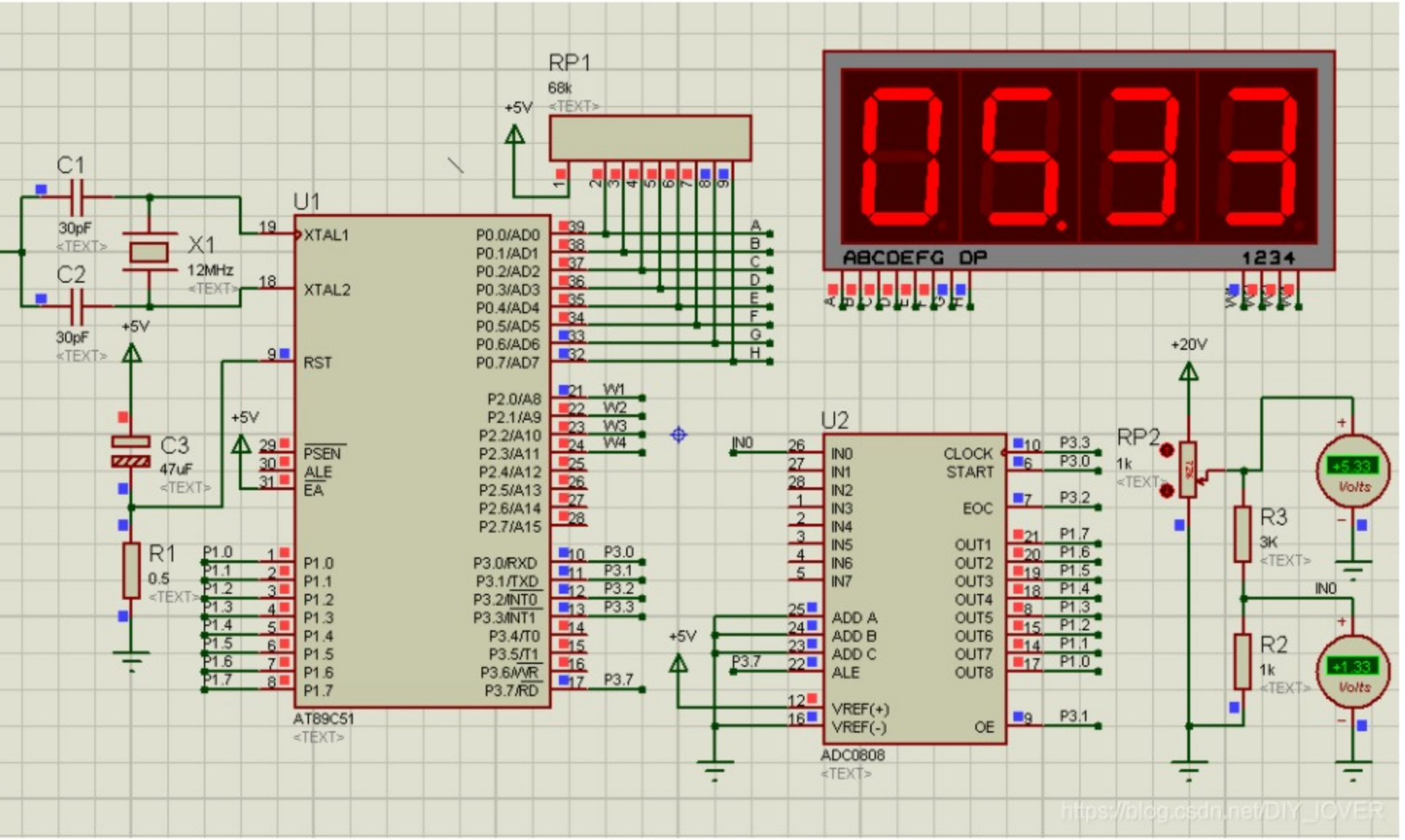


数字电压表简称DVM，数字电压表基本原理是将输入的模拟电压信号转化为数字信号，再进行输出显示。而A/D转换器的作用是将连续变化的模拟信号量转化为离散的数字信号，器基本结构是由采样保持，量化，编码等几部分组成。因此AD转换是此次设计的核心元件。输入的模拟量经过AD转换器转换，再由驱动器驱动显示器输出，便得到测量的数字电压。

本次设计的作品要求制作数字电压表的量程为0到20v，由于用到的模数转换芯片是ADC0809，设计系统给的供电电压为+5v。同时设计的精度为小数点后两位，满足要求的两位小数的精度，在不考虑AD芯片的量化误差的前提下，此次设计的精度能够满足一般测量的要求。

【关键词】 AT89C51 ADC0809 4位数码管



```
1 #include<reg51.h>//51单片机头文件
2 #include<intrins.h>//调用_nop_();延时
3 #define uchar unsigned char
4 #define uint unsigned int
5 sbit W1=P2^0;
6 sbit W2=P2^1;
7 sbit W3=P2^2;
8 sbit W4=P2^3;
9 uchar code table1[]={
10     63,6,91,79,102,
11     109,125,7,127,
12     111,119,124,57,
13     94,121,113,118,
14     56,115,49,62,
15     110,64,128,0
16 };
17 uchar code table2[]={ //ADC0809采集得到的数据值
18     0,3,5,8,10,13,15,18,20,22,
19     25,27,30,32,35,37,39,42,44,47,
20     49,51,54,56,59,61,63,66,68,70,
21     73,75,77,80,82,84,87,89,92,94,
22     96,99,101,103,106,108,110,113,115,118,
23     120,122,125,127,130,132,135,137,
24     139,142,144,147,149,152,154,157,159,162,
25     164,167,170,172,175,177,180,183,185,188,
26     191,193,196,199,202,204,207,210,213,216,219,
27     222,224,227,230,233,236,239,242,246,249,252,
28     255
29 };
30 uint code table3[]={ //ADC0809采集得到的电压值
31     0,20,40,60,79,99,118,138,157,176,
32     196,215,234,253,272,291,310,328,347,366,
33     385,403,422,440,459,478,496,515,533,552,
34     570,589,607,625,644,662,681,699,718,736,
35     755,773,792,810,829,848,866,885,904,922,
36     941,960,979,998,1020,1040,1060,1070,1090,
37     1110,1130,1150,1170,1190,1210,1230,1250,1270,1290,
38     1310,1330,1350,1370,1390,1410,1430,1450,1470,1500,
39     1520,1540,1560,1580,1600,1630,1650,1670,1690,1710,
40     1740,1760,1780,1810,1830,1850,1880,1900,1930,1950,
41     1980,2000
42 };
43 uchar aa;
44 sbit ST=P3^0;
45 sbit OE=P3^1;
46 sbit EOC=P3^2;
47 sbit CLK=P3^3;
48 sbit ALE=P3^7;
49 //定时器初始化子函数
50 void init()
51 {
52     TMOD=1;
53     TH0=255;
54     TL0=56;
55     EA=1;
56     ET0=1;
57     TR0=1;
58 }
59 //延时子函数
60 void delay(uint i)
61 {
62     uint j;
63     for(;i>0;i--)
64     {
65         for(j=0;j<100;j++)
66             {;}
67     }
68 }
69 //数码管显示子函数
70 void display()
71 {
```

- 1、源程序
 - 2、仿真图
 - 3、原理图
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