#include<12C5A60S2.h>

#include<intrins.h>

#include<ADC.h>

#include "uart2.h"

#include "sim800.h"

/\*\*\*\*\*\*\*\*甲醛串口接收数据缓存\*\*\*\*\*\*\*\*\*\*/

unsigned char idata ZE08\_receive[10];

/\*\*\*\*\*\*\*\*甲醛串口接收计数器\*\*\*\*\*\*\*\*\*\*/

unsigned char ZE08\_DATA\_count;

bit kg\_flag = 0;

unsigned char str\_ze08[5];//甲醛值

unsigned char str\_co[5];//值

unsigned char P\_baojing = 100; //甲醛报警值

unsigned int C\_baojing = 100;

unsigned char P\_buff[4];

unsigned char C\_buff[4];

unsigned char moshi=0;

unsigned char time;

int ZE08,Value1,Value2;

//unsigned char dat = 0x00; //AD值

bit qx\_flag = 1; //报警开关 默认开

bit flag\_1s ; //报警开关 默认开

sbit shezhi = P3^7;

sbit jia = P3^6;

sbit jian = P3^5;

sbit quxiao = P3^4;

sbit BUZZER = P3^2;

sbit LED\_P = P1^4;// 甲醛报警指示灯

sbit LED\_C = P1^5;// 烟雾报警指示灯

sbit HW = P1^6;// 红外感应

unsigned int sum=0;

unsigned char IntToString(unsigned char \*str, int dat);

extern void InitLcd1602();

extern void LcdShowStr(unsigned char x, unsigned char y, unsigned char \*str);

extern void LcdWriteCmd(unsigned char cmd);

unsigned char \*content = "Warning: Vehicle anomaly!\r\n";

void Key\_set\_scan()

{

if(quxiao==0)

{

Delay\_Ms(10);

if(quxiao==0)

{

while(!quxiao);

qx\_flag =~ qx\_flag;

}

}

if(shezhi==0)

{

Delay\_Ms(10);

if(shezhi==0)

{

while(!shezhi);

LcdWriteCmd(0x01); //清屏

moshi++;

if(moshi >= 3)moshi = 0;

if(moshi == 0)

{

LcdShowStr(0, 0,"HCHO: ppm T: ");

LcdShowStr(0, 1,"Smoke: ppm");

}

else if(moshi == 1)

{ LcdWriteCmd(0x01); //清屏

Delay\_Ms(10);

LcdShowStr(0, 0," ");

LcdShowStr(0, 1,"Set\_H: ppm ");

}

else if(moshi == 2)

{ LcdWriteCmd(0x01); //清屏

Delay\_Ms(10);

LcdShowStr(0, 0," ");

LcdShowStr(0, 1,"Set\_S: ppm ");

}

}

}

if(jia==0)

{

Delay\_Ms(80);

if(jia==0)

{

if(moshi==1)

{

P\_baojing++ ;

if( P\_baojing>=999 )P\_baojing =999;

}

if(moshi==2)

{

C\_baojing++ ;

if( C\_baojing>=999 )C\_baojing =999;

}

}

}

if(jian == 0)

{

Delay\_Ms(80);

if(jian == 0)

{

if(moshi==1)

{

P\_baojing-- ;

if( P\_baojing<=0 )P\_baojing =0;

}

if(moshi==2)

{

C\_baojing-- ;

if( C\_baojing<=0 )C\_baojing =0;

}

}

}

}

/\*------------------------------------------------

定时器初始化子程序

------------------------------------------------\*/

void Init\_Timer0(void)

{

TMOD |= 0x01; //使用模式1，16位定时器，使用"|"符号可以在使用多个定时器时不受影响

TH0=(65536-5000)/256; //重新赋值5ms

TL0=(65536-5000)%256;

EA=1; //总中断打开

ET0=1; //定时器中断打开

TR0=1; //定时器开关打开

PT0=1; //优先级打开

}

/\*\*\*\*\*\*\*\*\*\*\*\*主函数\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

void main()

{

char len,a;

char buff[3];

// U8 m;

Init\_Timer0(); //定时器初始化

Uart\_Init(); //配置波特率为9600

Uart\_Init\_2();

InitLcd1602(); //初始化液晶

ADC\_Init(ADC\_PORT0);

LcdShowStr(0, 0,"HCHO: ppm T: ");

LcdShowStr(0, 1,"Smoke: ppm ");

while(1)

{

Key\_set\_scan();//按键扫描

if(moshi == 0) //设置模式切换

{

len = IntToString(str\_ze08,ZE08); //转换成字符串

while (len < 3) //用空格补齐到5个字符长度

{

str\_ze08[len++] = ' ';

}

str\_ze08[len] = '\0'; //添加字符串结束符

LcdShowStr(5, 0, str\_ze08); //甲醛显示到液晶屏上

Value2 = GetADCResult(ADC\_CH0); //yanwu 检?

