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/* *****
;
;  Filename: SIRC
;  Date: May 29, 2009
;  File Version: 001
;
;
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;*****
; Notes:
; I am delaying in this code a nice even number every 200uS. Mainly because if
; i count each pulse it would be accurate but too many counts for a char type
; and i dont want to use a int. So i can get a 600 count by skipping every 300uS
; and the count will be a nice low number...3
;
; For a 1.2mS aka HIGH i should get a count of 6 and for the start 2.4mS i should
; get a count of 12. Since this isnt too accurate i range it about 1-2 numbers
; above or below the standard.
;
;*****
*/
#pragma CLOCK_FREQ 4000000

#include <system.h>
#include <PIC12F629.h>

#pragma DATA _CONFIG, _MCLRE_OFF & _PWRTE_OFF & _WDT_OFF & _INTRC_OSC_NOCLKOUT

unsigned char lTime;

unsigned char MyAdd;
unsigned char MyCmd;

unsigned char MainAdd;
unsigned char MainCmd;

#define irPin gpio.GP5
#define RecordIt gpio.GP2

#define RelayPin gpio.4
#define progStat gpio.1

void main(void);
void GetSIRC(unsigned char *address, unsigned char *command);
char WriteEE(char address, char data);
char ReadEE(char address);

char ReadEE(char address){
    eadr = address;
    eecon1.RD = 1;
    return eedata;
}
char WriteEE(char address, char data){
    char tmp;
    eadr = address;
    eedata = data;
    eecon1.WREN = 1;
    eecon2 = 0x55;
    eecon2 = 0xAA;
    eecon1.WR = 1;
    while(!pir1.EEIF);
    pir1.EEIF = 0;

    tmp = ReadEE(address);

    if(tmp == data)
        return 0;
    else
        return 1; //ERROR
}

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void main(void){
    char tmp;
    char IsSet = 0;

    cmcon = 7;                // comparator off, digital I/O
    trisio = 0b00100100;     // GP0 output, GP1 input
    gpio = 0;                 // make all outputs '0'

    delay_ms(250);
    if(RecordIt == 0){
        progStat = 1;
        GetSIRC(&MyAdd, &MyCmd);

        if(WriteEE(0x00, MyAdd))
            goto MainApp;
        if(WriteEE(0x01, MyCmd))
            goto MainApp;

        progStat = 0;
        delay_ms(250);
        progStat = 1;
        delay_ms(250);
        progStat = 0;
        delay_ms(250);
        progStat = 1;
        delay_ms(250);
        progStat = 0;
        delay_ms(250);
    }
MainApp:
    MainAdd = ReadEE(0x00);
    MainCmd = ReadEE(0x01);

    while(1){
        GetSIRC(&MyAdd, &MyCmd);

        if(MyAdd == 0x01)
            if(MyCmd == 0x00){
                if(IsSet == 0){
                    RelayPin = 1;
                    IsSet = 1;
                } else {
                    RelayPin = 0;
                    IsSet = 0;
                }
            }

        delay_ms(250);
        delay_ms(250);
    }
}

void GetSIRC(unsigned char *address, unsigned char *command){
    unsigned char ir_add;
    unsigned char ir_cmd;
    char x;

StartLook:
    ir_add = ir_cmd = 0;

    while(irPin);            //wait for it to be low
    lTime = 0;                //reset the counter

    while(irPin == 0){       //while the pin is low which is our pulse count
        lTime++;             //increment every 200uS until pin is high
        delay_100us(2);     //200uS delay
    }

    if(lTime <= 10)         //Start too short
        goto StartLook;     //Restart
}

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if(lTime >= 14)           //Start too long
    goto StartLook;       //Restart

lTime = 0;
for(x=0;x<7;x++){        //repeat 7 times for command
    ir_cmd >>= 1;         //if it was skipped or is done ORing then shift over the 1

    while(irPin);        //wait for it to be low
    lTime = 0;           //reset the counter

    while(irPin == 0){    //while the pin is low which is our pulse count
        lTime++;         //increment every 200uS until pin is high
        delay_100us(2); //200uS delay
    }

    if(lTime >= 6)       //If its high then OR a 1 in else skip
        ir_cmd |= 0x40; //if its less than 6 its a 0 so dont OR it
}

for(x=0;x<5;x++){        //repeat 5 times for address/device
    ir_add >>= 1;         //if it was skipped or is done ORing then shift over the 1

    while(irPin);        //wait for it to be low
    lTime = 0;           //reset the counter

    while(irPin == 0){    //while the pin is low which is our pulse count
        lTime++;         //increment every 200uS until pin is high
        delay_100us(2); //200uS delay
    }

    if(lTime >= 6)       //If its high then OR a 1 in else skip
        ir_add |= 0x10; //if its less than 6 its a 0 so dont OR it
}

*address = ir_add;
*command = ir_cmd;
}

```