

ภาคผนวก ก

CODE PROGRAM

```
#include "reg51.h"

unsigned char data BufDisp[7];
unsigned char data Buf[7];
void Delay(unsigned int x );

unsigned char BufSEG[]={0x40,0xF9,0xA4,0xB0,0x99,0x92,0x82,0xF8,0x00,0x10,0xFF};
void Init_Bdisp(void);
void Big_Disp(void);
void delay_ms(unsigned int x);
void StopAll(void);

sbit SCLK = P2^3;
sbit LATCH = P2^2;
sbit EN = P2^1;
sbit SI = P2^0;

sbit Alert = P3^2;

sbit Load0 = P1^0;
sbit cut = P3^3;
sbit sw1 = P0^4;
sbit sw2 = P0^5;
sbit sw3 = P0^6;
sbit sw4 = P0^7;

unsigned int count =0;
unsigned long a=0;
unsigned char cut_off= 0;
```

```
void main(void)
{
    Alert = 0;
    cut = 0;

    Init_Bdisp();
    BufDisp[0] = 0;
    Big_Disp();

    TMOD = 0x01; //1Khz ~ 1ms  1000hz ~0.001sec
    TH0 = 0xFA;
    TL0 = 0x00;
    EA = 1;
    ET0 = 1;

    // while(Start_Key == 1);

while(1){
    Init_Bdisp();
        if(cut_off == 1)
        {
            cut = 0;

                BufDisp[0] = 10; // 7SEGMENT stop
            Big_Disp();

                TR0 = 0; //interrup stop
```

```
                while(1); //loop stop
            }
if(sw1 == 1)
    {

        BufDisp[0] = 1;
        Big_Disp();

        Alert = ~Alert;
        Delay(800);
        TR0 = 0;

    }
if(sw2 == 1)
    {

        BufDisp[0] = 2;
        Big_Disp();

        Alert = ~Alert;
        Delay(800);
        TR0 = 0;

    }
if(sw3 == 1)
    {

        BufDisp[0] = 3;
        Big_Disp();

        Alert = ~Alert;
```

```
        Delay(800);
        TR0 = 0;

    }
    if(sw4 == 1)
    {

        BufDisp[0] = 4;
