#include <pic18f4550.h>

#include <stdio.h>

#define LCD\_EN LATAbits.LA1

#define LCD\_RS LATAbits.LA0

#define LCDPORT LATB

unsigned char str[16];

void lcd\_delay(unsigned int time)

{

unsigned int i , j ;

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

{

for(j=0;j<100;j++);

}

}

void SendInstruction(unsigned char command)

{

LCD\_RS = 0; // RS low : Instruction

LCDPORT = command;

LCD\_EN = 1; // EN High

lcd\_delay(10);

LCD\_EN = 0; // EN Low; command sampled at EN falling edge

lcd\_delay(10);

}

void SendData(unsigned char lcddata)

{

LCD\_RS = 1; // RS HIGH : DATA

LCDPORT = lcddata;

LCD\_EN = 1; // EN High

lcd\_delay(10);

LCD\_EN = 0; // EN Low; data sampled at EN falling edge

lcd\_delay(10);

}

void InitLCD(void)

{

ADCON1 = 0x0F;

TRISB = 0x00; //set data port as output

TRISAbits.RA0 = 0; //RS pin

TRISAbits.RA1 = 0; // EN pin

SendInstruction(0x38); //8 bit mode, 2 line,5x7 dots

SendInstruction(0x06); //entry mode

SendInstruction(0x0C); //Display ON cursor OFF

SendInstruction(0x01); //Clear display

SendInstruction(0x80); //set address to 0

}

void LCD\_display(unsigned int row, unsigned int pos, unsigned char \*ch)

{

if(row==1)

SendInstruction(0x80 | (pos-1));

else

SendInstruction(0xC0 | (pos-1));

while(\*ch)

SendData(\*ch++);

}

void ADCInit(void)

{

TRISEbits.RE2 = 1; //ADC channel 7 input

ADCON1 = 0b00000111; //Ref voltages Vdd & Vss; AN0 - AN7 channels Analog

ADCON2 = 0b10101110; //Right justified; Acquisition time 4T; Conversion clock Fosc/64

}

unsigned short Read\_Temp(void)

{

ADCON0 = 0b00011101; //ADC on; Select channel;

GODONE = 1; //Start Conversion

while(GO\_DONE == 1 ); //Wait till A/D conversion is complete

return ADRES; //Return ADC result

}

int main(void)

{

unsigned int temp;

InitLCD();

ADCInit();

LCD\_display(1,1,"Temperature:");

while(1)

{

temp = Read\_Temp();

temp = ((temp \* 500) / 1023);

sprintf(str,"%d'C ",temp);

LCD\_display(2,1,str);

lcd\_delay(9000);

}

return 0;

}

