```
//=============================================
//
// Step 42
// Clock -> LCD use Ticker
// Temp measure
// Illuminance
// 距離の測定Distance
//
//=============================================
#include "mbed.h"
#include "TextLCD.h"

TextLCD     lcd(p17, p12, p27, p28, p29, p30);    // rs, e, d4-d7
AnalogIn    ain15(p15);    // Analog In P15 <= LM35D
AnalogIn    ain16(p16);    // Analog In P16 <= NJ7502L
AnalogIn    ain18(p18);    // Analog In P18 <= GP2Y0A21YK

Ticker      tik;           // recurring interrupt
float       tmp;           // ondo
float       phTr;          // Photo Transistor
float       dms;           // Distance
int         tikFlg = 0;

//---------------------------------------------
// Ticker
//---------------------------------------------
void attime(void)
{
    tikFlg = 1;
}

//---------------------------------------------
// Main
//---------------------------------------------
int main(void)
{
    lcd.cls();
    lcd.locate(0, 0);               // x,y

    //---------------------------------
    // RTC check
    //---------------------------------
    time_t now_time = time(NULL);             // today
    struct tm *s_tm = localtime(&now_time);
    if(s_tm->tm_year < 118 )    // since 1900
    { // RTC set
        struct tm t;
        t.tm_sec = 0;           // 0-59
        t.tm_min = 0;           // 0-59
        t.tm_hour = 10;         // 0-23
        t.tm_mday = 1;          // 1-31
        t.tm_mon = 7-1;         // 0-11
        t.tm_year = 118;        // year since 1900

        set_time(mktime(&t));   // Write RTC
    }

    tik.attach(&attime,1);      // 1s -> call attime

    double adt15 = 0.0;
    double adt16 = 0.0;
    double adt18 = 0.0;

    while(1)
    {
        if( tikFlg == 1 )
```

```
67          {
68              tikFlg = 0;
69              now_time = time(NULL);    // today
70              s_tm = localtime(&now_time);
71              lcd.locate(0, 0);
72              //lcd.printf("%02d/%02d %02d:%02d:%02d", s_tm->tm_mon+1, s_tm->tm_mday, s_t
    m->tm_hour, s_tm->tm_min, s_tm->tm_sec);
73              lcd.printf("%02d:%02d:%02d", s_tm->tm_hour, s_tm->tm_min, s_tm->tm_sec);
74              adt15 = 0;
75              adt16 = 0;
76              adt18 = 0;
77
78              for( int i=0; i<1000; i++ )
79              {
80                  adt15 += ain15.read();
81                  adt16 += ain16.read();
82                  adt18 += ain18.read();
83              }
84              //-------------------------
85              // Temp
86              //-------------------------
87              tmp = adt15/1000.0 * 330;
88              //lcd.locate(0,1);
89              //lcd.printf("Temp=%4.1fdeg", tmp);
90              //-------------------------
91              // Illuminance
92              //-------------------------
93              phTr = adt16/1000.0 * 10000;
94              lcd.locate(0,1);
95              lcd.printf("T=%4.1f L=%7.2f", tmp,phTr);
96              //-------------------------
97              // Distance
98              //-------------------------
99              dms = 26.757 * pow(adt18/1000.0 * 3.3, -1.236);
100
101             lcd.locate(9,0);
102             lcd.printf("D=%5.1f",dms);  //D=xxx.x
103
104         }
105     }
106 }
```