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Prof. Wolfe

ELEN 121L Tuesday 2:15 p.m.

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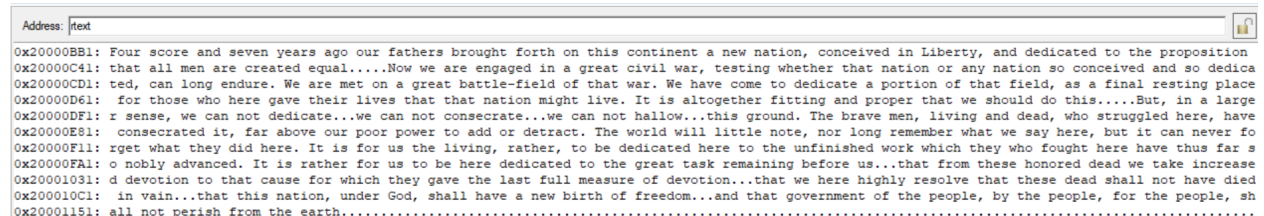
Lab 8 – USB Flash Drive

Part 1:

Read the contents of the file gburg.txt from the USB drive to a buffer in memory on the

DISCO board. Turn on the green LED if successful, turn on the red LED is an error is detected

```
79          /  Register the file System ODJect to the FatFS module  /
80    if(f_mount(&USBHFatFS, (TCHAR const*)USBHPath, 0) == FR_OK) {
81          /* Open the text file object with read access */
82       if((f_open(&MyFile, rfilename, FA_READ)) == FR_OK) {
83          /* Read data from the text file */
84          res = f_read(&MyFile, rtext, sizeof(rtext)-1, &bytesread);
85          if((bytesread > 0) && (res == FR_OK)) {
86             /* Close the open text file */
87             f_close(&MyFile);
88             /* Compare read data with the expected data */
89             HAL_GPIO_WritePin(LD_G_GPIO_Port, LD_G_Pin, 1);
90             return;
91          }
92       }
93    }
94    HAL_GPIO_WritePin(LD_R_GPIO_Port, LD_R_Pin, 1);
95 }
```

Memory:

Address: rtext

```
0x20000BB1: Four score and seven years ago our fathers brought forth on this continent a new nation, conceived in Liberty, and dedicated to the proposition
0x20000C41: that all men are created equal.....Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedica
0x20000CD1: ted, can long endure. We are met on a great battle-field of that war. We have come to dedicate a portion of that field, as a final resting place
0x20000D61:  for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.....But, in a large
0x20000DF1: r sense, we can not dedicate...we can not consecrate...we can not hallow...this ground. The brave men, living and dead, who struggled here, have
0x20000E81:  consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never fo
0x20000F11: rget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far s
0x20000FA1: o nobly advanced. It is rather for us to be here dedicated to the great task remaining before us...that from these honored dead we take increase
0x20001031: d devotion to that cause for which they gave the last full measure of devotion...that we here highly resolve that these dead shall not have died
0x200010C1:  in vain...that this nation, under God, shall have a new birth of freedom...and that government of the people, by the people, for the people, sh
0x20001151: all not perish from the earth.....................................................................................................................
```

Part 2:

