

Assignment -4
Internet of Things (IoT)

Assignment Date	30 October 2022
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Maximum Marks	2 Marks

1. 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.

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 findPin
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 sensorpinMode(ECHO_PIN,
INPUT ) ;

// We'll use the serial monitor to view the sensor outputSerial.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 mint1= 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("*****");
```

```
}
```

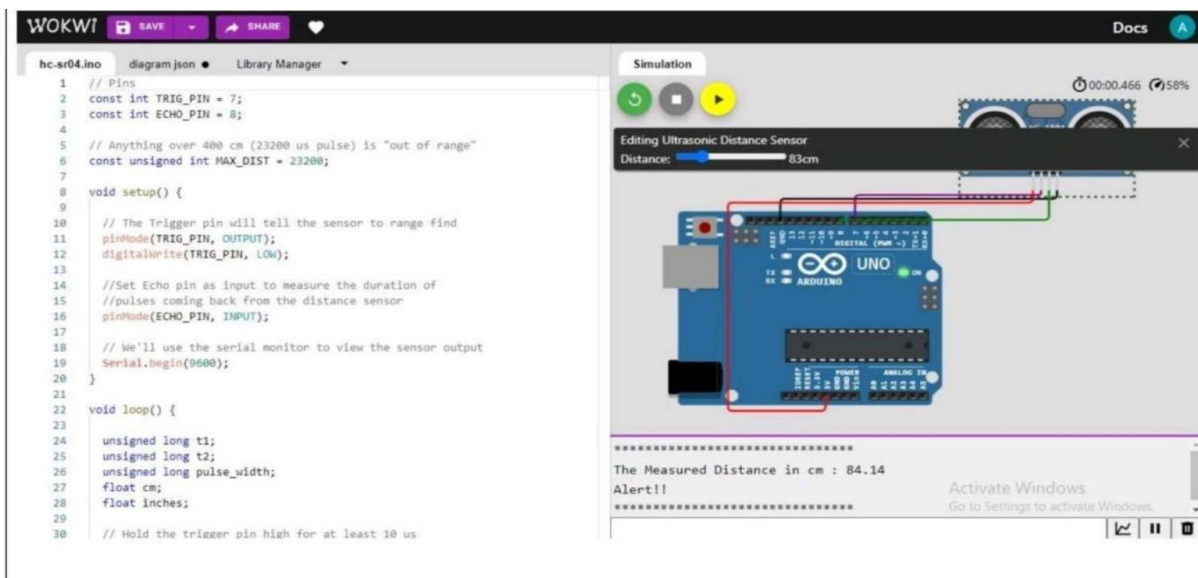
```
//wait at least 1000ms before next measurement
```

```
Delay(1000);
```

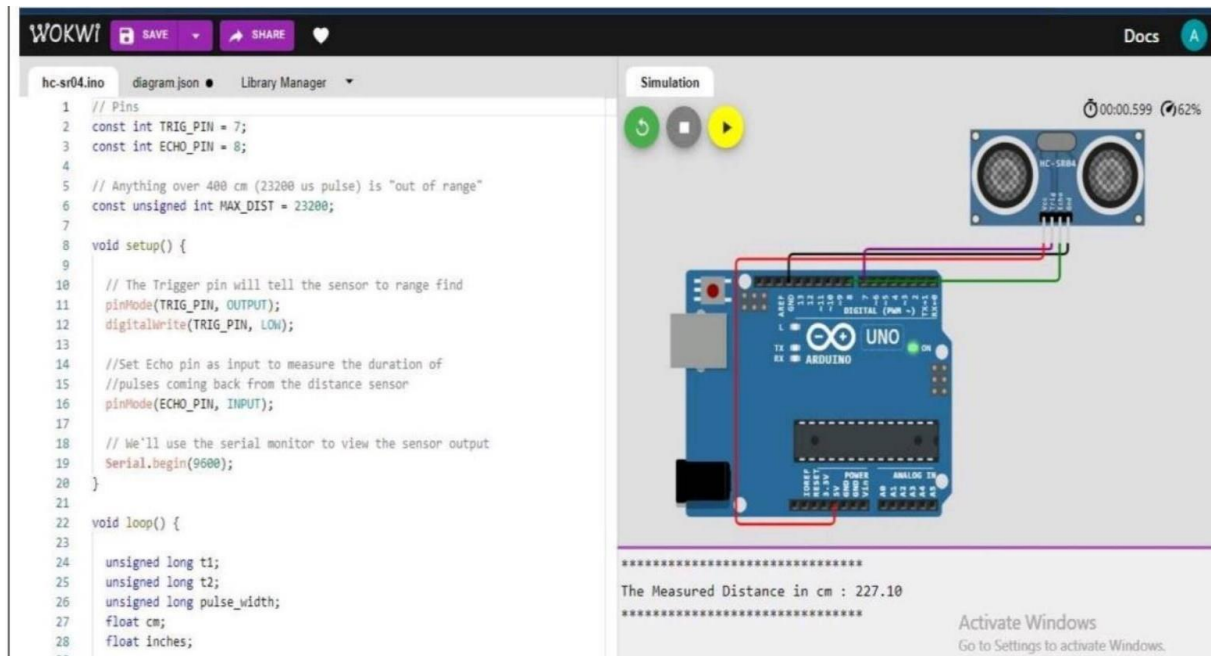
```
}
```

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