Value2 = (float)(Value2/2);//浓度校准

len = IntToString(str\_co,Value2); //转换成字符串

while (len < 3) //用空格补齐到3个字符长度

{

str\_co[len++] = ' ';

}

str\_co[len] = '\0'; //添加字符串结束符

LcdShowStr(6, 1, str\_co); //烟雾浓度显示到液晶屏上

if(qx\_flag == 1)

{

if((ZE08>=P\_baojing)||(Value2>=C\_baojing)) BUZZER = 0; else BUZZER = 1;

}

else BUZZER = 1;

if(ZE08>=P\_baojing) LED\_P = 0; else LED\_P = 1;

if(Value2>=C\_baojing) LED\_C = 0; else LED\_C = 1;

if(HW==0)

{

if(flag\_1s==1)

{

flag\_1s=0;

time++; if(time>99) time=99;

buff[0]=time/10+0x30;

buff[1]=time%10+0x30;

buff[2]= '\0';

LcdShowStr(14, 0,buff);

if(time>5)

{

if(a==0)

{

a=1;

Send\_message(content); //发报警短信

}

}

}

}

else

{

time=0;

buff[0]=time/10+0x30;

buff[1]=time%10+0x30;

buff[2]= '\0';

LcdShowStr(14, 0,buff);

}

}

else if(moshi == 1) //设置甲醛浓度上限模式

{

P\_buff[0] = P\_baojing/100+0x30;

P\_buff[1] = P\_baojing%100/10+0x30;

P\_buff[2] = P\_baojing%10+0x30;

P\_buff[4] = '\0';

LcdShowStr(6, 1,P\_buff);

}

else if(moshi == 2) //设置烟雾浓度上限模式

{

C\_buff[0] = C\_baojing/100+0x30;

C\_buff[1] = C\_baojing%100/10+0x30;

C\_buff[2] = C\_baojing%10+0x30;

C\_buff[4] = '\0';

LcdShowStr(6, 1,C\_buff);

}

}

}

/\* 整型数转换为字符串，str-字符串指针，dat-待转换数，返回值-字符串长度 \*/

unsigned char IntToString(unsigned char \*str, int dat)

{

signed char i = 0;

unsigned char len = 0;

unsigned char buf[6];

if (dat < 0) //如果为负数，首先

{

dat = -dat;

\*str++ = '-';

len++;

}

do { //先转换为低位在前的十进制数组

buf[i++] = dat % 10;

dat /= 10;

} while (dat > 0);

len += i; //i最后的值就是有效字符的个数

while (i-- > 0) //将数组值转换为ASCII码反向拷贝到接收指针上

{

\*str++ = buf[i] + '0';

}

\*str = '\0'; //添加字符串结束符

return len; //返回字符串长度

}

/\*\*\*\*\*\*\*\*\*\*\*\*串行口2中断处理函数\*\*\*\*\*\*\*\*\*\*\*\*\*/

void UART\_2Interrupt(void) interrupt 8

{

unsigned char UART\_data;

if(S2CON&S2RI)

{

UART\_data=S2BUF;

if(UART\_data==0xFF)

{

if((ZE08\_receive[0]==0x17)&&(ZE08\_receive[1]==0x04))

{

ZE08 = ZE08\_receive[3]\*256+ZE08\_receive[4];

}

ZE08\_DATA\_count=0;

}

else

{

ZE08\_receive[ZE08\_DATA\_count]=UART\_data;

ZE08\_DATA\_count++;

}

}

S2CON&=~S2RI;

}

/\*------------------------------------------------

定时器中断子程序（定时1ms）

------------------------------------------------\*/

void Timer0\_isr(void) interrupt 1

{

static unsigned int s1j;

TH0=(65536-5000)/256; //重新赋值 5ms

TL0=(65536-5000)%256;

s1j++;

if(s1j>=200)

{

s1j = 0;

flag\_1s = 1;

}

}