

```

1  #include "mbed.h"
2  #include "pinout.h"
3  #include "to_7seg.h"
4
5  // seven segment display anodes
6  // when in a uint8_t, they are 0b-GFEDCBA
7  static BusOut      g_seven_seg(SGA_PIN, SGB_PIN, SGC_PIN, SGD_PIN,
8                                SGE_PIN, SGF_PIN, SGG_PIN);
9
10 // display cathodes
11 static DigitalOut   g_dsl(DSL_PIN);
12 static DigitalOut   g_dsr(DSR_PIN);
13
14 // mux stuff
15 static Ticker       g_mux_tick;
16 static bool volatile gb_mux_evnt;
17
18 static void mux_isr (void) {
19     gb_mux_evnt = true;
20 }
21
22 // switch
23 static InterruptIn  g_swr(SWR_PIN);
24
25 // switch management
26 static Timer        g_swr_tmr;
27 static bool volatile gb_swr_fall_evnt;
28 static bool volatile gb_swr_rise_evnt;
29
30 static void swr_fall_isr (void) {
31     gb_swr_fall_evnt = true;
32 }
33
34 static void swr_rise_isr (void) {
35     gb_swr_rise_evnt = true;
36 }
37
38 int main (void) {
39     uint8_t cnt = 0; // 0 to 99
40     bool    b_right = false;
41     bool    b_swr_state = false;
42
43     g_swr.mode(PullUp);
44     g_mux_tick.attach_us(mux_isr, 4000); // 250 Hz
45     g_swr.fall(swr_fall_isr);
46     g_swr.rise(swr_rise_isr);
47     g_swr_tmr.start();
48
49     g_seven_seg = 0;
50     g_dsr = b_right;
51     g_dsl = !b_right;
52     g_seven_seg = to_7seg(b_right ? cnt % 10 : cnt / 10);
53
54     for (;;) {
55         if (gb_mux_evnt) {
56             gb_mux_evnt = false;
57             b_right = !b_right;
58             g_seven_seg = 0;
59             g_dsr = b_right;
60             g_dsl = !b_right;
61             g_seven_seg = to_7seg(b_right ? cnt % 10 : cnt / 10);
62         }
63
64         if (gb_swr_fall_evnt) {
65             gb_swr_fall_evnt = false;
66             if ((!b_swr_state) && (g_swr_tmr.read_us() > 10000)) {
67                 b_swr_state = true;
68                 cnt += ((cnt >= 99) ? -cnt : 1);
69             }
70             g_swr_tmr.reset();
71         }
72
73         if (gb_swr_rise_evnt) {
74             gb_swr_rise_evnt = false;
75             if (b_swr_state && (g_swr_tmr.read_us() > 10000)) {
76                 b_swr_state = false;
77             }
78             g_swr_tmr.reset();
79         }
80
81         __disable_irq();
82         if (!gb_mux_evnt && !gb_swr_fall_evnt && !gb_swr_rise_evnt) {
83             __WFI();
84         }
85     }
86 }

```

```
85     __enable_irq();
86 } // forever
87 } // main()
88
```