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//**

// **Program for AM230x series**

//MCU: AT89S52 , Frequency of crystal oscillator: 11.0592MHz

//Function: Transmit RH & Temp. Data via PC interface , Baud rate 9600

//Connection: P2.0 connected with DHT sensor

// Company : Aosong Electronics

//**

#include <reg51.h>

#include <intrins.h>

//

```
typedef unsigned char  U8;          /* defined for unsigned 8-bits integer variable */
typedef signed   char  S8;          /* defined for signed 8-bits integer variable */
typedef unsigned int   U16;         /* defined for unsigned 16-bits integer variable */
typedef signed   int   S16;         /* defined for signed 16-bits integer variable */
typedef unsigned long  U32;         /* defined for unsigned 32-bits integer variable */
typedef signed   long  S32;         /* defined for signed 32-bits integer variable */
typedef float         F32;          /* single precision floating point variable (32bits) */
typedef double        F64;          /* double precision floating point variable (64bits) */
```

//

#define uchar unsigned char

#define uint unsigned int

#define Data_0_time 4

//-----//

//-----Definition for IO interface-----//

//-----//

sbit P2_0 = P2^0 ;

sbit P2_1 = P2^1 ;

sbit P2_2 = P2^2 ;

sbit P2_3 = P2^3 ;

//-----//

//-----Definition zone-----//

//-----//

U8 U8FLAG,k;

U8 U8count,U8temp;

U8 U8T_data_H,U8T_data_L,U8RH_data_H,U8RH_data_L,U8checkdata;

U8 U8T_data_H_temp,U8T_data_L_temp,U8RH_data_H_temp,U8RH_data_L_temp,U8checkdata_temp;

U8 U8comdata;

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```
U8 outdata[5];
U8 indata[5];
U8 count, count_r=0;
U8 str[5]={"RS232"};
U16 U16temp1,U16temp2;
SendData(U8 *a)
```

```
{
    outdata[0] = a[0];
    outdata[1] = a[1];
    outdata[2] = a[2];
    outdata[3] = a[3];
    outdata[4] = a[4];
    count = 1;
    SBUF=outdata[0];
}
```

```
void Delay(U16 j)
{
    U8 i;
    for(;j>0;j--)
    {
        for(i=0;i<27;i++);
    }
}

void Delay_10us(void)
{
    U8 i;
    i--;
    i--;
    i--;
    i--;
    i--;
    i--;
}
```

```
void COM(void)
{
```

```
    U8 i;
    for(i=0;i<8;i++)
```

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```
{

    U8FLAG=2;

    while(!P2_0)&&U8FLAG++);
        Delay_10us();
        Delay_10us();
        Delay_10us();
        U8temp=0;
        if(P2_0)U8temp=1;
        U8FLAG=2;
        while((P2_0)&&U8FLAG++);

    if(U8FLAG==1)break;

    U8comdata<<=1;
    U8comdata|=U8temp;          //0
} //rof

}

//-----
//----Sub-program for reading %RH -----
//-----
//----All the variable bellow is global variable-----
//----Temperature's high 8bit== U8T_data_H-----
//----Temperature's low 8bit== U8T_data_L-----
//----Humidity's high 8bit== U8RH_data_H-----
//----Humidity's low 8bit== U8RH_data_L-----
//----Check-sum 8bit == U8checkdata-----
//-----

void RH(void)
{

    P2_0=0;
    Delay(5);
    P2_0=1;
```

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```
Delay_10us();
Delay_10us();
Delay_10us();
Delay_10us();
P2_0=1;
if(!P2_0)
{
    U8FLAG=2;
    while((!P2_0)&&U8FLAG++);
    U8FLAG=2;
    while((P2_0)&&U8FLAG++);
    COM();
    U8RH_data_H_temp=U8comdata;
    COM();
    U8RH_data_L_temp=U8comdata;
    COM();
    U8T_data_H_temp=U8comdata;
    COM();
    U8T_data_L_temp=U8comdata;
    COM();
    U8checkdata_temp=U8comdata;
    P2_0=1;

    U8temp=(U8T_data_H_temp+U8T_data_L_temp+U8RH_data_H_temp+U8RH_data_L_temp);
    if(U8temp==U8checkdata_temp)
    {
        U8RH_data_H=U8RH_data_H_temp;
        U8RH_data_L=U8RH_data_L_temp;
        U8T_data_H=U8T_data_H_temp;
        U8T_data_L=U8T_data_L_temp;
        U8checkdata=U8checkdata_temp;
    }//fi
}

}
```

```
//-----
//          main()
//-----

void main()
```

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```
{
    U8 i,j;

    TMOD = 0x20;
    TH1 = 253;
    TL1 = 253;
    TR1 = 1;
    SCON = 0x50;
    ES = 1;
    EA = 1;
    TI = 0;
    RI = 0;
    SendData(str) ;
    Delay(1);
    while(1)
    {

        //-----
        //调用温湿度读取子程序
        RH();
        //-----

        str[0]=U8RH_data_H;
        str[1]=U8RH_data_L;
        str[2]=U8T_data_H;
        str[3]=U8T_data_L;
        str[4]=U8checkdata;
        SendData(str) ;

        Delay(20000);
    }//elihw

} // main

void RSINTR() interrupt 4 using 2
{
    U8 InPut3;
    if(TI==1)
    {
```

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```
TI=0;
if(count!=5)
{
    SBUF= outdata[count];
    count++;
}

}

if(RI==1)
{
    InPut3=SBUF;
    indata[count_r]=InPut3;
    count_r++;
    RI=0;
    if (count_r==5)
    {

        count_r=0;
        str[0]=indata[0];
        str[1]=indata[1];
        str[2]=indata[2];
        str[3]=indata[3];
        str[4]=indata[4];
        P0=0;
    }
}

}
```