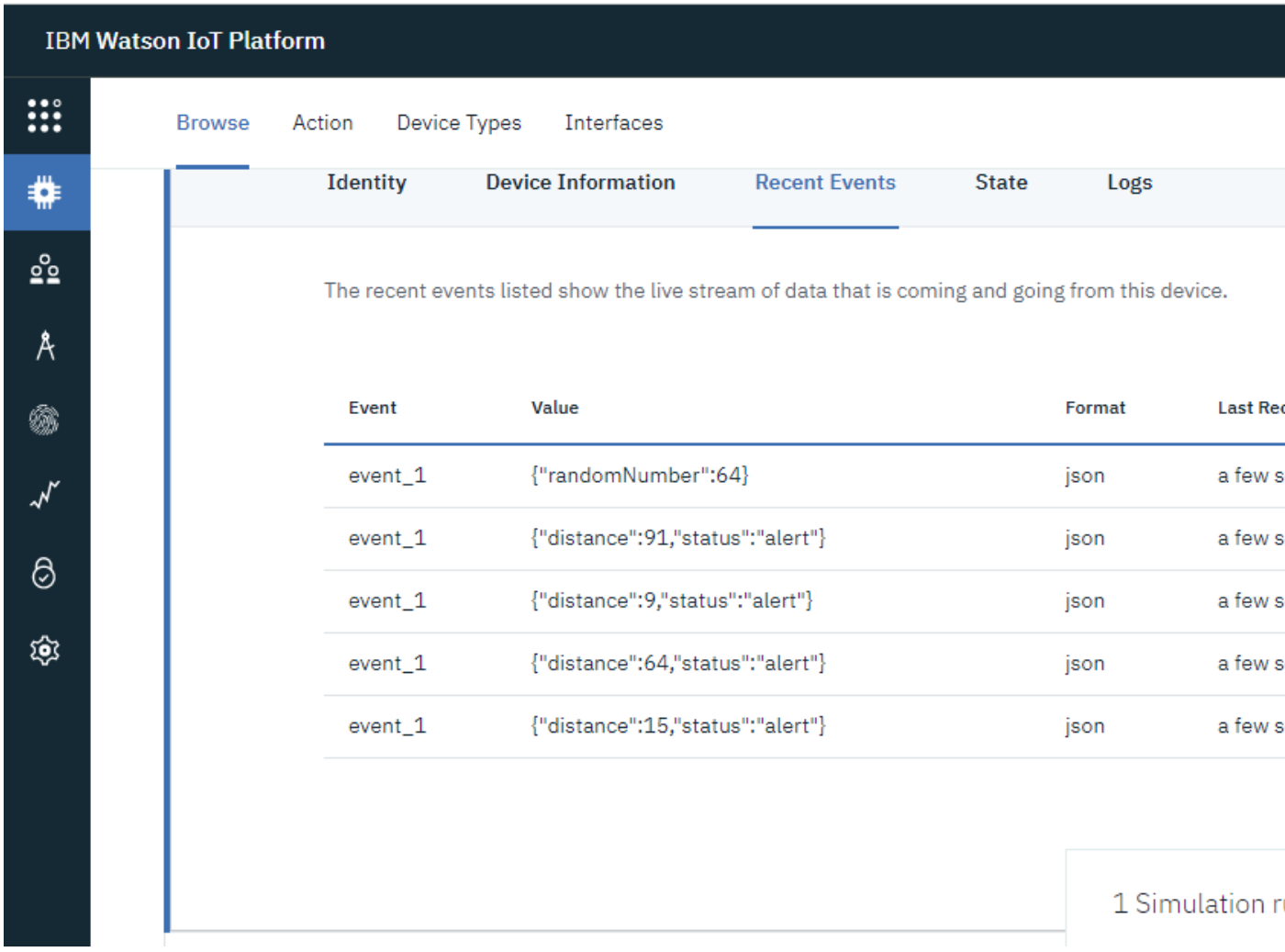
Case 2:Distance greater than 100 cms



WOKWI LINK:

https://wokwi.com/projects/346845722909344339

IBM CLOUD:


IBM Watson IoT Platform
Browse
Action
Device Types
Interfaces
Identity
Device Information
Recent Events
State
Logs
The recent events listed show the live stream of data that is coming and going from this device.
Event
Value
Format
Last Rec
event_1
{"randomNumber":64}
json
a few s
event_1
{"distance":91,"status":"alert"}
json
a few s
event_1
{"distance":9,"status":"alert"}
json
a few s
event_1
{"distance":64,"status":"alert"}
json
a few s
event_1
{"distance":15,"status":"alert"}
json
a few s
1 Simulation r