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1  /*****
2  Project : rtc.c
3  Version : 1.0
4  Date    : 6/28/04
5  Author  : Chris Troutner
6  Company : MyRobot
7  Comments: This program serves as an example for interfacing the 32.768 Khz Real Time Clock
8
9          This program sets up the Timer/Counter0 to be asynchronously clocked via the on-board 32.768 Khz
10         real time clock (RTC) crystal. Every time the Timer/Counter0 overflows, an interrupt is
11         generated. In the interrupt handler the 8-bit unsigned integer 'i' is incremented and
12         the lower four bits are output on the LEDs attached to PortB.
13
14         You can adjust the amount of time between interrupts by commenting and uncommenting the
15         appropriate lines in the Timer/Counter0 initialization code below.
16
17         See Atmel Application note AVR134 for another good example of using a 32.768Khz RTC chip.
18
19  Robot Type:          : Model T
20  *****/
21
22  #include <model_t.h>
23
24  // Declare your global variables here
25  uint8_t i=0;
26
27  INTERRUPT(SIG_OVERFLOW0)
28  {
29      i++;
30      PORTB = 0x0F & i;
31  }
32
33  int main(void)
34  {
35      // Declare your local variables here
36
37      // Initialization
38      reset();
39
40      DDRB = 0x0F;    //Make lower four pins of PortB outputs (LEDs)
41      PORTB = 0x00;    //Drive a low (LEDs off)
42
43      //!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
44      //*****
45      // Timer0/Counter0 Initialization
46      //*****
47      ASSR |= (1<<AS0);    //set Timer/Counter0 to be asynchronously clocked via the 32.768 Khz Oscillator
48      TCNT0=0x00;    // Clear the Counter Buffer (This is where the current count value is stored)
49      //-----
50      //      TCCR0      //      Description      |      Overflow Period      |
51      //-----
52      //TCCR0 |= 0x00; // Timer/Counter0 is Stopped |      -      |
53      //TCCR0 |= 0x01; //      32.768 Khz      |      1/128 second      |
54      //TCCR0 |= 0x02; //      32.768 Khz/8      |      1/8 second      |

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55 //TCCR0 = 0x03; //      32.768 Khz/32      |      1/4  second      |
56 //TCCR0 = 0x04; //      32.768 Khz/64      |      1/2  second      |
57   TCCR0 |= 0x05; //      32.768 Khz/128     |      1    second      |
58 //TCCR0 = 0x06; //      32.768 Khz/256     |      2    second      |
59 //TCCR0 = 0x07; //      32.768 Khz/1024    |      8    second      |
60 //-----
61 // Timer(s)/Counter(s) Interrupt(s) initialization
62 TIMSK |= (1<<TOIE0); //set 8-bit Timer/Counter0 Overflow
63 //!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
64
65 // Global enable interrupts (Keep this at end of Initialization Section in Main)
66 asm volatile ("sei");
67
68 // Loop Forever
69 while (1)
70 {
71
72 };
73
74 }
75
76
77
78

```