REQUIREMENT SPECIFICATION

Project group: 41   Date: 2015-09-22

Priority 1 means that you will implement it. Priority 2 requirements are less important (optional but you may implement some of them). Priority 3 requirements will only be implemented if there is time left at the end of the project.

1) Basic Requirements

Req. #	Requirement	Priority
1	The system shall process an audio signal digitally.	1
2	The audio signal is read from, and sent back to the WM8731 chip.	1
3	The system shall display all settings on a VGA screen.	1
4	The user shall be able to control all settings from a PS/2 keyboard.	1
5a	The system shall have a volume control.	1
5b	The volume control shall have at least 10 levels.	1
5c	The volume control shall be logarithmic with at most 4 dB per step.	1
5d	The volume control shall span at least 27 dB between lowest and highest level.	1
5e	An additional volume level may be used, that represents mute. Req. #5b to #5d excludes this level.	1
6a	The system shall have a balance control.	1
6b	The balance control shall have at least 10 levels.	1
6c	The balance shall be linear between only left and only right.	1

2) Subproject 2: Signal Level Indicator

Req. #	Requirement	Priority
7	The system shall display the output sound power level on the screen.	1
8a	The power of each output channel shall be displayed as a bar.	1
8b	The scale of the bars shall be logarithmic.	1
8c	The displayed power is low pass filtered, so it contains information from all sound samples at least 100 ms back in time.	1
9a	Each bar has a peak level indicator.	2
9b	The peak level indicator must never show less level than the bar.	2
9c	The peak level indicator falls slowly when the power is bar is lower than the peak level indicator.	2
10a	The input power should also be displayed on the screen	1
10b	The input power indicator shall be in stereo (one indicator per channel)	1

3) Individual requirements: What makes your system unique.

Requirement: You must convince the supervisor that you will be able to implement what you suggests here.

Req. #	Requirement	Priority
11	The output sound should also be sent to a Class-D amplifier.	2
12a	The VGA screen should contain a background image.	1
12b	The background image should contain a graphical scale for each signal level indicator.	1

Possibilities: Background images, gradients here and there, fancy animations, play piano on the keyboard, pitching the sound, mute, toggle this or that, use the LCD for things, "blue screen" when too loud music, laser show, voice control, skynet etc.