Scan Files Function:

```
73 FRESULT scan_files(char* path) {
74     FRESULT res;
75     DIR dir;
76     int i;
77     static FILINFO fno;
78     res=f_opendir(&dir, path);
79     if (res == FR_OK) {
80         while(1) {
81             res = f_readdir(&dir, &fno);
82             if (res != FR_OK || fno.fname[0] == 0){
83                 break;
84             }
85             if (fno.fattrib & AM_DIR) {
86                 i=strlen(path);
87                 sprintf(&path[i], "/%s", fno.fname);
88                 res = scan_files(path);
89                 if (res != FR_OK){
90                     break;
91                 }
92                 path[i] = 0;
93             }
94             else {
95                 sprintf((dirlist+strlen(dirlist)), "%s/%s\n", path, fno.fname);
96             }
97         }
98         f_closedir(&dir);
99     }
00     // Somebody should write some code here.
01     return res;
02 }
```
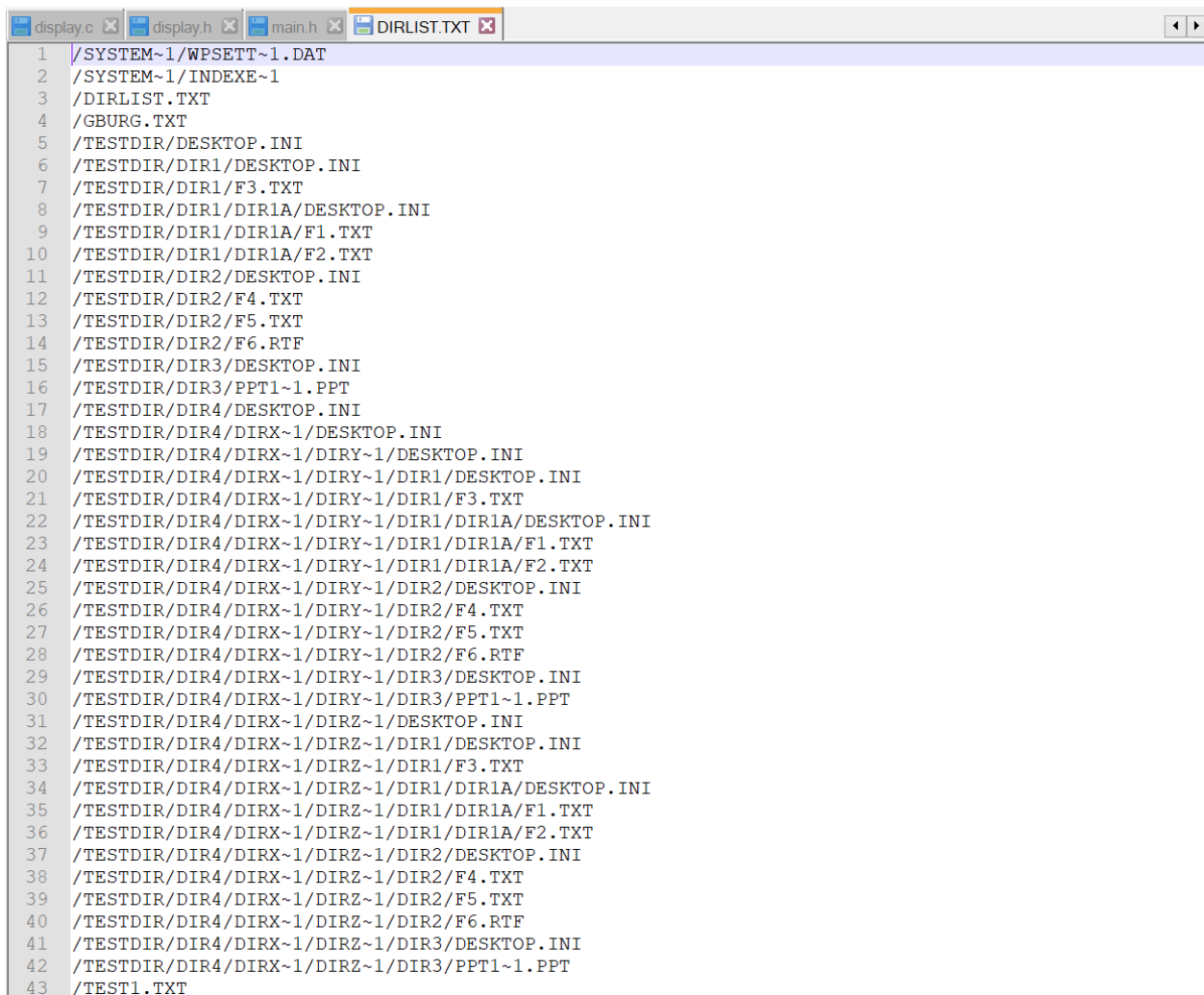
Write Function:

```
104 FRESULT write_dirlist(char* path, char* list) {
105     FIL OutFile;
106     FRESULT res;
107     uint32_t byteswritten;
108     if((f_open(&OutFile, path, FA_WRITE|FA_CREATE_ALWAYS))==FR_OK){
109         f_write(&OutFile, list, strlen(list), &byteswritten);
110         f_close(&OutFile);
111         return FR_OK;
112     }
113     return -1;
114     // Somebody should write some code here too
115 }
```

