Assignment -4

Assignment Date	25 October 2022
Student Name	Akilaa.B
Student Roll Number	813819106008
Maximum Marks	2 Marks

Question-1:

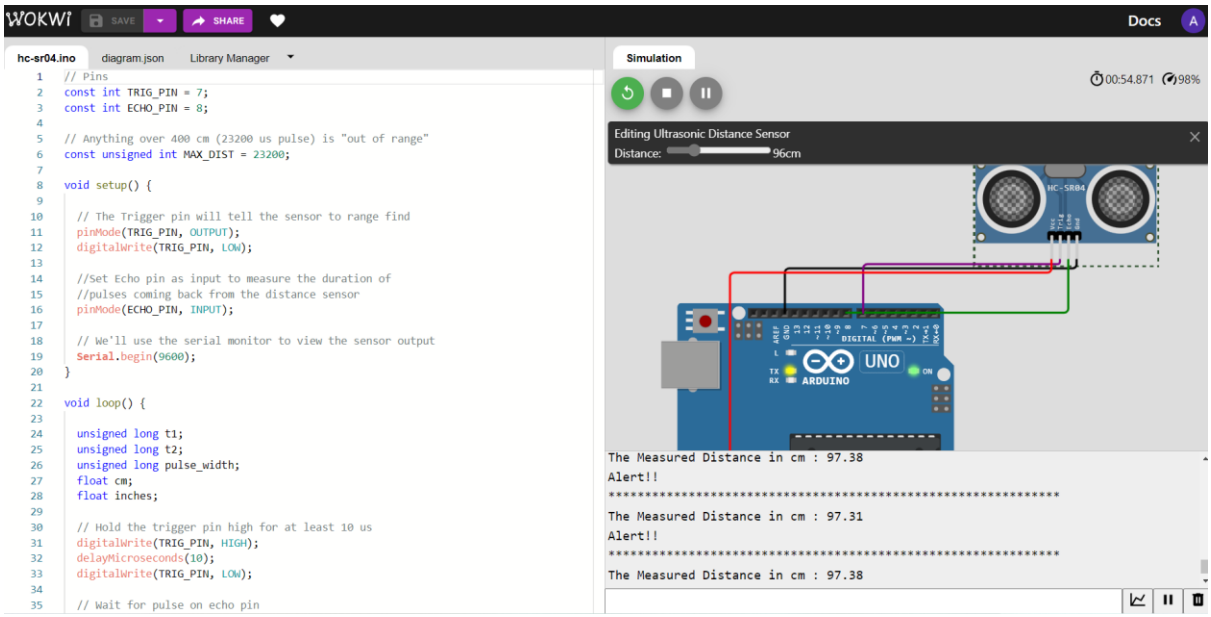
Write code and connections in wokwi for ultrasonic sensor. whenever distance is less than 100 cms send “alert” to ibm cloud and display in device recent events.

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

// Anything over 400 cm (23200 us pulse) is "out of
range" const unsigned int MAX_DIST = 23200;

void setup() {

  // The Trigger pin will tell the sensor to range find
  pinMode(TRIG_PIN, OUTPUT);
  digitalWrite(TRIG_PIN,   LOW);

  //Set Echo pin as input to measure the duration of
  //pulses coming back from the distance sensor
  pinMode(ECHO_PIN, INPUT);

  // We'll use the serial monitor to view the sensor output
  Serial.begin(9600);
}


void loop() {

  unsigned long t1;
  unsigned long t2;
  unsigned long pulse_width;
  float cm;
  float inches;

  // Hold the trigger pin high for at least 10 us
```

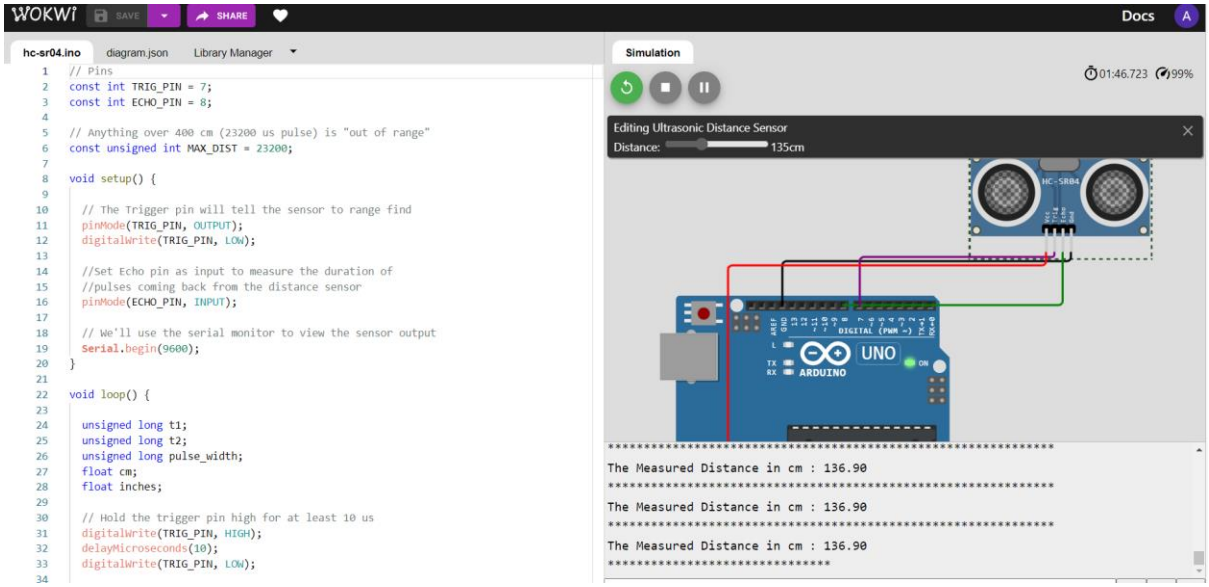
```
  digitalWrite(TRIG_PIN, HIGH);
  delayMicroseconds(10);
  digitalWrite(TRIG_PIN, LOW);

