#include<htc.h>

#include<stdio.h>

#include "lcd(16).h"

#define \_XTAL\_FREQ 20000000

\_\_CONFIG(FOSC\_HS & WDTE\_OFF & PWRTE\_ON & MCLRE\_OFF & CP\_OFF & CPD\_OFF

& BOREN\_ON & IESO\_OFF & FCMEN\_OFF & LVP\_OFF & DEBUG\_OFF);

unsigned int dem;

unsigned int xungt1,xungt2,xung;

float v;

void main()

{

lcd\_init();

ANSEL=ANSELH=0;

TRISA4 = 1; // input

dem = 0;

xung = 0;

T0CS = 1; // counter

T0SE = 1;

PSA = 1;

//PS2 = 0;

//PS1 = 0;

//PS0 = 1;

T0IE = 1;

T0IF = 0;

GIE = 1;

TMR0 =0;

while(1)

{

\_\_delay\_ms(1000);

xung = dem\*256 + TMR0;

TMR0 = 0;

dem = 0;

lcd\_gotoxy(0,0);

printf("xung: %04d",xung);

v = (xung/360.0)\*60.0;

lcd\_gotoxy(0,1);

printf("v: %03.2f",v);

}

}

void interrupt ngat()

{

if(T0IF && T0IE)

{

dem++;

}

T0IF = 0;

}

void putch(char c)

{lcd\_putc(c);}

#include<htc.h>

#include<stdio.h>

#include<math.h>

#include "lcd(16).h"

#define \_XTAL\_FREQ 20000000

\_\_CONFIG(FOSC\_HS & WDTE\_OFF & PWRTE\_ON & MCLRE\_OFF & CP\_OFF & CPD\_OFF

& BOREN\_ON & IESO\_OFF & FCMEN\_OFF & LVP\_OFF & DEBUG\_OFF);

float tan\_so;

long int xung;

char dem, sample;

void main()

{

/// THIET LAP NGO RA VA LCD

ANSEL = ANSELH=0;

lcd\_init();

////////////////////////////////////////////////////////////

//// config timer 1 - counter

TRISC0 = 1; //input T1CKI

TMR1CS = 1; // counter

T1CKPS1 = 0; // prescale 1:1

T1CKPS1 = 0;

T1SYNC = 1;

TMR1GE = 0; //non-control gate

TMR1H = 0; //clear TMR1

TMR1L = 0;

//// config timer0

T0CS = 0; //timer

PSA = 0;

PS2 = 0;

PS1 = 1;

PS0 = 1;

TMR0 = 7;

/// config interrupt timer 0

T0IE = 1;

T0IF = 0;

GIE = 1;

////enable timter 1

TMR1ON = 1;

while(1)

{

if(sample == 20)

{

tan\_so = 10.0\*(xung/20.0);

lcd\_gotoxy(0,0);

printf("f:%3.2f",tan\_so);

xung = 0;

sample = 0;

}

}

}

void interrupt ngat()

{ if(T0IF && T0IE)

{

dem++;

if(dem == 125) // 100ms

{ sample++;

xung = xung+TMR1;

TMR1H = TMR1L = 0;

dem = 0;

}

TMR0 = 7; // dat lai thanh ghi timer 0

T0IF = 0; // clear flag int

}

}

void putch(char c){

lcd\_putc(c);

}

lcd\_init();

ANSEL = ANSELH = 0;

TRISC2=1;

TMR1CS = 0;

T1CKPS1 = 0; ///1:1

T1CKPS0 = 0;

T1SYNC=1; // KHONG DONG BO

TMR1GE=0; // KHONG DUNG CONG GATE DIEU KHIEN

TMR1H = 0;

TMR1L = 0;

////ccp1

CCP1CON = 0b00000111; //Ch?n ch? d? capture

CCPR1H=CCPR1L=0;

CCP1IE=1; //Cho phép ng?t CCP

CCP1IF=0; //Reset c? ng?t;

PEIE=1; //Cho phép ng?t ngo?i vi

GIE=1; //Cho phép ng?t toàn c?c.

