```
// This is program for the bidirectional visitor counter cum Energy Saver.
//when anyone present in room then light get on and fan on by sensing the condition..
//lm324/124 is used for light intensity
//biderictional visitor counter separate gate for entry & exit
// Code by Aashish TheTiaraTech Show
#include<AT89x52.h>

#define LDATA P0
#define RS P2_5
#define RW P2_6
#define EN P2_7

#define RELAY1 P3_2
#define RELAY2 P3_3
#define RELAY3 P3_4
#define FAN P3_5

#define INSENSOR P3_6
#define OTSENSOR P3_7

//light intensity inputs to controller
#define IN1 P2_0
#define IN2 P2_1
#define IN3 P2_2
//#define IN4 P2_3

#define CS P1_3
#define CLK P1_4
#define DIN P1_6
#define DOUT P1_5

#define I2C_DELAY 0x07


//code unsigned char data1[56]={' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ','G','P
','G',' ','W','E','L','C','O','M','E',' ','Y','O','U',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',
' ',' ',' ',' ',' ',' ',' ',' '};
code unsigned char data1[43]={' ',' ',' ','S','M','A','R','T',' ','E','N','E','R','G','Y',' ',
'M','A','N','A','G','E','M','E','N','T',' ','S','Y','S','T','E','M',' ',' ',' ',' ',' ',' ',' ',' '
',' ',' ',' '};
unsigned char tmpsense[9]={'T','E','M','P','-',' ',' ',' ',' '};
unsigned char cntnum[10]={'C','O','U','N','T','-',' ',' ',' ',' '};

 int x1,num,cnt,cnt1,cnt2;
unsigned char entry,exit;

void main(void);


void ms_delay(unsigned int t)
{
unsigned int i,j;
for(i=0;i<t;i++)
for(j=0;j<10;j++);
}


void lcd_data(unsigned char value)
{
//lcd_ready();
LDATA=value;
RS=1;
RW=0;
EN=1;
ms_delay(1);
EN=0;
ms_delay(10);
}

void lcd_cmd(unsigned char value)
{
//lcd_ready();
LDATA=value;
RS=0;
RW=0;
EN=1;
ms_delay(1);
EN=0;
ms_delay(10);
}
```

```
void dis_value(unsigned int val,unsigned pos)
{
unsigned int a,b,c,d,e,f,g;
a=val;
b=a/1000;
f=a%1000;
c=f/100;
g=f%100;
d=g/10;
e=g%10;

//value[pos]=(48+b);
//value[pos]=(b);
tmpsense[pos]=(48+c);
tmpsense[pos+1]=(48+d);
//value[pos+2]=(48+d);
tmpsense[pos+3]=(48+e);
}


void display()
{
unsigned char i;


//lcd_cmd(0x01);
lcd_cmd(0x0C);
lcd_cmd(0x06);
lcd_cmd((0x80));

for(i=0;i<9;i++)
{
lcd_data(tmpsense[i]);
}
lcd_cmd(0x0C);
lcd_cmd(0x06);
lcd_cmd((0xC0));

for(i=0;i<10;i++)
{
lcd_data(cntnum[i]);
}

//ms_delay(5000);

}


void intensity()
{
if(cnt>0 && IN1==0 && IN2==0 && IN3==0)
{
RELAY1=1; //on
RELAY2=1;
RELAY3=1;
ms_delay(500);
}


if((cnt>0 && IN1==0 && IN2==1 && IN3==1)||(cnt>0 && IN1==1 && IN2==0 && IN3==1)||(cnt>0 && IN1
==1 && IN2==1 && IN3==0))
{
RELAY1=1;
RELAY2=0;
RELAY3=0;
ms_delay(500);
}

if((cnt>0 && IN1==0 && IN2==0 && IN3==1)||(cnt>0 && IN1==1 && IN2==0 && IN3==0)||(cnt>0 && IN1
==0 && IN2==1 && IN3==0))
{
RELAY1=1;
RELAY2=1;
RELAY3=0;
ms_delay(500);
}


if(cnt>0 && IN1==1 && IN2==1 && IN3==1)
{
RELAY1=0;
```

```
RELAY2=0;
RELAY3=0;
ms_delay(500);
}

if(cnt<1)
{
RELAY1=0; //off
RELAY2=0;
RELAY3=0;
FAN=0;
ms_delay(500);
}

}


void cnt_scan()
{

if(INSENSOR==1)
{
entry=1;
}

if(INSENSOR==0 && entry==1)
{
entry=0;

cnt++;
if(cnt>999)
{
    cnt=999;
}

ms_delay(5000);
}


if(OTSENSOR==1)
{
exit=1;
}

if(OTSENSOR==0 && exit==1)
{
cnt--;
exit=0;
if(cnt<1)
{
    cnt=0;
}
ms_delay(5000);
}

num=cnt;
cntnum[6] = (num/100)+0x30;
cntnum[7] = ((num%100)/10)+0x30;
cntnum[8] = ((num%100)%10)+0x30;

}


void temp_scan()
{
unsigned int dat;
unsigned char i,conbyte;

CS=0;
DIN=0;
CLK=1;
DOUT=1;
dat=0;
for(i=0;i<4;i++)
{
DIN=conbyte & 0x80;
CLK=0;
ms_delay(2);
CLK=1;
ms_delay(2);
conbyte=conbyte<<1;
}
```

```
CLK=0;
ms_delay(2);
CLK=1;
ms_delay(2);
for(i=0;i<12;i++)
{
CLK=0;
ms_delay(2);
CLK=1;
ms_delay(2);
dat=dat<<1;
dat=dat|DOUT;
ms_delay(2);
}
CS=1;
CLK=0;

dat=dat*1.25;
x1=dat;
dis_value(dat,5);

if(x1>400 && cnt>0)
{
    FAN=1;
    }
else
{
    FAN=0;
}


}


void intfunc()
{

cnt1++;
if(cnt1>=20)
{
cnt_scan();
cnt1=0;
}
else
{
cnt1=cnt1;
}
TL0=0xFD;
TH0=0x4B;
TR0=1;
IE=0x82;



}

void timer0(void) interrupt 1 using 1
{
TR0=0;
intfunc();
}


void run_mode()
{

while(1)
{
intensity();
temp_scan();
cnt_scan();
display();
}
}




void disp_start()
{
unsigned char i,a;
//ALARM1=1;
```

```
//ALARM2=1;
for(a=0;a<27;a++)
{
lcd_cmd(0x0C);
lcd_cmd(0x01);
lcd_cmd(0x06);
lcd_cmd((0x80));
for(i=a;i<a+16;i++)
{
lcd_data(data1[i]);
}
ms_delay(5000);
}

TMOD=0x21;//for serial & interrupt function
SCON=0x50;
TH0=0x4B;//for 1 sec
TL0=0xFD;

ms_delay(100);

TR0=1;
IE=0x82;

run_mode();
}


void main(void)
{

P1=0xFF;
P3=0xC3; //3f
P2=0x07; //LCD
cnt=0;

RELAY1=0;
RELAY2=0;
RELAY3=0;
FAN=0;
lcd_cmd(0x38);
disp_start();

}
```