

```

1 //=====
2 //
3 // Step 31
4 // Serial rx interrupt
5 //
6 //=====
7 #include "mbed.h"
8 #include "TextLCD.h"
9
10 TextLCD lcd(p17, p12, p27, p28, p29, p30); // rs, e, d4-d7
11 DigitalOut led1(LED1);
12 Serial pc(USBTX, USBRX); // tx, rx
13
14
15 Ticker tik; // recurring interrupt
16
17 int tikFlg = 0;
18 int tCnt = 0;
19 int ptr = 0;
20 int rx_flg = 0;
21 char rx_buf[100];
22
23 //-----
24 // Ticker
25 //-----
26 void attime(void)
27 {
28     tikFlg = 1;
29     tCnt++;
30 }
31 //-----
32 // Rx Interrupt
33 //-----
34 void rx_int(void)
35 {
36     rx_buf[ptr]=pc.getc();
37     if( rx_buf[ptr] == 0x0d )
38     {
39         rx_buf[ptr]=0;
40         ptr = 0;
41         rx_flg = 1;
42     }
43     else
44         ptr++;
45 }
46
47 //-----
48 // Main
49 //-----
50 int main(void)
51 {
52     char sdt[100];
53
54     lcd.cls();
55     lcd.locate(0, 0); // x, y
56
57     //-----
58     // RTC check
59     //-----
60     time_t now_time = time(NULL); // today
61     struct tm *s_tm = localtime(&now_time);
62     if(s_tm->tm_year < 118) // since 1900
63     { // RTC set
64         struct tm t;
65         t.tm_sec = 0; // 0-59
66         t.tm_min = 0; // 0-59

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67         t.tm_hour = 10;           // 0-23
68         t.tm_mday = 1;            // 1-31
69         t.tm_mon = 7-1;           // 0-11
70         t.tm_year = 118           // year since 1900
71
72         set_time(mktime(&t));      // Write RTC
73     }
74
75     tik.attach(&attime, 1);        // 1s -> call attime
76     pc.attach(&rx_int);
77
78     while(1)
79     {
80         if( rx_flg == 1 )
81         {
82             rx_flg = 0;
83             lcd.locate(0, 1);
84             lcd.printf(rx_buf);
85         }
86
87         if( tikFlg == 1 )
88         {
89             tikFlg = 0;
90             now_time = time(NULL);  // today
91             s_tm = localtime(&now_time);
92             lcd.locate(0, 0);
93             sprintf(sdt, "%02d/%02d %02d:%02d:%02d", s_tm->tm_mon+1, s_tm->tm_mday, s_tm
->tm_hour, s_tm->tm_min, s_tm->tm_sec);
94             lcd.printf(sdt);
95         }
96
97         if( tCnt > 4 )
98         {
99             tCnt = 0;
100            pc.printf("%04d/%s¥r¥n", s_tm->tm_year+1900, sdt);
101        }
102    }
103
104    return 0;
105 }

```