        Big_Disp();

        Alert = ~Alert;
        Delay(800);
        TR0 = 0;

    }
    if(sw1 != 1 && sw2 != 1 && sw3 != 1 && sw4 != 1)
    {
        BufDisp[0] = 0;
        Big_Disp();

        Alert = 0;
        Delay(800);
        TR0 = 1;
    }

}

}

void Init_Bdisp(void)
```

```
{
    SI = 0;
    LATCH = 0;
    SCLK = 0;
    EN = 0;
}
void Big_Disp(void)
{
    unsigned char xdata j,Data,i;
    bit Out;

    for(i=0;i<1;i++){
        Data = BufSEG[BufDisp[i]];
        for(j=0;j<8;j++){
            {
                Out = ~Data & 0x80;
                SI = Out;
                Data = Data << 1;
                SCLK = 1;
                SCLK = 0;
            }
        }
        LATCH = 1;
        LATCH = 0;
    }
}
void delay_ms(unsigned int x)
{
    unsigned int s,k;
```

```
for(s=0;s<x;s++)
{
for(k=0;k<288;k++)
{}
}
}

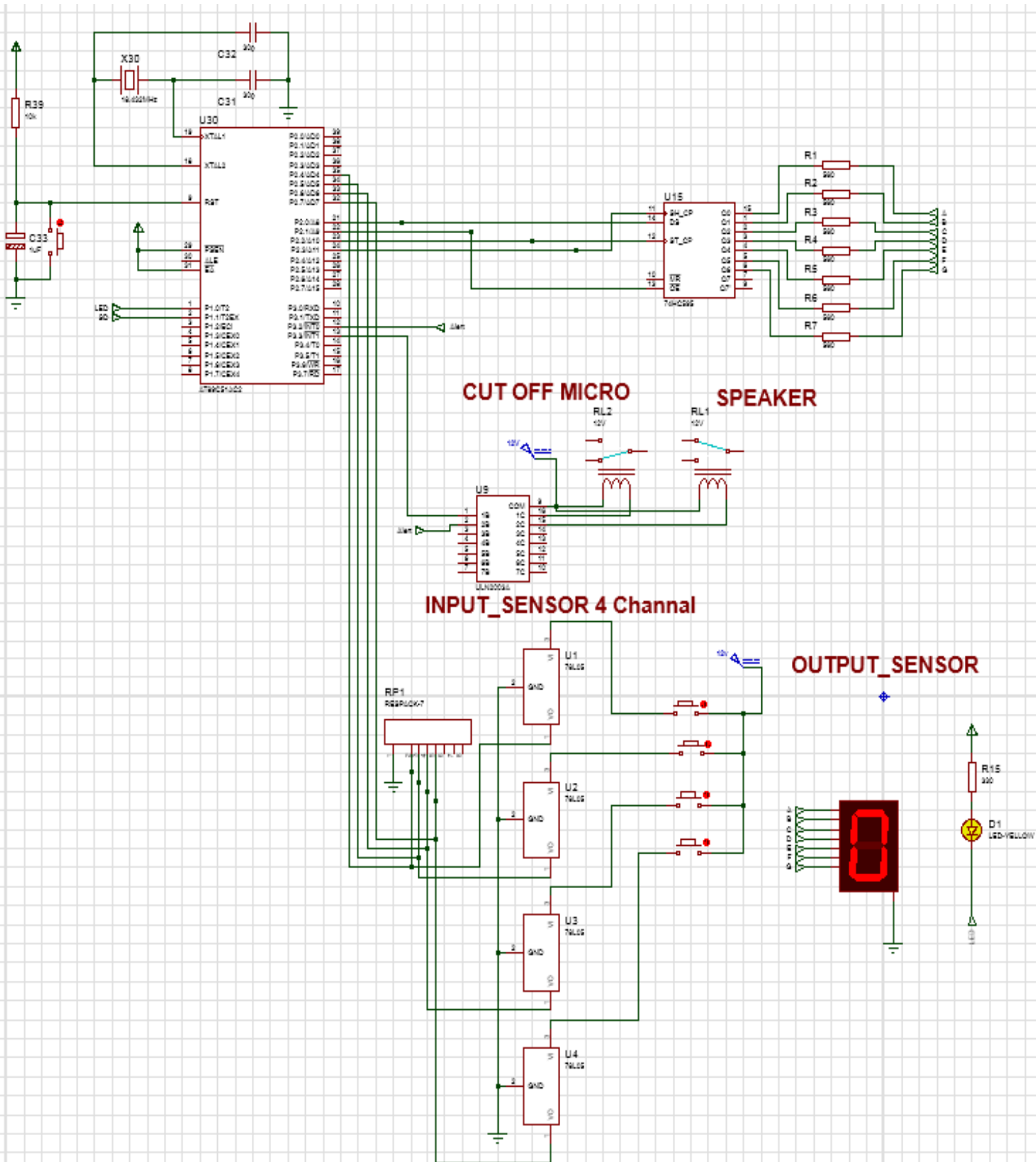
void Timer0() interrupt 1
{
/*
TR0 = 0;//Stop Timer0
TF0 = 0;
TH0 = 0x__;
TL0 = 0x__;
TR0 = 1 //Start Timer0
*/

count++;
TR0 = 0;
TH0 = 0xFA; //1Khz ~ 1ms 1000hz ~0.001sec
TL0 = 0x00;
if(count == 1000) // 1ms*1000 = 1 sec
{

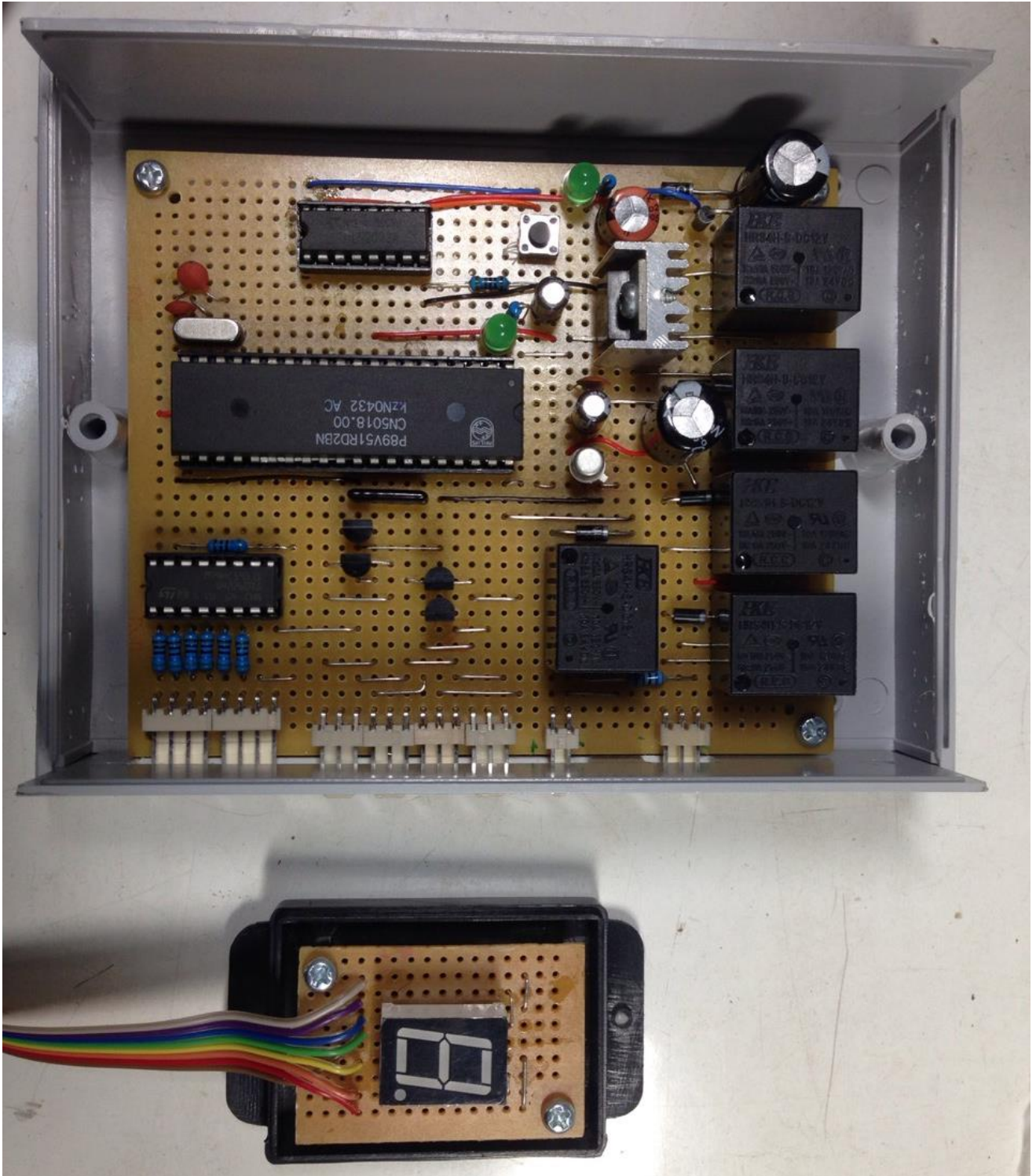
Load0 =~Load0;
if(a == 20) // edit 5 sec
{
cut_off = 0;
cut = 1; // Relay
a = 0;
```

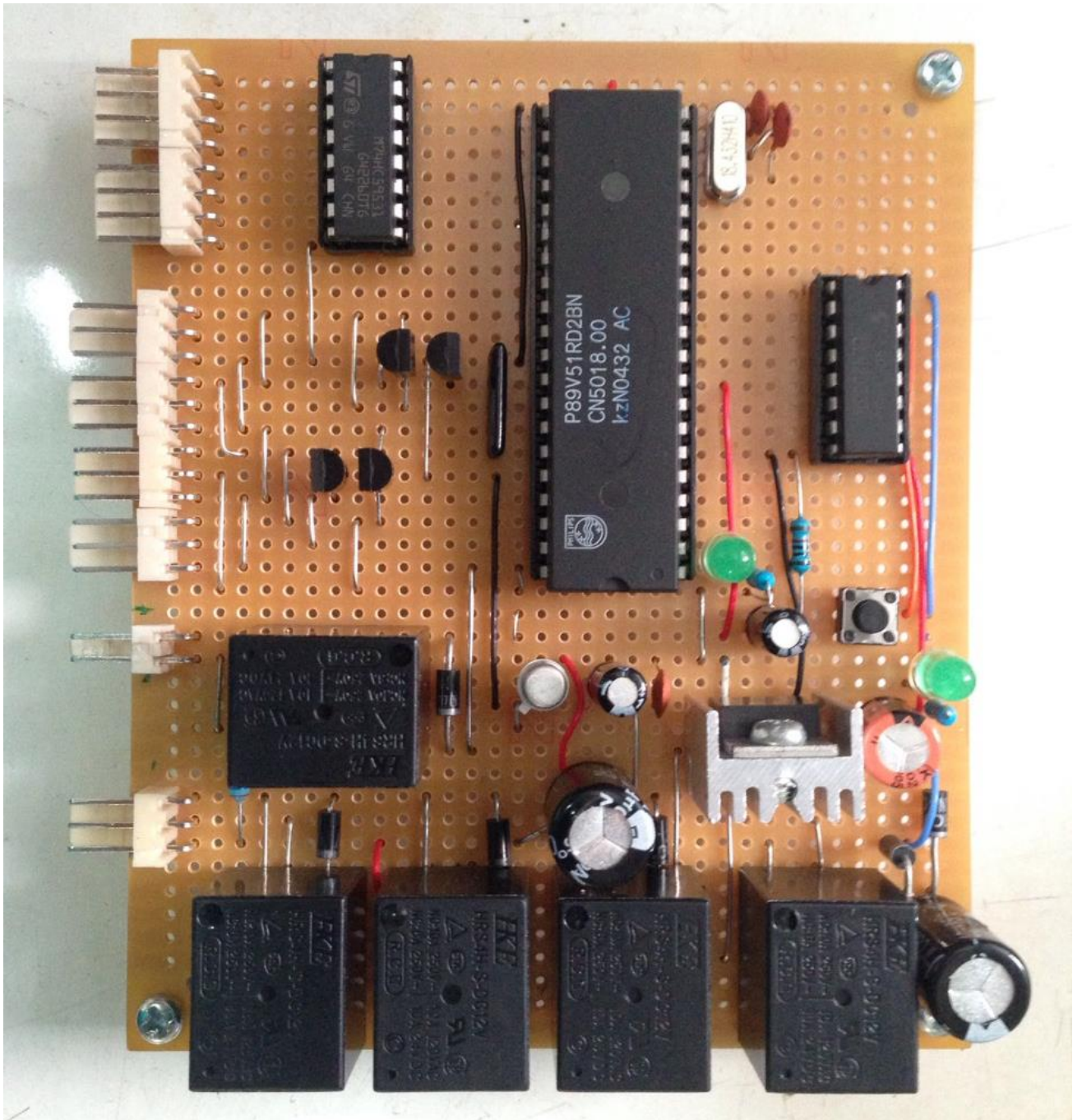
```
    }  
    a++;  
    count = 0;  
  }  
  TR0 = 1;  
  
}  
void Delay(unsigned int x )  
{ unsigned int i,j;  
  for (i=0;i<x;i++)  
  {  
    for (j=0;j<115;j++) { }  
  }  
}
```


ภาคผนวก ข
ภาพจำลองวงจร จากโปรแกรม



ภาคผนวก ค
ภาพวงจรจริง





ภาคผนวก ง
ดาต้าชีต (Data sheet)