**Proposed Content of the ETP2 Design Concept Report**

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**Abstract**  
Concise short description of the key topics of the document. The content can thus be similar to that of the whole document (but much shorter). E.g.: Introduction / Motivation (lead the reader to the topics, make it easy to understand the background and what’s it all about), Concepts (describe your chosen concepts in a few short sentences), Special Feature and Conclusions. Especially point out the USPs of your specific Moodlight. The abstract is usually formatted as one single paragraph. It shouldn’t be more than one half A4 page. Shorter is even better, as long as it still meets the above expectations.  
Note: Regard the abstract as sort of advertisement for your report. It should encourage the reader to read on.

**Requirements and Overall Concept**List the requirements of your final device and give a rough description of the functionality and the general principles of your Moodlight device.

**Hardware Concept**  
Describe your hardware solution on a block diagram level. In particular:

* inputs and outputs, types of signals (e.g. PWM + frequency, analog signal …)
* the internal functional blocks (e.g. the characteristics/properties of the LED drivers used)
* and the interaction between the blocks, (internal signals, types of signals)

Define

* the microcontroller resources required
* the usage of the expansion header pins  of the microcontroller starter kit board
* the requirements for the microcontroller software caused by the HW concept

**Microcontroller SW Concept**  
Signal processing view: describe the signal processing functionality implemented in software with a signal flow diagram (similar to the HW block diagram above). In particular, describe:

* inputs and outputs
* the internal functional blocks (functionality, sample rates etc.)
* and the interaction between the blocks (internal signals).

Software structure: Usage of peripheral units of the microcontroller, interrupt handlers, main program structure (e.g. state diagram) etc.   
Local user interface: e.g. state diagram  
Communication protocol: basic principles (e.g. message sequence chart), transferred data / parameters

**Android SW Concept**Describe the planned functionality of the Moodlight remote control unit.   
Define the mobile user interface, with rough sketches of the different activities (“screen pages”), with views (e.g. buttons, checkboxes, sliders, dialogs etc.)

**Additional Feature(s)**Describe the idea(s). The functional concepts and the additional requirements for HW and SW may be integrated in the above sections.

**Please note that the concept phase is a rather early step in the product design process. A concept report should thus not include any implementation details like schematics of electronic circuits, calculations, excerpts of source code etc. and it cannot include any test results.**