//Check Ultrasonic sensor for signal for pole or tire position. \*\*Note one pin IN and one OUT for sensor.

// Provide TRIGGER to ultrasonic module

// Listen for Echo

// Start Timer when ECHO HIGH is received

// Stop Timer when ECHO goes LOW

// Read Timer Value

// Convert it to Distance

// Display it

#include <xc.h>

#include <stdio.h>

#include "configBits.h"

#include "I2C.h"

#include "lcd.h"

int dist = 0;

int dist\_final[3]; // distance array

void \_\_interrupt() echo(void){

if(RBIF == 1){ //if PORTB On-Change Interrupt Flag is up

RBIE = 0; //Disable On-Change Interrupt

if(PORTBbits.RB4 == 1){ //If ECHO is HIGH

TMR1ON = 1; //Start Timer

}

if(PORTBbits.RB4 == 0){ //If ECHO is LOW

TMR1ON = 0; //Stop Timer

dist = (TMR1L | (TMR1H<<8))/58.82; //Calculate Distance

}

}

RBIF = 0; //Clear PORTB On-Change Interrupt flag

RBIE = 1; //Enable PORTB On-Change Interrupt

}

void main() {

TRISB = 0b00010000; //RB4 as Input PIN (ECHO), rest are output

TRISD = 0x00; //LCD Pins as Output

GIE = 1 ; //Global Interrupt Enable

RBIF = 0; //Clear PORTB On-Change Interrupt Flag

RBIE = 1 ; //Enable PORTB On-Change Interrupt

T1CON = 0x10; //Initialize Timer Module

while(1){

TMR1H = 0; //Sets the Initial Value of Timer

TMR1L = 0; //Sets the Initial Value of Timer

PORTBbits.RB0 = 1; //TRIGGER HIGH

\_\_delay\_us(10); //10uS Delay

PORTBbits.RB0 = 0; //TRIGGER LOW

\_\_delay\_ms(100); //Waiting for ECHO

dist = dist + 1; //Error Correction Constant

if(dist>=2 && dist<=400){ //Check whether the result is valid or not

lcd\_clear();

printf(" Distance: ");

for (int i=0; i<3; i++){

dist\_final[i] = dist%10 + 48;

dist = dist/10;

}

lcd\_set\_ddram\_addr(LCD\_LINE2\_ADDR);

printf("%d%d%d", dist\_final[2],dist\_final[1],dist\_final[0]);

}

else {

lcd\_clear();

printf(" out of range: ");

}

\_\_delay\_ms(400);

}

}