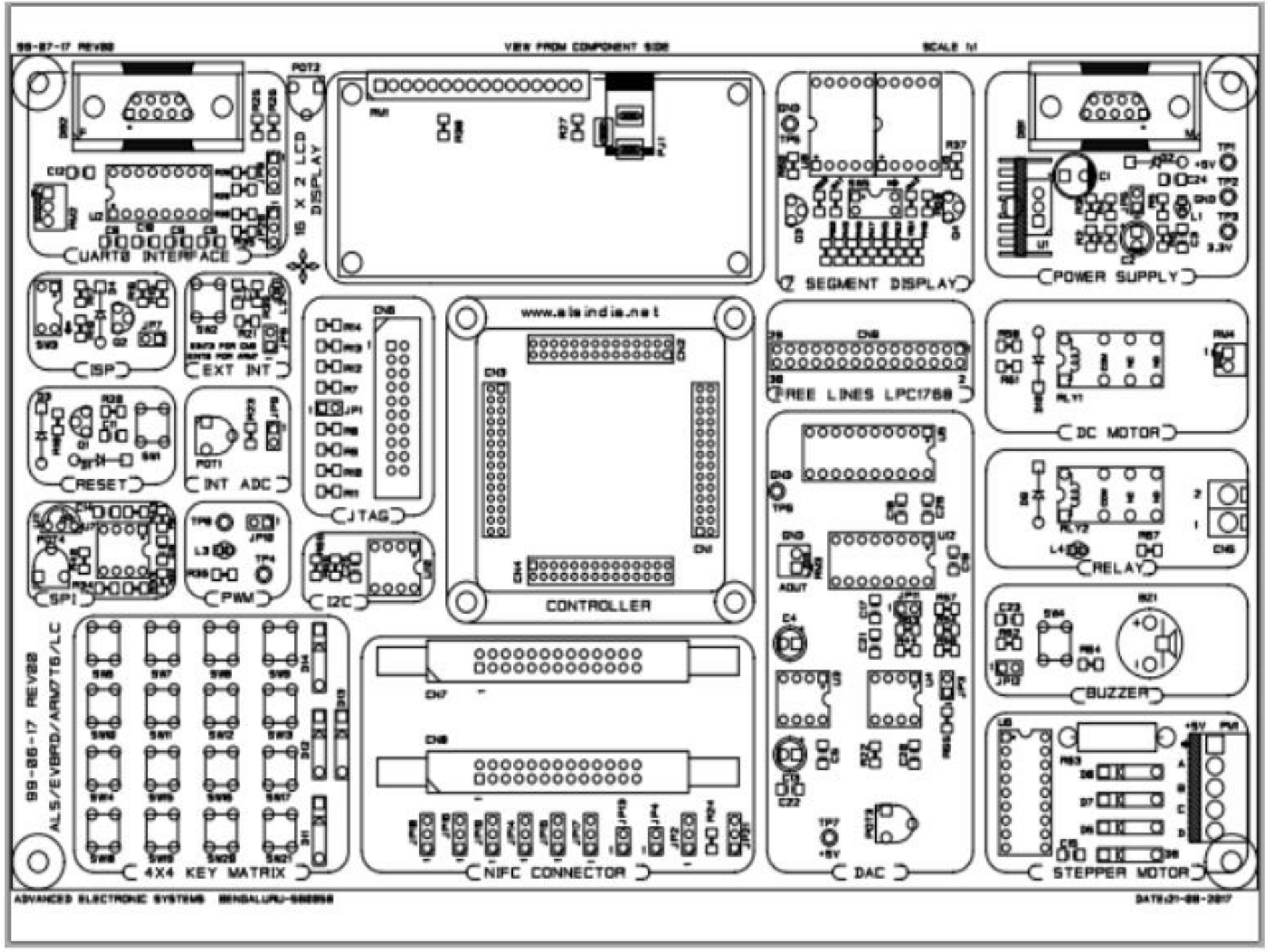
INTERFACING LED TO ARM MICROCONTROLLER

Objectives:

