

ASSIGNMENT-4

DATE	25 october 2022
TEAM ID	PNT2022TMID48248
PROJECT NAME	Real time river water quality monitoring and control system
MAXIMUM MARK	2 marks

QUESTION:

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

CODE:

```
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 );

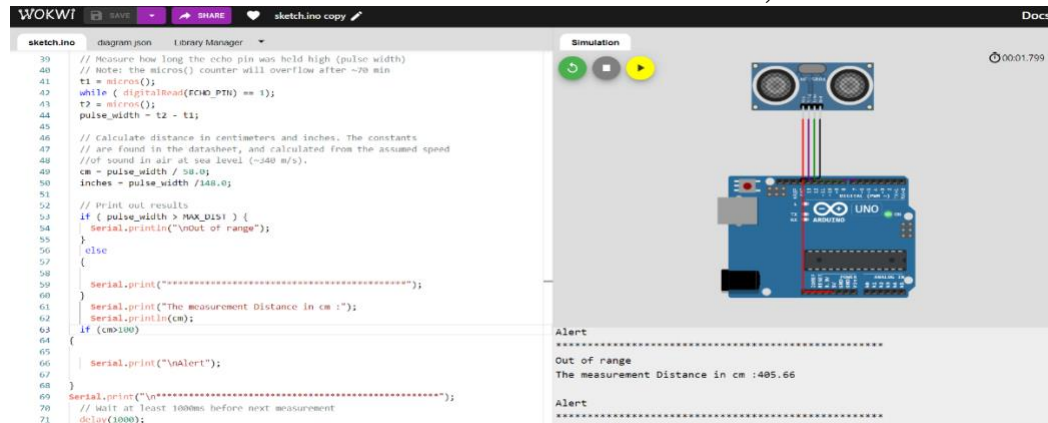
// Measure how long the echo pin was held high (pulse width)
// Note: the micros() counter will overflow after ~70 min
t1 = micros();
while ( digitalRead(ECHO_PIN) == 1);
t2 = micros();
pulse_width = t2 - t1;

// 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;

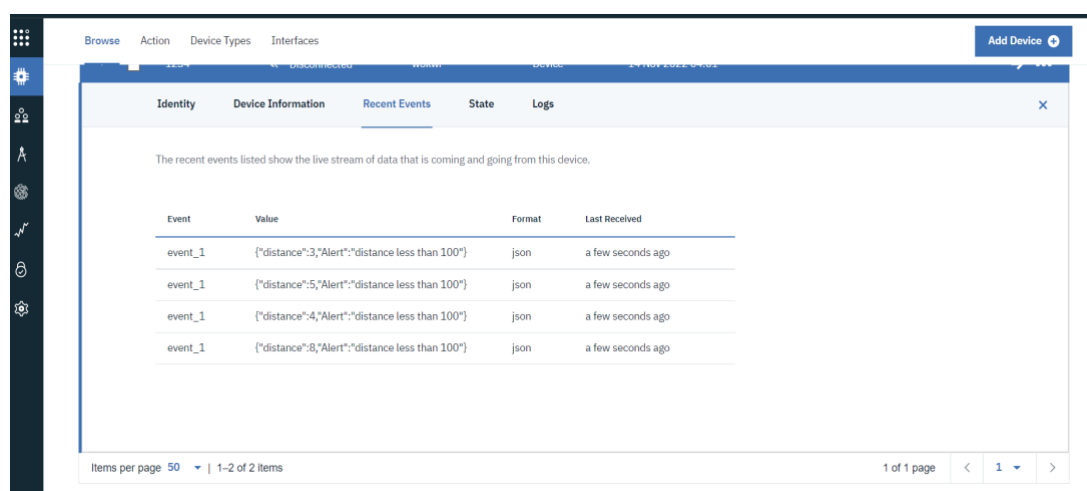
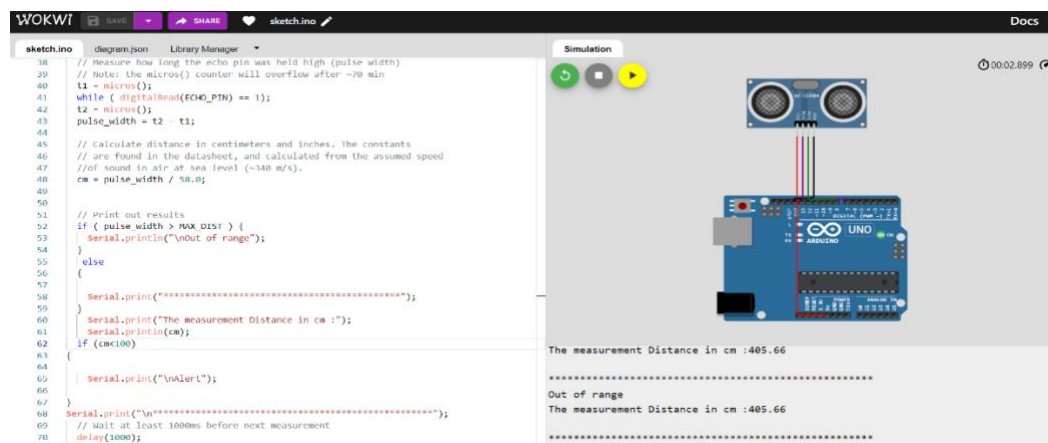
// Print out results
if ( pulse_width > MAX_DIST ) {
    Serial.println("\nOut of range");
}
else
{
    Serial.print("*****");
}
    Serial.print("The measurement Distance in cm :");
    Serial.println(cm);
if (cm>100)
{
    Serial.print("\nAlert");
}
Serial.print("\n*****");
// Wait at least 1000ms before next measurement
delay(1000);
}

```

1.If the distance is less than 100 centimeters,it alerts.



2.If the distance is more than 100 centimeters,it won't alert



WOKWI LINK:

<https://wokwi.com/projects/348244960188826196>