

```
1  #include <reg51.h>
2  #define LED P1
3  #define SW P0
4  void delay(void);
5  void bouncing(void);
6  void countup(void);
7  void countdown(void);
8  void shooting(void);
9  void db(void);
10 void delay_two_sec(void);
11 void delay_four_sec(void);
12
13 sbit MODE1 = P0^0;
14 sbit MODE2 = P0^1;
15 sbit MODE3 = P0^2;
16 sbit MODE4 = P0^3;
17 sbit MODE5 = P0^4;
18 sbit MODE6 = P0^5;
19 sbit MODE7 = P0^6;
20 sbit MODE8 = P0^7;
21 void main()
22 {
23     SW = 0xFF;
24     while (1) {
25         if (MODE1) {
26             bouncing();
27         }
28         else if (MODE2) {
29             countup();
30         }
31         else if (MODE3) {
32             countdown();
33         }
34         else if (MODE4){
35             shooting();
36         }
37         else if (MODE5) {
38             db();
39         }
40         else {
41             LED = 0xFF;
42             delay();
43             LED = 0;
44             delay();
45         }
46     }
47 }
48
49 void delay(void)
50 {
51     unsigned char delay_len = 50;
52     unsigned int j;
53     unsigned char i;
54     for (i = 0; i < delay_len; i++){
55         for (j = 0; j < 30000; j++){
56             }
57     }
58 }
59
60 void delay_two_sec(void)
61 {
62     int count = 0;
63     int sec;
64     for(sec=0;sec<2;sec++){
65         count=0;
66         while(count!=500)
67         {
68             TMOD=0x01;
69             TH0=0xF8;
70             TL0=0xCC;
71             TR0=1;
72             while(!TF0);
```

```
73     TR0=0;
74     TF0=0;
75     count++;
76     }
77 }
78 }
79
80 void delay_four_sec(void)
81 {
82     int count = 0;
83     int sec;
84     for(sec=0;sec<4;sec++){
85         count=0;
86         while(count!=500)
87         {
88             TMOD=0x01;
89             TH0=0xF8;
90             TL0=0xCC;
91             TR0=1;
92             while(!TF0);
93             TR0=0;
94             TF0=0;
95             count++;
96         }
97     }
98 }
99
100
101 void countup (void)
102 {
103     LED = 0;
104     while ( (MODE2==1)&&(MODE1==0) )
105     {
106         if (MODE7==1)
107         {
108             delay_two_sec();
109         }
110         else
111         {
112             delay();
113             delay();
114         }
115         LED++;
116     }
117 }
118
119 void countdown (void)
120 {
121     LED = 255;
122     while ( (MODE3==1)&&(MODE2==0)&&(MODE1==0) )
123     {
124         if (MODE7==1)
125         {
126             delay_two_sec();
127         }
128         else
129         {
130             delay();
131             delay();
132         }
133         LED--;
134     }
135 }
136
137 void shooting (void)
138 {
139     char i;
140     char array[] = {+128, +192, +224, +240, +248, +252, +254, +255};
141     LED = 0;
142     while ( (MODE4==1)&&(MODE3==0)&&(MODE2==0)&&(MODE1==0) )
143     {
144         for (i=0; i<=7; i++)
```

```
145     {
146         if (MODE8==1)
147         {
148             delay_four_sec();
149         }
150         else
151         {
152             delay();
153             delay();
154         }
155         LED = array[i];
156     }
157
158     for (i=7; i>=0; i--)
159     {
160         if (MODE8==1)
161         {
162             delay_four_sec();
163         }
164         else
165         {
166             delay();
167             delay();
168         }
169         LED = array[i];
170     }
171 }
172 }
173
174 void doublebit (void)
175 {
176     char i;
177     char array[] = {+24, +36, +66, +129};
178     while ( (MODE5==1)&&(MODE4==0)&&(MODE3==0)&&(MODE2==0)&&(MODE1==0) )
179     {
180         for (i=0; i<=3; i++)
181         {
182             if (MODE8==1)
183             {
184                 delay_four_sec();
185             }
186             else
187             {
188                 delay();
189                 delay();
190             }
191             LED = array[i];
192         }
193
194         for (i=3; i>=0; i--)
195         {
196             if (MODE8==1)
197             {
198                 delay_four_sec();
199             }
200             else
201             {
202                 delay();
203                 delay();
204             }
205             LED = array[i];
206         }
207     }
208 }
209
210
```