- Interface LEDs to the ARM cortex LPC1768 microcontroller using ALS interfacing board


99-87-17 REV02
VIEW FROM COMPONENT SIDE
SCALE 1:1
UART0 INTERFACE
16 X 2 LCD DISPLAY
7 SEGMENT DISPLAY
POWER SUPPLY
ISP
EXT INT
RESET
INT ADC
SPI
PWM
JTAG
I2C
www.alsindia.net
CONTROLLER
FREE LINES LPC1768
DC MOTOR
RELAY
BUZZER
DAC
STEPPER MOTOR
4X4 KEY MATRIX
NFC CONNECTOR
99-86-17 REV02
ALS/EVBRD/ARM7TS/LC
ADVANCED ELECTRONIC SYSTEMS BENGALURU-560058
DATE:21-08-2017

Steps to be followed Project

Creation in Keil uvision4 IDE:

1. Create a project folder before creating NEW project.
2. Use separate folder for each project
3. Open Keil uVision4 IDE software by double clicking on “Keil Uvision4” icon.
4. Select “Project” then to “New Project” and save it with a name in the respective Project folder, which is already you created.
5. Select the device as “NXP (founded by Philips)” Select “LPC1768” then Press “OK” and then press “YES” button to add “system_LPC17xx.s” file.
6. Go to “File” select “New” to open an editor window. Create a source file and use the header file “LPC17xx.h” in the source file and save the file. Color syntax highlighting will be enabled once the file is saved with a Recognized extension such as “.C “.
7. Right click on “Source Group 1” and select the option “Add Files to Group 'Source Group 1' “add the. C source file(s) to the group.
8. Again right click on Source Group 1 and select the option “Add Files to Group 'Source Group 1' “add the file - C:Keil\ARM\startup\NXP\LPC17xx\system_LPC17xx.c

```
#include <LPC17xx.H>
int main(void)
{
	LPC_PINCON->PINSEL1 = 0x00000000;  //P0.24,P0.25 GPIO
	LPC_GPIO0->FIODIR = 0x03000000; //P0.24 configured output for buzzer,P0.25 configured output for Relay/Led
	while(1)
	{
		if(!(LPC_GPIO2->FIOPIN & 0x00000800))		//Is GP_SW(SW4) is pressed??
		{
			LPC_GPIO0->FIOSET = 0x03000000;	//relay on
		}
		else
		{
			LPC_GPIO0->FIOCLR = 0x03000000;	//relay off
		}
	 }
} //end int main(void)
```

9. Any changes made to this file at current project will directly change the source system_LPC17xx.C file. As a result other project settings may get altered. So it is recommended to copy the file C:Keil\ARM\startup\NXP\LPC17xx\system_LPC17xx.c to the project folder and add to the source group.
10. Important: This file should be added during each project creation.
11. Select “Project” then select “Translate” to compile the File (s)
12. Select “Project” , select “Build Target” for building all source files such as “.C”,”.ASM”, “.h”, files, etc…This will create the hex file if there are no warnings & no errors

Some Settings to be done in KEILUV4 for Executing C programs :

- In Project Window Right click "TARGET1" and select "options for target 'TARGET1' select to option "Target" in that select
    1. XTAL 12.0MHz
    2. Select IROM1 (starting 0×0 size 0×8000).
    3. Select IRAM1 (starting 0×10000000 size 0×8000).
- Then go to option "Output"
    Select "Create Hex file".
- Then go to option "Linker"
    Select use memory layout from target dialog

Step4.Make following setting in Flash magic(Only once)

a. Communications:

Device:	LPC1768
Com Port:	COM1
Baud Rate:	9600
Interface:	None(ISP)
Oscillator:	12MHz

b. ERASE:

Select “Erase Blocks Used By Hex File”.

c. Hex file:

Browse and select the Hex file which you want to download.

d. Options:

Select “Verify After Programming”.