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/*デジタル温度計（室内室外温度自動切り替え式）*/
/*参照：楽しくできる C&PIC 制御実験 9.1 デジタル温度計*/
/*division0.0:2014-02-06 by Takehiko Inoue*/
/*division1.0:2014-02-07 by Takehiko Inoue*/

#include <htc.h>

__CONFIG(UNPROTECT&LVPDIS&BORDIS&PWRTEN&WDTDIS&HS);

#define  _XTAL_FREQ     10000000

ioport();
v_count();
sevenseg();

int       c,b,a,j;
int       STROBE=0x04;
int       POINT1,POINT2,POINT3;
long      value,v1,v2,v3;
int       segment_data[]={0x3f,0x06,0x5b,0x4f,0x66,0x6d,0x7c,0x07,0x7f,0x67};

main()
{
          while(1)
          {
          if(RC3==0) break;
          }

          TRISA=0x03;
          TRISB=0x00;
          TRISC=0x08;

          while(1)
          {
                    a=10;
                    RA2=0;                              /*outdoor off*/

                    while(a>0)
```

```
{                                                   /*loop 6*/
c=250;
        while(c>=0)                 /*loop 3 */
        {
        c=c-1;
                if(c==0)  /* loop 2 in */
                {
                a=a-1;

                ADCS1=1;        /*A/D hennkan Fosc/32 */
                ADCS0=0;

                ADFM=1;         /*A/D hennkankekka rigth */

                ADON=1;         /* A/D converter poewr ON */


                CHS2=0;         /* AN0 pin convert */
                CHS1=0;
                CHS0=0;

                GODONE=1;       /* A/D convert */

                __delay_us(60);

                while(GODONE);

                value=(ADRESH*256)+ADRESL; /* result */

                v_count();

                ADCON0=0;
                break;
                }

        sevenseg();

        }
```

```
}

j=10;
RA2^=1;                                  /*outdoor on toggle*/

while(j>=0)                              /*loop 4 */
{
b=250;
        while(b>=0)
        {
        b=b-1;
                if(b==0)                 /*loop 5 in */
                {
                j=j-1;

                ADCS1=1;                 /*A/D hennkan Fosc/32 */
                ADCS0=0;

                ADFM=1;                  /*A/D hennkankekka rigth */

                ADON=1;                  /* A/D converter poewr ON */


                CHS2=0;                  /* AN1 pin convert */
                CHS1=0;
                CHS0=1;

                GODONE=1;                /* A/D convert */

                __delay_us(60);

                while(GODONE);

                value=(ADRESH*256)+ADRESL; /* result */

                v_count();

                ADCON0=0;
```

```
                                        break;
                                        }

                                sevenseg();

                                }
                        }
                }
}

ioport()
{
PORTA=0;
PORTB=0;
PORTC=0;
}

v_count()
{
                                        v3=value/100;
                                        v2=(value-v3*100)/10;
                                        v1=value-v3*100-v2*10;
}

sevenseg()
{
                                if((STROBE<<=1)==0x08)
                                        {
                                        STROBE=0x01;
                                        POINT1=v1;
                                        PORTB=segment_data[POINT1];
                                        PORTC=STROBE;
                                        __delay_ms(3);
                                        PORTC=0;
                                        __delay_us(500);
                                        }
                                if(STROBE==0x02)
                                        {
```

```
                POINT2=v2;
                PORTB=segment_data[POINT2];
                PORTC=STROBE;
                __delay_ms(3);
                PORTC=0;
                __delay_us(500);
                }
        if(STROBE==0x04)
                {
                POINT3=v3;
                PORTB=segment_data[POINT3];
                PORTC=STROBE;
                __delay_ms(3);
                PORTC=0;
                __delay_us(500);
                }
}
```