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**EXP\_7(B)**

**LCD WITH KEYPAD**

#include <stdio.h>

#include <stdlib.h>

#include<pic18f4550.h>

#define RS LATCbits.LATC0

#define E LATCbits.LATC1

#define LCDPORT LATB

#define R1 LATDbits.LATD0

#define R2 LATDbits.LATD1

#define R3 LATDbits.LATD2

#define R4 LATDbits.LATD3

#define C1 PORTDbits.RD4

#define C2 PORTDbits.RD5

#define C3 PORTDbits.RD6

#define C4 PORTDbits.RD7

void delay()

{

for(int i=0; i<30000; i++)

{

}

}

void sendCommand(unsigned char command)

{

LCDPORT=command;

RS=0;

delay();

E=1;

delay();

E=0;

delay();

}

void sendData(unsigned char data)

{

LCDPORT=data;

RS=1;

delay();

E=1;

delay();

E=0;

delay();

}

unsigned char keypad\_read(void)

{

R1 = 0;

R2 = 1;

R3 = 1;

R4 = 1;

delay();

if (C1 == 0) return '1';

if (C2 == 0) return '2';

if (C3 == 0) return '3';

if (C4 == 0) return 'A';

R1 = 1;

R2 = 0;

R3 = 1;

R4 = 1;

delay();

if (C1 == 0) return '4';

if (C2 == 0) return '5';

if (C3 == 0) return '6';

if (C4 == 0) return 'B';

R1 = 1;

R2 = 1;

R3 = 0;

R4 = 1;

delay();

if (C1 == 0) return '7';

if (C2 == 0) return '8';

if (C3 == 0) return '9';

if (C4 == 0) return 'C';

R1 = 1;

R2 = 1;

R3 = 1;

R4 = 0;

delay();

if (C1 == 0) return '0';

if (C2 == 0) return 'D';

if (C3 == 0) return 'E';

if (C4 == 0) return 'F';

return 0xFF;

}

unsigned char keypad\_wait()

{

unsigned char key\_press = 0xFF;

do

{

key\_press = keypad\_read();

}

while (key\_press == 0xFF);

while (keypad\_read() != 0xFF);

return key\_press;

}

void main()

{

TRISB=0x00;

TRISD=0xF0;

TRISCbits.RC0=0;

TRISCbits.RC1=0;

unsigned char key\_get;

sendCommand(0x38);

sendCommand(0x01);

sendCommand(0x0F);

sendCommand(0x06);

sendCommand(0x80);

while(1)

{

key\_get = keypad\_wait();

sendData(key\_get);

}

}