

```

1 //=====
2 //
3 // Step 50
4 // Total
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 AnalogIn ain15(p15, "tmp_dat"); // Analog In P19 <= LM35D
14 AnalogIn ain16(p16, "ill_dat"); // Analog In P20 <= NJ7502L
15
16 Ticker tik; // recurring interrupt
17 float tmp; // ondo
18 float phTr; // Photo Transistor
19 int tikFlg = 0;
20 int tCnt = 0;
21 int ptr = 0;
22 int rx_flg = 0;
23 char rx_buf[100];
24
25 //-----
26 // Ticker
27 //-----
28 void attime(void)
29 {
30     tikFlg = 1;
31     tCnt++;
32 }
33
34 //-----
35 // Rx Interrupt
36 //-----
37 void rx_int()
38 {
39     rx_buf[ptr]=pc.getc();
40     if( rx_buf[ptr] == 0x0d )
41     {
42         rx_buf[ptr]=0;
43         ptr = 0;
44         rx_flg = 1;
45     }
46     else
47         ptr++;
48 }
49
50 //-----
51 // Main
52 //-----
53 int main(void)
54 {
55     char sdt[100];
56
57     lcd.cls();
58     lcd.locate(0, 0); // x, y
59
60     //-----
61     // RTC check
62     //-----
63     time_t now_time = time(NULL); // today
64     struct tm *s_tm = localtime(&now_time);
65     if(s_tm->tm_year < 114 ) // since 1900
66     { // RTC set

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67     struct tm t;
68     t.tm_sec = 0;           // 0-59
69     t.tm_min = 0;           // 0-59
70     t.tm_hour = 10;         // 0-23
71     t.tm_mday = 1;          // 1-31
72     t.tm_mon = 7-1;         // 0-11
73     t.tm_year = 114;        // year since 1900
74
75     set_time(mktime(&t));    // Write RTC
76 }
77
78 tik.attach(&attime, 1);      // 1s -> call attime
79 pc.attach(&rx_int);
80
81 while(1)
82 {
83     if( rx_flg == 1 )
84     {
85         rx_flg = 0;
86         lcd.locate(0, 1);
87         //sprintf(sdt, "%s", &rx_buf[0]);
88         lcd.printf(rx_buf);
89     }
90
91     if( tikFlg == 1 )
92     {
93         tikFlg = 0;
94         now_time = time(NULL); // today
95         s_tm = localtime(&now_time);
96         lcd.locate(0, 0);
97         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);
98         lcd.printf(sdt);
99     }
100
101     if( tCnt > 4 )
102     {
103         tCnt = 0;
104         //-----
105         // Temp
106         //-----
107         tmp = ain15 * 330;
108         //lcd.locate(0, 1);
109         //lcd.printf("Temp=%2.1fdeg", tmp);
110         //-----
111         // Illuminance
112         //-----
113         phTr = ain16 * 10000;
114         lcd.locate(0, 1);
115         lcd.printf("T=%3.1f L=%7.2f", tmp, phTr);
116
117         led1 = 1;
118         pc.printf("%04d/%s, T=%3.1f, L=%7.2f¥r¥n", s_tm->tm_year+1900, sdt, tmp, phTr);
119
120         led1 = 0;
121     }
122 }
123 return 0;
124 }

```