TMR1ON=1;

#include<htc.h>

#include<stdio.h>

#include<math.h>

#define \_XTAL\_FREQ 20000000

#include "lcd(16).h"

\_\_CONFIG(FOSC\_HS & WDTE\_OFF & PWRTE\_ON & MCLRE\_OFF & CP\_OFF & CPD\_OFF

& BOREN\_ON & IESO\_OFF & FCMEN\_OFF & LVP\_OFF & DEBUG\_OFF);

void main()

{

lcd\_init();

ANSEL = ANSELH =0;

TRISC2=0; // output

PR2=249; // chu ky pwm

T2CKPS1 = 0; // prescale

T2CKPS0 = 0;

CCP1CON=0b00001110;///su dung tinh nang pwm muc thap ||0x0C->0b00001100: muc cao

CCPR1L= 175 ; // set duty cycle 70%

TMR2ON=1;

while(1)

{

}

}

#include<htc.h>

#include<stdio.h>

#include<math.h>

#include<stdlib.h>

#include<string.h>

#define \_XTAL\_FREQ 20000000

\_\_CONFIG(FOSC\_HS & WDTE\_OFF & PWRTE\_ON & MCLRE\_OFF & CP\_OFF & CPD\_OFF

& BOREN\_ON & IESO\_OFF & FCMEN\_OFF & LVP\_OFF & DEBUG\_OFF);

unsigned int dem,deg\_input;

unsigned int set;

bit flag;

char rxdata;

char chuoi[3];

char chuoi\_deg[3];

char ptr;

char \*ptr1;

void goc\_quay(int deg);

void tx\_init();

void rx\_init();

void sendchar (char c);

void sendstring (const char\* s);

void main(){

ANSEL = ANSELH=0;

TRISE1=0;

RE1=0;

tx\_init();

rx\_init();

T2CKPS1=0; // CHON GIA TRI BO PRESCALER LA :1

T2CKPS0=0;

PR2 = 49; // DAT GIA TRI CHO PR2

TOUTPS3=0; // DAT GIA TRI CHO POSCALER LA :1

TOUTPS2=0;

TOUTPS1=0;

TOUTPS0=0;

TMR2IF=0; // CAI DAT NGAT CHO TIMER2

TMR2IE=1;

PEIE=1;

GIE=1;

TMR2=0;

RE1 = 1;

TMR2ON=1; // CHAY TIMER 2

while (1)

{

if(flag == 1)

{

deg\_input = strtol(chuoi, &ptr1, 10);

goc\_quay(deg\_input);

}

}

}

void tx\_init(){

SPBRGH =0x02;

SPBRG = 0x08;

BRGH=1;

BRG16= 1;

SYNC=0;

SPEN=1;

TX9=0;

TXEN=1;

}

void rx\_init(){

SPBRGH =0x02; // calculate --> 520 <-> br:9600

SPBRG = 0x08;

BRGH=1;

BRG16= 1;

SYNC=0;

SPEN=1;

RCIF=0;

RCIE=1;

PEIE=1;

GIE=1;

RX9=0;

CREN=1;

}

void interrupt ngat ()

{

if (TMR2IF)

{

TMR2IF=0;

dem++;

if(dem == set){RE1 = 0;}

else if(dem == 2000){dem = 0; RE1 = 1;}

}

else if (RCIF)

{

rxdata = RCREG;

RCIF=0;

chuoi[ptr] = rxdata; // Neu khong phai la 'A' hoac 'B' thi cong don

ptr++;

if(ptr == 3){flag =1;}

}

}

void goc\_quay(int deg)

{

/////////////////////////

set = ((1000.0/180.0)\*deg+1000.0)/10;

}

void sendchar (char c){

while (TXIF==0){}

TXREG = c;

}

void sendstring (const char\* s){

while(\*s){

sendchar(\*s++);

}

}

/\*

YEU CAU: CHO FOSC = 20MHZ,

DIEU CHE XUNG TAN SO 5KHZ, DO RONG XUNG 2 KENH BAN DAU LA 100uS

TRUYEN THONG NOI TIEP QUA CONG USART VOI BAUDRATE =9600,

KHI NHAN DUOC BAT KY KY TU NAO QUA USART THI GUI NGUOC LEN USART

KHI GUI QUA TERMINAL DUNG KY TU 'A' VA 'B' DE DANH DAU DU LIEU, 'A' CHO KENH 1 VA 'B' CHO

KENH 2

VI DU:

GUI : "123A" >> THI VI DIEU KHIEN BIET BIEN1= 123, THAY DOI DO RONG XUNG KENH 1 THANH 123uS

GUI : "50B" >> THI VI DIEU KHIEN BIET BIEN2= 50, THAY DOI DO RONG XUNG KENH 2 THANH 50uS

NEU DO RONG XUNG TRUYEN XUONG MA > 200 uS (CHU KY XUNG) THI GUI MOT THONG BAO LOI RA USART

VA IN DO RONG XUNG HIEN TAI LEN LCD

LY THUYET: XEM DATASHEET

\*/

#include <htc.h>

\_\_CONFIG(FOSC\_HS & WDTE\_OFF & PWRTE\_ON & MCLRE\_OFF & CP\_OFF & CPD\_OFF

& BOREN\_ON & IESO\_OFF & FCMEN\_OFF & LVP\_OFF & DEBUG\_OFF);

