Low Power Wake-Up-Receiver

Project Electrical Engineering AS2019

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November 22, 2019

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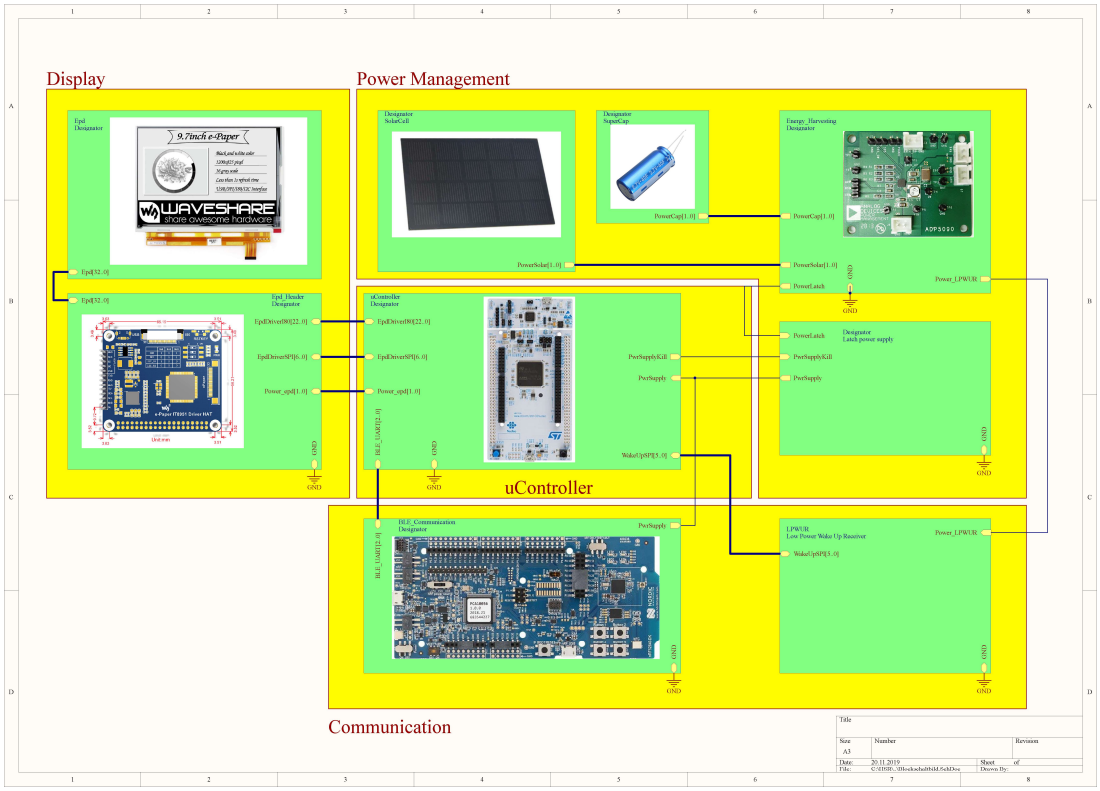
4.1 Overview

Not Up To Date Graphic



4.2 Hardware

4.2.1 Energy Harvesting

Since the the Screen should be self-sufficient, some sort of Energy-Harvesting unit is needed. It was obvious to choose light as the energy source. A power management chip converts the energy obtained by solar cells to a suitable voltage. This way, a super-capacitor, which is used as an energy storage device is charged.

Solar cell

The AM-1522 by Panasonic was chosen as the solar cell. One panel has a area of 55.0mm × 40.5mm and delivers up to 58.7μA when operating at an optimal voltage of 2.1V. To keep a reasonable Display to Panel ratio, four cells where used, which corresponds to an area of ca. 89.1cm (Display area =)