  // Wait for pulse on echo pin
  while ( digitalRead(ECHO_PIN) == 0 );

  // Measure how long the echo pin was held high (pulse width)
  // Note: the micros() counter will overflow after ~70
  min t1 = micros();
  while ( digitalRead(ECHO_PIN) ==
  1); t2 = micros();
  pulse_width = t2 - t1;

  // Calculate distance in centimeters and inches. The constants
  // are found in the datasheet, and calculated from the assumed speed
  //of sound in air at sea level (~340
  m/s). cm = pulse_width / 58.0;
  inches = pulse_width / 148.0;

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

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

    }


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


  // Wait at least 1000ms before next measurement
  delay(1000);
}
```

WOKWI SIMULATION:

Case 1:Distance less than 100 cm



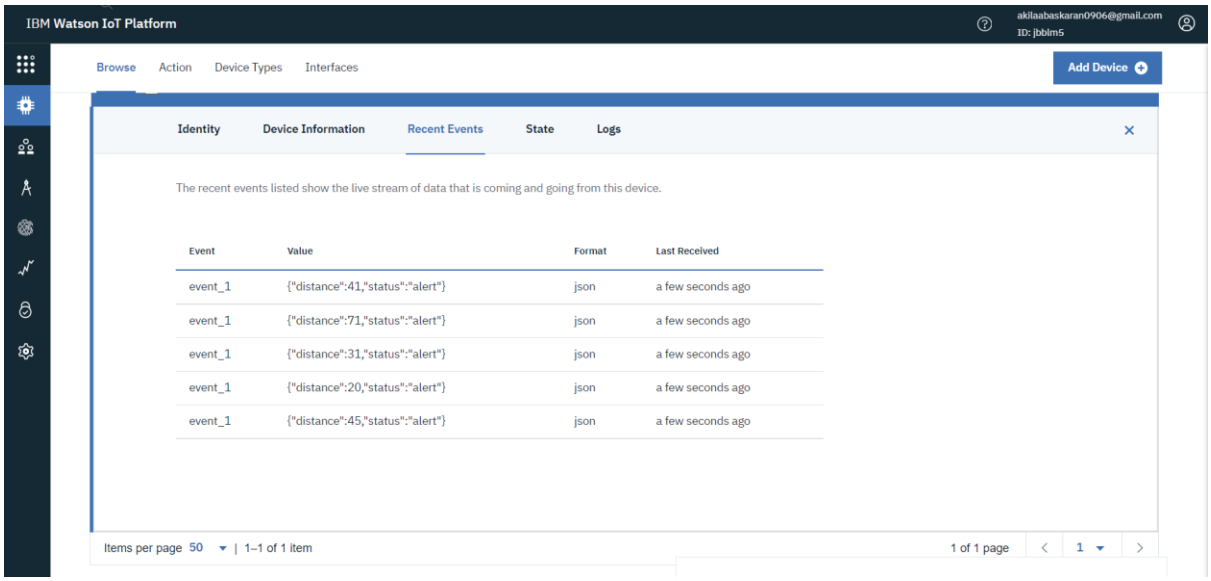
Case 2:Distance greater than 100 cms



WOKWI LINK:

https://wokwi.com/projects/346775395589161554

IBM CLOUD:


IBM Watson IoT Platform
akilaabaskaran0906@gmail.com
ID: jbblm5
Browse
Action
Device Types
Interfaces
Add Device
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 Received
event_1
{"distance":41,"status":"alert"}
json
a few seconds ago
event_1
{"distance":71,"status":"alert"}
json
a few seconds ago
event_1
{"distance":31,"status":"alert"}
json
a few seconds ago
event_1
{"distance":20,"status":"alert"}
json
a few seconds ago
event_1
{"distance":45,"status":"alert"}
json
a few seconds ago
Items per page 50
1–1 of 1 item
1 of 1 page
1