#include <stdio.h>

#include <stdlib.h> // CAN KHAI BAO HAM NAY DE DUNG HAM ATOI VA ATOF

#include <math.h>

#include "LCD.h"

char dem =0;

char rxdata;

char chuoi[10]; //Khai bao mang chuoi gom 10 phan tu de nhan cong don chuoi lai

char ptr; //Khai bao bien con tro de xu ly chuoi

int bien1; //Khai bao bien nay de luu gia tri sau khi chuyen doi la so NGUYEN

int bien2;

void sendchar (char c);

void sendstring (const char\* s);

int pwm1;

int pwm2;

void loadpwm (int us1, int us2);

void main(){

lcd\_init();

ANSEL = ANSELH=0;

TRISE1=0;

RE1=0;

TRISB=0;

// toc do baud 9600

BRGH = 1;

BRG16 = 1;

SPBRGH=0X02;

SPBRG=0X08;

////////////////

//==== KHOI DONG BO TRUYEN BAT DONG BO ========

SYNC = 0;

SPEN=1;

////////////////

//==== THIET LAP NGAT NHAN ====================

RCIF=0;

RCIE=1;

PEIE=1;

GIE=1;

////////////////

//==== KHONG TRUYEN NHAN 9 BIT ================

TX9=0;

RX9=0;

///////////////

//==== CHO PHEP TRUYEN VA NHAN ================

TXEN=1;

CREN=1;

///========= THIET LAP PWM ====================

CCP1CON =0X0C; // CHON CHE DO PWM

CCP2CON =0X0C;

TRISC1=0; // KHAI BAO HAI CHAN CCP1 VA CCP2 LA OUTPUT

TRISC2=0;

T2CKPS1=0; // CHON TIMER2 PRESCALE VALUE =4

T2CKPS0=1;

PR2= 249; // DINH CHU KY PWM = 200 uS

pwm1=100; // DO RONG XUNG BAN DAU

pwm2=100;

loadpwm(pwm1,pwm2);

printf ("\fPWM1=%d\nPWM2=%d",pwm1,pwm2);

//===========================================

while(1){ // CHUONG TRINH CHINH

}

}

// HAM NAY CO TAC DUNG GUI MOT KY TU RA CONG USART

void sendchar (char c){

while (TXIF==0){}

TXREG = c;

}

// HAM NAY CO TAC DUNG GUI MOT CHUOI KY TU RA USART

void sendstring (const char\* s)

{

while(\*s){

sendchar(\*s++);

}

}

// SU DUNG HAM PRINT CHO CONG NAO

void putch (char c){

lcd\_putc(c); // LCD

// sendchar (c) // usart

}

void interrupt ngat (){

if (RCIF && RCIE){

// NHAN KY TU

rxdata=RCREG;

// GUI NGUOC LEN

sendchar(rxdata);

if (rxdata == 'A'){

pwm1 =atoi(chuoi); // bien1 = gia tri cua chuoi cong don

if (pwm1 <=200){

loadpwm(pwm1,pwm2);

printf ("\fPWM1=%d\nPWM2=%d",pwm1,pwm2);

}

else {sendstring ("\r\nPWM1 KHONG DUOC PHEP LON HON 200 US");}

for (ptr=10;ptr>0;ptr--){ //XOA SACH CA CHUOI DE THUC HIEN LAI NHUNG LAN SAU

chuoi[ptr]=0;

}

}

else if (rxdata == 'B'){

pwm2 =atoi(chuoi); // bien2 = gia tri chuoi cong don

if (pwm2 <=200){

loadpwm(pwm1,pwm2);

printf ("\fPWM1=%d\nPWM2=%d",pwm1,pwm2);

}

else { sendstring ("\r\nPWM2 KHONG DUOC PHEP LON HON 200 US");}

for (ptr=10;ptr>0;ptr--){ //XOA SACH CA CHUOI DE THUC HIEN LAI NHUNG LAN SAU

chuoi[ptr]=0;

}

}

else {

chuoi[ptr] = rxdata; // Neu khong phai la 'A' hoac 'B' thi cong don

ptr++;

}

}

}

void loadpwm (int us1, int us2){

int loadccp1, loadccp2;

int du;

loadccp1 = us1\*5; // THEO CAC THONG SO O TREN, MOI 1US TUONG UNG VOI 5 DON VI CUA 10BIT DIEU KHIEN

loadccp2 = us2\*5;

