ASSIGNMENT-4

ASSIGNMENT DATE	20 OCTOBER 2022
STUDENT NAME	SENTHILKUMAR.S
STUDENT ROLL NUMBER	720919104303
MAXIMUM MARKS	2 marks

WRITE A CODE AND CONNECTION IN WOWKI FOR ULTASONIC SENSOR. WHENEVER DISTANCE IS LESS THAN 100 CMS SEND "ALERT" TO IBM CLOUD AND DISPLAY IN DEVICE RECENT EVENTS

CODE

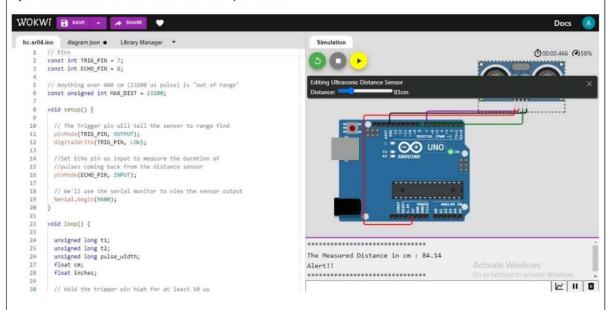
```
// Pins
const int TRIG_PIN = 7;
const int ECHO_PIN = 8;
// Anything over 400 cm (23200 us pulse) is "out of range"
const unsigned int MAX_DIST = 23200;
void setup() {
// The Trigger pin will tell the sensor to range find
pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG PIN, LOW);
//Set Echo pin as input 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 tl;
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
tl = micros();
while (digitalRead(ECHO_PIN) == 1);
t2 = micros();
pulse_width = t2- tl;
// 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!!");
//}
}
```

}	
// 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.

```
WOKWI TO SAVE
                                                                                                                                                               Docs
 hc-sr04.ino
            diagram.json ● Library Manager ▼
                                                                                        Simulation
                                                                                                                                                         Ō00:00.599 €62%
        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;
          // The Trigger pin will tell the sensor to range find
                                                                                                             FELL LE BIELLY (WW -) E
          pinMode(TRIG_PIN, OUTPUT);
digitalWrite(TRIG_PIN, LOW);
   11
   12
                                                                                                                 OO UNO ...
          //Set Echo pin as input to measure the duration of //pulses coming back from the distance sensor
   14
   15
          pinMode(ECHO_PIN, INPUT);
   17
          // We'll use the serial monitor to view the sensor output
   19
20
          Serial.begin(9600);
                                                                                                                POWER ANALOG IN
   21
        void loop() {
   22
   23
   24
          unsigned long t1;
                                                                                      *****************
   25
          unsigned long t2;
                                                                                     The Measured Distance in cm : 227.10
          unsigned long pulse_width;
                                                                                      ********
   27
          float cm;
                                                                                                                                       Activate Windows
          float inches;
                                                                                                                                       Go to Settings to activate Window
                                                                                                                                                               ∠ II 0
          // Hold the trigger pin high for at least 10 us
```

3) Simulation and code execution

