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#include <p32xxxx.h>
#pragma config FPLLMUL = MUL_20, FPLLIDIV =DIV_2, FPLLODIV= DIV_1, FWDTEN=OFF
#pragma config POSCMOD = HS, FNOSC = PRIPLL, FPBDIV = DIV_8
#define MAX_DELAY 64000
void initPortB(void);
void print_led(char x);
void initPortD(void);
void initPortE(void);
void initPortF(void);
void initPortG(void);
void delay(int);
void enable_pulse(void);
int main(void)
{
    int key_code=0xff,row=0x0f,column=0;
    int active_column[4]= {0b00001110,0b00001101,0b00001011,0b00000111};    // Running Zeros

    initPortB();           // Initialize of PORTB
    initPortD();           // Initialize of PORTD
    initPortE();           // Initialize of PORTE
    initPortF();           // Initialize of PORTF
    initPortG();           // Initialize of PORTG
    PORTG =0x00;           // PORTG = 0X00, Decoder 2x4 Keypad Select
    PORTF =0x07;           // PORTF = 0x07, Decoder 3x8, Decoder 2x4 Select
    while(1)               // Running Zero Loop for Keypad Scanning
    {
        PORTG =0x00;
        PORTF =0x07;
        PORTE =active_column[column];    // Running Zero Method Values
        delay(MAX_DELAY/4);
        row = PORTB & 0x0F;
        if(row!= 0x0f)           // Key press Check
        {
            key_code=((active_column[column]<<4)|row);
            print_led(key_code);
        }
        column=(column+1)%4;
    }
    return 1;
}

void print_led(char x)
{
    PORTF=4;           // Decoder 3x8 LED Select
    PORTE=x;           // KeyCode value
    enable_pulse();
}

void initPortB(void)           // Initialize of PORTB
{
    TRISB &= 0xFFFF7FFF; //16bit = '0'
    AD1PCFG = 0xf;        //Select PORTB to be digital port input
    CNCONbits.ON = 0;     //Change Notice Module On bit CN module is disabled
    CNEN = 0x3C;          // Port Pin Input Change Enable
    CNPUE = 0x3C;         //Set RB0 - RB3 as inputs with weak pull-up
    CNCONbits.ON = 1;     //1 = CN module is enabled
}

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void delay(int delay_value)
{
    unsigned int i;
    for(i=0;i<delay_value;i++);
}

void initPortD(void)           // Initialize of PORTD
{
    TRISD  &= 0xFFFFF0CF;    // portMap bits 4,5 = '0'
}

void initPortE(void)          // Initialize of PORTE
{
    TRISE  &= 0xFFFFF00;    // bits 1÷8 = '0'
    PORTE  = 0x00;
}

void initPortF(void)          // Initialize of PORTF
{
    TRISF  &= 0xFFFFFEF8;    //bits 16,4 = '0'
    PORTFbits.RF8 = 1;      // Decoder 3x8 Enable
}

void initPortG(void)          // Initialize of PORTG
{
    TRISG  &= 0xFFFFF0FC;    // portMap bits 4,5 = '0'
    PORTG  = 0x00;          // Decoder 2x4 Select Keypad
}

void enable_pulse(void)
{
    PORTDbits.RD4 = 1; //enable=1
    PORTDbits.RD4 = 0; //enable=0
}
```