//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 a = 0;

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

void main(void)

{

int a;

TRISB = 0b00010000; //RB4 as Input PIN (ECHO)

TRISD = 0x00; // LCD Pins as Output

PORTDbits.RD1 = 1;

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

PORTDbits.RD0 = 1;

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

PORTBbits.RB0 = 0; //TRIGGER LOW

PORTDbits.RD0 = 0;

while(!PORTBbits.RB4); //Waiting for Echo

TMR1ON = 1; //Timer Starts

while(PORTBbits.RB4); //Waiting for Echo goes LOW

TMR1ON = 0; //Timer Stops

a = (TMR1L | (TMR1H<<8)); //Reads Timer Value

a = a/58.82; //Converts Time to Distance

a = a + 1;

//Distance Calibration

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

lcd\_clear();

printf(" Distance: %d", a);

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

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

a = a/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: %d",a);

}

\_\_delay\_ms(400);

}

}