Power management

Supercab

Combined test

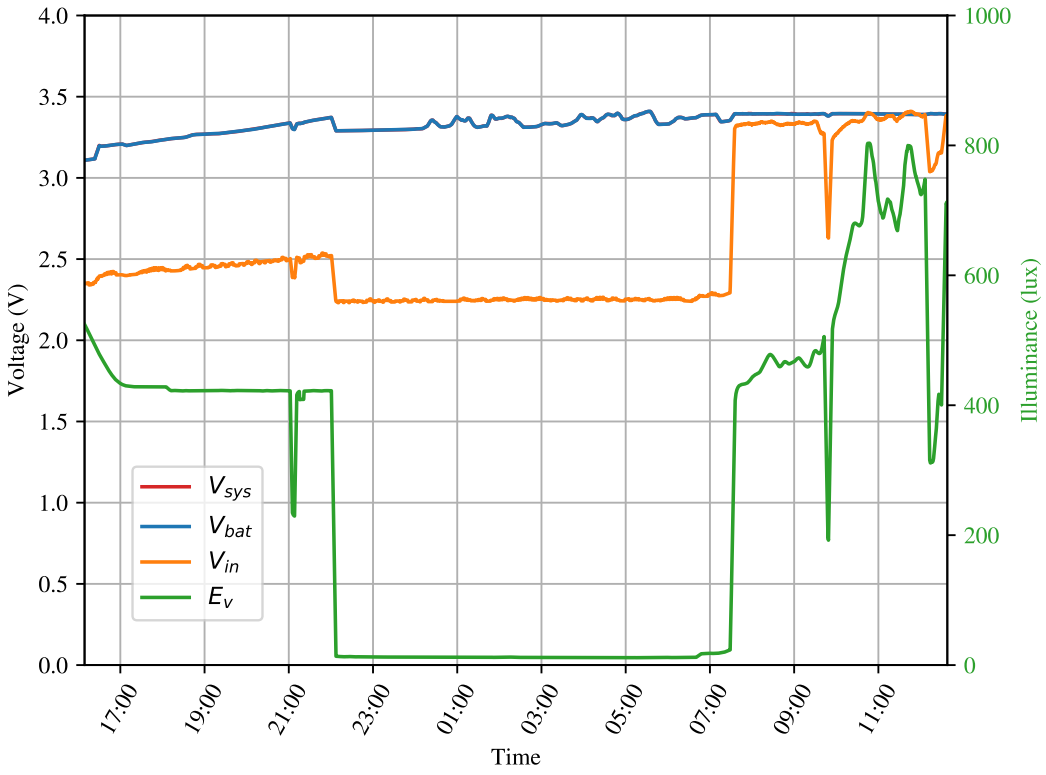


Figure 4.1: Charging behaviour

4.3 Software

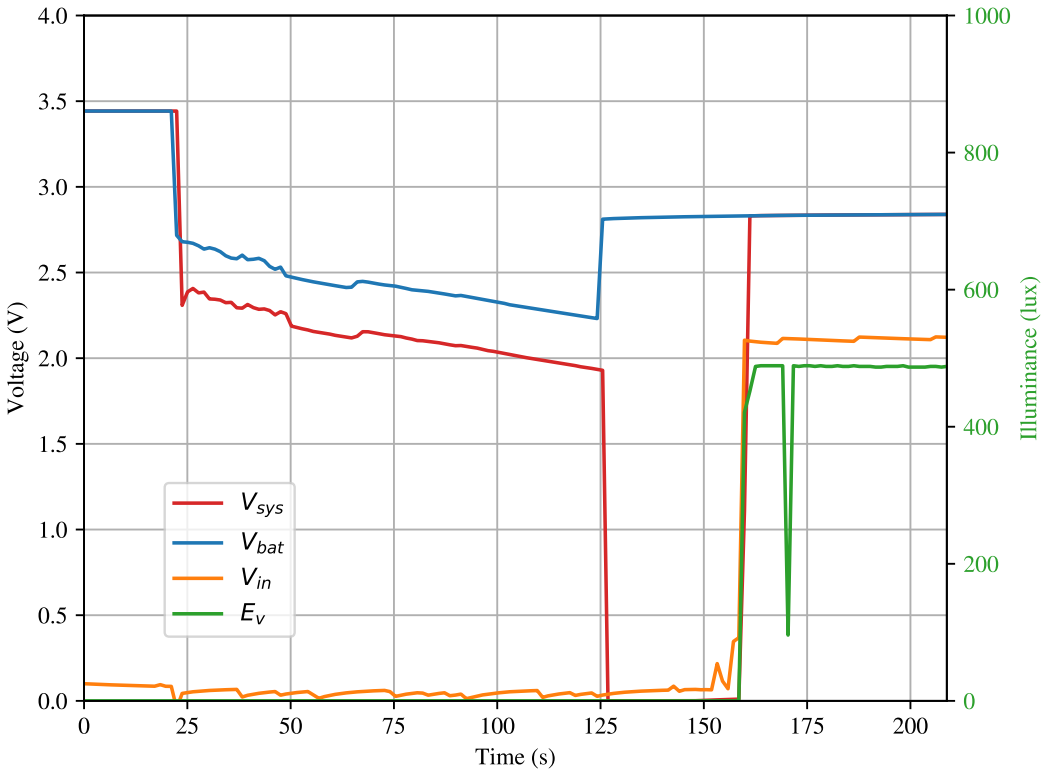


Figure 4.2: Discharging behaviour

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