/\*

\* File: main.c

\* Author: TrudieC

\*

\* Created on February 24, 2019, 9:08 PM

\*/

#include <xc.h>

#include <stdio.h>

#include <stdbool.h>

#include "configBits.h"

#include "lcd.h"

#include "RTC.h"

#include "I2C.h"

//define constants

//#define \_XTAL\_FREQ 200000000 //Crystal Frequency, used in delay

#define speed 1 // Speed Range 10 to 1 10 = lowest , 1 = highest

#define steps 249 // how much step it will take (249 ~= 1 full rotation)

#define clockwise 0 // clockwise direction macro

#define anti\_clockwise 1 // anti clockwise direction macro

/\*

\*Application related function and definition

\*/

void system\_init (void); // This function will initialise the ports.

void full\_drive (char direction); // This function will drive the motor in full drive mode

void half\_drive (char direction); // This function will drive the motor in full drive mode

void wave\_drive (char direction); // This function will drive the motor in full drive mode

void ms\_delay(unsigned int val);

/\*

\* main function starts here

\*/

void main(void)

{

system\_init();

while(1){

/\* Drive the motor in full drive mode clockwise \*/

for(int i=0;i<steps;i++)

{

full\_drive(anti\_clockwise);

}

ms\_delay(1000);

/\* Drive the motor in wave drive mode anti-clockwise \*/

//for(int i=0;i<steps;i++)

//{

// wave\_drive(anti\_clockwise);

// //full\_drive(anti\_clockwise);

//}

//ms\_delay(1000);

//while(1){continue;}

}

}

/\*System Initialising function to set the pin direction Input or Output\*/

void system\_init (void){

TRISB = 0x00; // PORT B as output port

//PORTB = 0x0F;

LATB = 0x0F;

TRISA = 0x00;

LATA = 0x0F;

}

/\*This will drive the motor in full drive mode depending on the direction\*/

void full\_drive (char direction){

if (direction == anti\_clockwise){

// LATB = 0b00000011;

// ms\_delay(speed);

// LATB = 0b00000110;

// ms\_delay(speed);

// LATB = 0b00001100;

// ms\_delay(speed);

// LATB = 0b00001001;

// ms\_delay(speed);

// LATB = 0b00000011;

// ms\_delay(speed);

LATA = 0b00000011;

ms\_delay(speed);

LATA = 0b00000110;

ms\_delay(speed);

LATA = 0b00001100;

ms\_delay(speed);

LATA = 0b00001001;

ms\_delay(speed);

LATA = 0b00000011;

ms\_delay(speed);

}

if (direction == clockwise){

PORTB = 0b00001001;

ms\_delay(speed);

PORTB = 0b00001100;

ms\_delay(speed);

PORTB = 0b00000110;

ms\_delay(speed);

PORTB = 0b00000011;

ms\_delay(speed);

PORTB = 0b00001001;

ms\_delay(speed);

}

}

/\* This method will drive the motor in half-drive mode using direction input \*/

void half\_drive (char direction){

if (direction == anti\_clockwise){

PORTB = 0b00000001;

ms\_delay(speed);

PORTB = 0b00000011;

ms\_delay(speed);

PORTB = 0b00000010;

ms\_delay(speed);

PORTB = 0b00000110;

ms\_delay(speed);

PORTB = 0b00000100;

ms\_delay(speed);

PORTB = 0b00001100;

ms\_delay(speed);

PORTB = 0b00001000;

ms\_delay(speed);

PORTB = 0b00001001;

ms\_delay(speed);

}

if (direction == clockwise){

PORTB = 0b00001001;

ms\_delay(speed);

PORTB = 0b00001000;

ms\_delay(speed);

PORTB = 0b00001100;

ms\_delay(speed);

PORTB = 0b00000100;

ms\_delay(speed);

PORTB = 0b00000110;

ms\_delay(speed);

PORTB = 0b00000010;

ms\_delay(speed);

PORTB = 0b00000011;

ms\_delay(speed);

PORTB = 0b00000001;

ms\_delay(speed);

}

}

/\* This function will drive the the motor in wave drive mode with direction input\*/

void wave\_drive (char direction){

if (direction == anti\_clockwise){

PORTB = 0b00000001;

ms\_delay(speed);

PORTB = 0b00000010;

ms\_delay(speed);

PORTB = 0b00000100;

ms\_delay(speed);

PORTB = 0b00001000;

ms\_delay(speed);

}

if (direction == clockwise){

PORTB = 0b00001000;

ms\_delay(speed);

PORTB = 0b00000100;

ms\_delay(speed);

PORTB = 0b00000010;

ms\_delay(speed);

PORTB = 0b00000001;

ms\_delay(speed);

}

}

/\*This method will create required delay\*/

void ms\_delay(unsigned int val)

{

unsigned int i,j;

for(i=0;i<val;i++)

for(j=0;j<1650;j++);

}