TMR2ON=0;

CCPR1L =loadccp1/4;

du = loadccp1%4; // chia lay du

if (du == 0){

DC1B1 = 0;

DC1B0 = 0;

}

else if (du == 1){

DC1B1 = 0;

DC1B0 = 1;

}

else if (du == 2){

DC1B1 = 1;

DC1B0 = 0;

}

else {

DC1B1 = 1;

DC1B0 = 1;

}

CCPR2L =loadccp2/4;

du = loadccp2%4; // chia lay du

if (du == 0){

DC2B1 = 0;

DC2B0 = 0;

}

else if (du == 1){

DC2B1 = 0;

DC2B0 = 1;

}

else if (du == 2){

DC2B1 = 1;

DC2B0 = 0;

}

else {

DC2B1 = 1;

DC2B0 = 1;

}

TMR2ON=0;

}

rxdata=RCREG;

if (rxdata=='R'|rxdata=='L')

{

ptr=0;

for(int i=0;i<strlen(chuoi);i++) chuoi[i]=' ';

}

chuoi[ptr++]=rxdata;

*///////////////////////////////////////////////////////////////////////////////*

*// Do van toc dong co dung ngat ngoai //*

*// Xac dinh chieu quay va van toc //*

*// Dung PWM de chay dong co, dung LM298 //*

*// Tien Anh 10/12/2013 //*

*///////////////////////////////////////////////////////////////////////////////*

#include

#device PIC16F877\*=16 ADC=10 *// Su dung con tro 16bit (cho MCU 14bit)*

*// Su dung ADC 10bit*

#fuses hs, nowdt, noprotect, nolvp, put, brownout

#use delay(clock=20000000)

#include

#include

*// Dung ngat ngoai kenh A de do xung kenh B de xac dinh chieu quay*

*// Kenh A B0*

*// Kenh B B4*

float32 w = 0.0;*//kp=0.2 kd=0.02 ki=0.01*

signed int32 Pulse=0,PrePulse=0,DeltaPulse=0;*// Dem xung Encoder*

float32 Get\_W(void);

*// Ngat kenh A*

#int\_ext

void kenh\_A()

{

if (input\_state(PIN\_B4))

*//chieu='T';*

Pulse++;

else

*//chieu='N';*

Pulse--;

}

*// Sau 100ms thi ngat timer1, do so xung dem duoc*

#int\_timer1

void ngat\_timer1()

{

*// Tinh van toc w (vong/phut)*

w = get\_W();

set\_timer1(3036); *// reset timer*

}

void main()

{

char so[8];

*// Cai dat thong so ban dau*

LCD\_Init();

delay\_ms(10);

*// Cai dat timer1*

*// Prescale = 8; tran sau 100ms*

*// 4\*Prescale\*[(2^16 - TMR1]*

*// T\_interrupt = -------------------------- x counter = 100 ms*

*// Fosc*

*// 4\*8\*[(2^16-1)-3036]*

*// T\_interrupt = ----------------------- x 1 = 100 ms*

*// 20MHz*

setup\_timer\_1(T1\_INTERNAL|T1\_DIV\_BY\_8);

ext\_int\_edge( L\_TO\_H );

*// Khai bao ngat*

enable\_interrupts(global);

enable\_interrupts(int\_ext);

enable\_interrupts(int\_timer1);

set\_timer1(3036);

while(1)

{

sprintf(so,"%5.2f",w);

LCD\_Gotoxy(1,0);

LCD\_Puts(so);

*// Truyen du lieu len RS232*

}

}

*// Ham tinh van toc goc vong/phut*

float32 Get\_W(void)

{

float32 rpm;

DeltaPulse = Pulse - PrePulse;

PrePulse = Pulse;

*/\**

*PulsesPerRev: so xung/vong cua encoder*

*DeltaPulse: so xung doc duoc giua hai lan ngat lien tiep*

*Sampling\_time: thoi gian(s) lay mau (thoi gian giua 2 lan ngat lien tiep)*

*n: la so vong quay cua dong co trong mot phut*

*Quy tac tam xuat:*

*Xung giay*

*n x PulsesPerRev 60*

*DeltaPulse Sampling\_time*

*=> n x PulsesPerRev x Sampling\_time = DeltaPulse x 60*

*DeltaPulse x 60*

*=> n = ----------------------------*

*PulsesPerRev x Sampling\_time*

*\*/*

*// PulsesPerRev = 100 xung/vong*

*// Sampling\_time = 0.1 s*

*//n = rpm = 6.0\*(float32)DeltaPulse*

rpm = 6.0\*(float32)DeltaPulse;

return(rpm);

}