ASSIGNMENT 4

Assignment Date	15 October 2022
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Maximum Marks	2 Marks

Write Code and connections in wok Wi for ultrasonic sensor. Whatever distance is less than 100 cms send “Alert” to ibm cloud a and display in device recent events.

Solution:

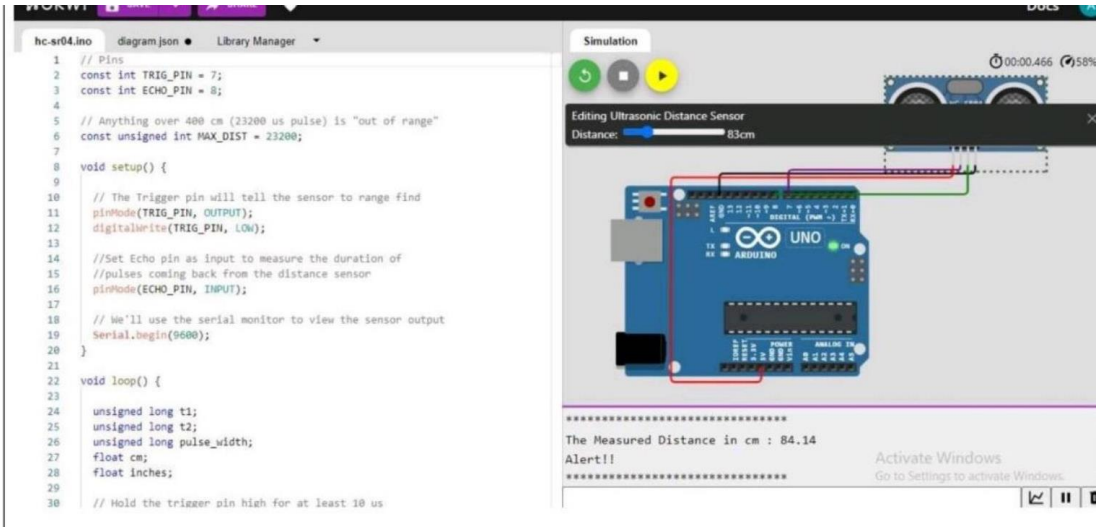
```
//Pins
const int TRIG_PIN = 7;

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
Pin Mode (TRIG_PIN, OUTPUT);
digital Write (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 (- 340m/s)
```

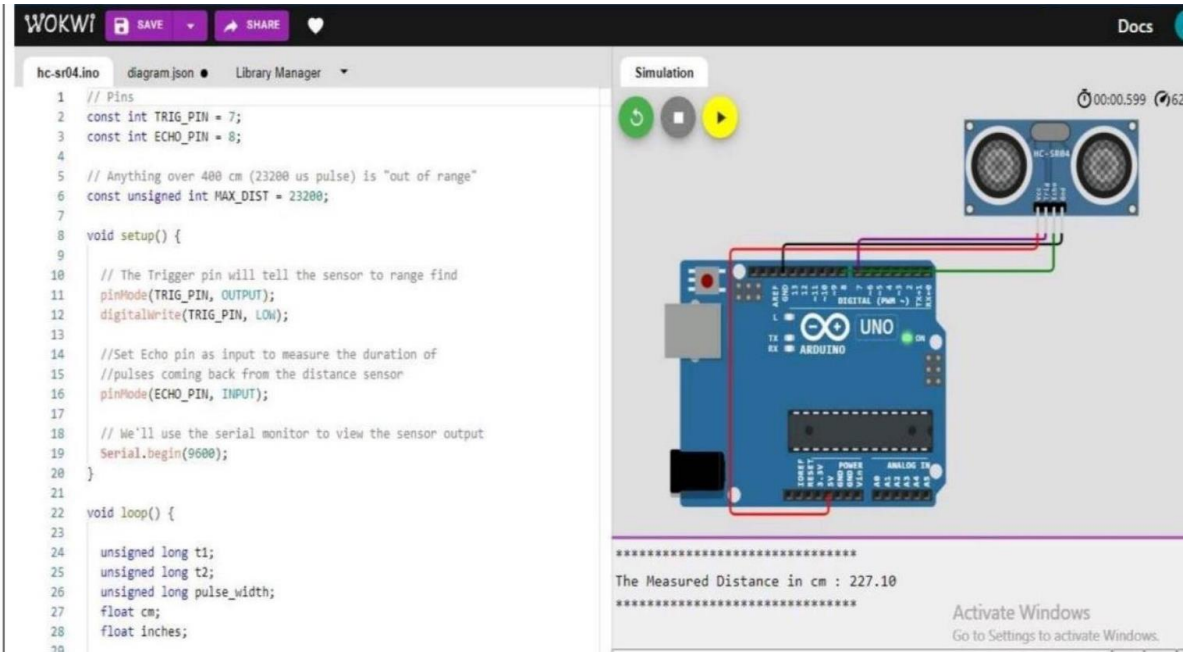
```
 cm=pulse_Width / 58;
 inches = pulse_width/148.0;
// Print out results
if (pulse_width >MAX _ DIST){
Serial.println("Out of range");
} else {
Serial.println("*******************************”);
Serial.print("The Measured Distance in cm: ");
Serial.println(cm);

if (cm < 100) {
     //while(true){
      Serial.println(“Alert!!”);
      //}
}
Serial.print(“*********************************”);
}
//wait at least 1000ms before next measurement
Delay (1000);
}
```

Output:

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



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



3. Simulation and code execution

```
The Measured Distance in cm : 57.79
Alert it !!
```

```
The Measured Distance in cm : 201.79
```

WOKWI
SHARE
Simulation
Code
UNO

eec