

wb_si702x.c

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//-----
//
// si702x of Weather-Board with 16x2 lcd Application.
//
// Defined port number is wiringPi port number.
//
// Compile : gcc -o <create excute file name> <source file name> -
lwiringPi
//
//           -lwiringPiDev -lpthread
// Run : sudo ./<created excute file name>
//
//-----
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#include <fcntl.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdint.h>

#include <unistd.h>
#include <string.h>
#include <time.h>

#include <wiringPi.h>
#include <lcd.h>

#define LCD_ROW          2    // 16 Char
#define LCD_COL          16   // 2 Line
#define LCD_BUS          4    // Interface 4 Bit mode
#define LCD_UPDATE_PERIOD 300 // 300ms

#define PORT_LCD_RS      7    // GPIOY.BIT3(#83)
#define PORT_LCD_E       0    // GPIOY.BIT8(#88)
#define PORT_LCD_D4      2    // GPIOX.BIT19(#116)
#define PORT_LCD_D5      3    // GPIOX.BIT18(#115)
#define PORT_LCD_D6      1    // GPIOY.BIT7(#87)
#define PORT_LCD_D7      4    // GPIOX.BIT7(#104)

static unsigned char lcdFb[LCD_ROW][LCD_COL] = {, };
static int lcdHandle = ;
static int ledPos = ;

unsigned char temperature[10] = {, };
unsigned char humidity[10] = {, };

static const char *si702x_node[] = {
    "/sys/bus/i2c/drivers/si702x/1-0040/temperature",
    "/sys/bus/i2c/drivers/si702x/1-0040/humidity",

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};

static void getSysInfo(void)
{
    int n, tempfd, humifd;

    tempfd = open(si702x_node[], O_RDONLY);
    read(tempfd, temperature, 10);
    humifd = open(si702x_node[1], O_RDONLY);
    read(humifd, humidity, 10);
    close(tempfd);
    close(humifd);
}

static void lcd_update (void)
{
    int i, j;

    memset((void *)&lcdFb, ' ', sizeof(lcdFb));

    getSysInfo();
    sprintf(lcdFb[], "TEMP : %.1f *C", atof(temperature));
    sprintf(lcdFb[1], "HUMI : %.2f %%", atof(humidity));

    lcdFb[][strlen(lcdFb[])] = ' ';
    lcdFb[1][strlen(lcdFb[1])] = ' ';

    for(i = ; i < LCD_ROW; i++) {
        lcdPosition (lcdHandle, , i);
        for(j = ; j < LCD_COL; j++)
            lcdPuchar(lcdHandle, lcdFb[i][j]);
    }
}

int system_init(void)
{
    int i, j;

    // LCD Init
    lcdHandle = lcdInit(LCD_ROW, LCD_COL, LCD_BUS,
        PORT_LCD_RS, PORT_LCD_E,
        PORT_LCD_D4, PORT_LCD_D5,
        PORT_LCD_D6, PORT_LCD_D7, , , , );

    if(lcdHandle < ) {
        fprintf(stderr, "%s : lcdInit failed!\n", __func__);
        return -1;
    }

    return ;
}
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}

int main (int argc, char *argv[])
{
    int timer = ;

    wiringPiSetup ();

    if (system_init() < ) {
        fprintf (stderr, "%s: System Init failed\n", __func__);
        return -1;
    }

    for(;;) {
        usleep(100000);
        if (millis () < timer)
            continue ;
        timer = millis () + LCD_UPDATE_PERIOD;

        // lcd update
        lcd_update();
    }

    return ;
}
```

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