Calling the Other Functions:

```c
123  static void FS_FileOperations(void) {
124
125      /* Register the file system object to the FatFs module */
126      if(f_mount(&USBHFatFS, (TCHAR const*)USBHPath, 0) == FR_OK) {
127        strcpy(pathbuffer, "");
128        if (scan_files(pathbuffer) == FR_OK) {
129          if (write_dirlist("/dirlist.txt", dirlist) == FR_OK) {
130            HAL_GPIO_WritePin(LD_G_GPIO_Port, LD_G_Pin,GPIO_PIN_SET);
131            return;
132          }
133        }
134      }
135      HAL_GPIO_WritePin(LD_R_GPIO_Port, LD_R_Pin,GPIO_PIN_SET);
136  }
137
```

DIRLIST.TXT

| display.c | display.h | main.h | DIRLIST.TXT | ◄ ► |

```
 1  /SYSTEM~1/WPSETT~1.DAT
 2  /SYSTEM~1/INDEXE~1
 3  /DIRLIST.TXT
 4  /GBURG.TXT
 5  /TESTDIR/DESKTOP.INI
 6  /TESTDIR/DIR1/DESKTOP.INI
 7  /TESTDIR/DIR1/F3.TXT
 8  /TESTDIR/DIR1/DIR1A/DESKTOP.INI
 9  /TESTDIR/DIR1/DIR1A/F1.TXT
10  /TESTDIR/DIR1/DIR1A/F2.TXT
11  /TESTDIR/DIR2/DESKTOP.INI
12  /TESTDIR/DIR2/F4.TXT
13  /TESTDIR/DIR2/F5.TXT
14  /TESTDIR/DIR2/F6.RTF
15  /TESTDIR/DIR3/DESKTOP.INI
16  /TESTDIR/DIR3/PPT1~1.PPT
17  /TESTDIR/DIR4/DESKTOP.INI
18  /TESTDIR/DIR4/DIRX~1/DESKTOP.INI
19  /TESTDIR/DIR4/DIRX~1/DIRY~1/DESKTOP.INI
20  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR1/DESKTOP.INI
21  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR1/F3.TXT
22  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR1/DIR1A/DESKTOP.INI
23  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR1/DIR1A/F1.TXT
24  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR1/DIR1A/F2.TXT
25  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR2/DESKTOP.INI
26  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR2/F4.TXT
27  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR2/F5.TXT
28  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR2/F6.RTF
29  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR3/DESKTOP.INI
30  /TESTDIR/DIR4/DIRX~1/DIRY~1/DIR3/PPT1~1.PPT
31  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DESKTOP.INI
32  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR1/DESKTOP.INI
33  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR1/F3.TXT
34  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR1/DIR1A/DESKTOP.INI
35  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR1/DIR1A/F1.TXT
36  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR1/DIR1A/F2.TXT
37  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR2/DESKTOP.INI
38  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR2/F4.TXT
39  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR2/F5.TXT
40  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR2/F6.RTF
41  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR3/DESKTOP.INI
42  /TESTDIR/DIR4/DIRX~1/DIRZ~1/DIR3/PPT1~1.PPT
43  /TEST1.TXT
```