

Who you are?  
What time does  
Dates Devistous

ECGR 6185- 2/7/11 P1

```
#include "QSKDefines.h"  
#include "proto.h"  
#include "extern.h"
```

```
void timer_init(void); //function for initializing timer related registers
```

```
unsigned char owntime[]="00:00";//character string which shows the own board time count  
unsigned char othertime[]="00:00";//character string which shows the other board time count  
unsigned int send_char_count; //count the numbers of characters sent  
unsigned int receive_char_count; // count the numbers of characters received  
unsigned int seconds_timer = FALSE; // flag when timer ends  
unsigned int sw1_pressed = FALSE; // flag for sw1  
unsigned int sw2_pressed = FALSE; // flag for sw2
```

```
void main(void){  
    unsigned int set_flag =0; //local variable for selecting a particular case, when switch 1 is pressed  
    MCUInit();  
    InitDisplay("\tSample \n");  
    InitUART();  
    timer_init();  
    BNSprintf(SERIAL_FILE_NUM, "\n\rSample\n\r");  
    ENABLE_LEDS;  
    ENABLE_SWITCHES;
```

```
    _asm (" fclr i"); // turn off interrupts  
    talic |= 0x02; // Interrupt priority of timer1 interrupt set to 3  
    s0tic |= 0x05; // Interrupt priority of uart0 receive interrupt set to 5  
    s0ric |= 0x06; // Interrupt priority of uart1 transmit interrupt set to 6  
    int0ic |= 0x04; // Interrupt priority of int0/sw2 interrupt set to 4  
    intlic |= 0x03; // Interrupt priority of intl/sw1 interrupt set to 3  
    _asm (" fset i"); // globally enable interrupts
```

```
while(1) {  
    if (sw1_pressed == TRUE){  
        if (set_flag==0) { //when stopwatch is started  
            ta0s = 1; //start the timers  
            tals = 1;  
            while(!S1);  
            set_flag = 1;  
        }  
        else if (set_flag==1){ //when stop watch is paused  
            ta0s = 0; //pause the timers  
            tals = 0;  
            while(!S1); //wait for s1 to go back up  
            set_flag = 0;  
        }  
        else if (set_flag==2){ //when stop watch is started after resetting  
            ta0 = 37499; //reload the timers  
            tal=20;  
            ta0s = 1;  
            tals = 1;  
            while(!S1);  
            set_flag = 1;  
        }  
        sw1_pressed = FALSE;  
    }  
}
```

```
if(sw2_pressed == TRUE){ //when reset switch is pressed  
    ta0s = 0;  
    tals = 0;  
    ta2s = 0;  
    owntime[0]=0x30;  
    owntime[1]=0x30;  
    owntime[2]=0x30;  
    owntime[3]=0x30;  
    o0tb_owntime[0];  
    while(!S2);  
    set_flag = 2;  
    sw2_pressed = FALSE;  
}
```

00:00  
↑↑↑↑  
01239

11  
11  
11

Lab 1

Lab 1

3 //end if (set\_flag == 0)

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```

if (seconds_timer == TRUE){ //when timer runs out
  if (owntime[4]<=0x38){ //when sec value is less than 9sec
    owntime[4]= owntime[4]+1;
  }
  else if(owntime[4]>0x38 && owntime[3]<=0x34){ //when sec value is more than 9sec
    owntime[4]=0x30;
    owntime[3]= owntime[3]+1;
  }
  else if(owntime[4]>0x38 && owntime[3]>0x34){ //when sec value is more than 59sec
    owntime[3]=0x30;
    owntime[4]=0x30;
    if(owntime[1]<=0x38){ //when min value is less than 60
      owntime[1]= owntime[1]+1;
    }
    else if(owntime[1] > 0x38 && owntime[0] <= 0x34){
      owntime[0] = owntime[0] + 1;
      owntime[1] = 0x30;
    }
    else if(owntime[1]> 0x38 && owntime[0] > 0x34){
      owntime[0] =0x30;
      owntime[1] = 0x30;
    }
  }
}
seconds_timer = FALSE;
disp_time(1); //function that display own time on LCD line1
u0tb= ownitme[0];

if( receive_char_count == 0){ //to make sure othertime has been received properly
  disp_time(2); //function that display other time on LCD line2
}
} //end main

```

owntime[.]++;

u0tb = owntime[0];  
disp\_time(1);  
disp\_time(2);

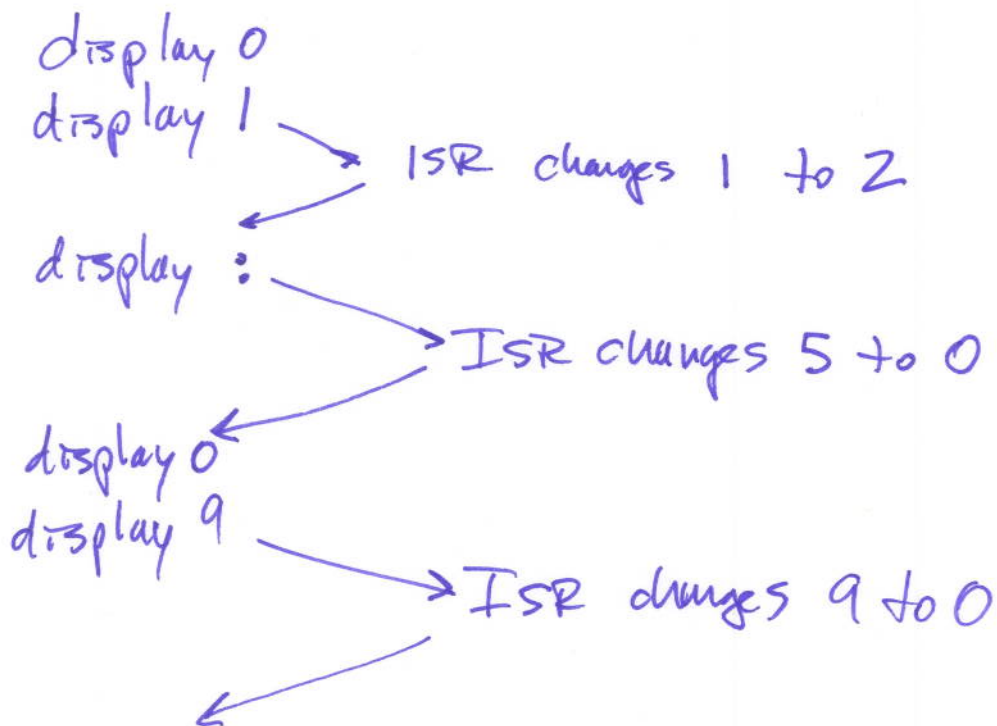
Printing line 1  
line 2

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Shared variable:

Other-time ← changed by:  
Receive-char-ISR  
Used by  
disp-time

01:59  
↑0 → 01:09



01:59  
01:09  
02:01

disable ints

other\_time  $\xrightarrow{\text{copied to}}$

enable ints

other time display

↓  
prints other time display

### Code

```
-asm ("fclr i")  
for (i=0; i<5; i++) other_time_display[i] =  
-asm ("fset i") other_time[i];
```