

Energy Harvester Interfaced Thin Film Battery Management

Energy harvesting enables the use of ambient energy sources such as temperature gradients, light, or vibration by means of special energy transducers. In the field of micro energy harvesting small scaled transducers/harvesters are used and only little ambient energy can be extracted. Therefore, energy conditioning circuits have to be designed. These types of electronic circuits have to guarantee that the ambient energy is harvested and stored efficiently.

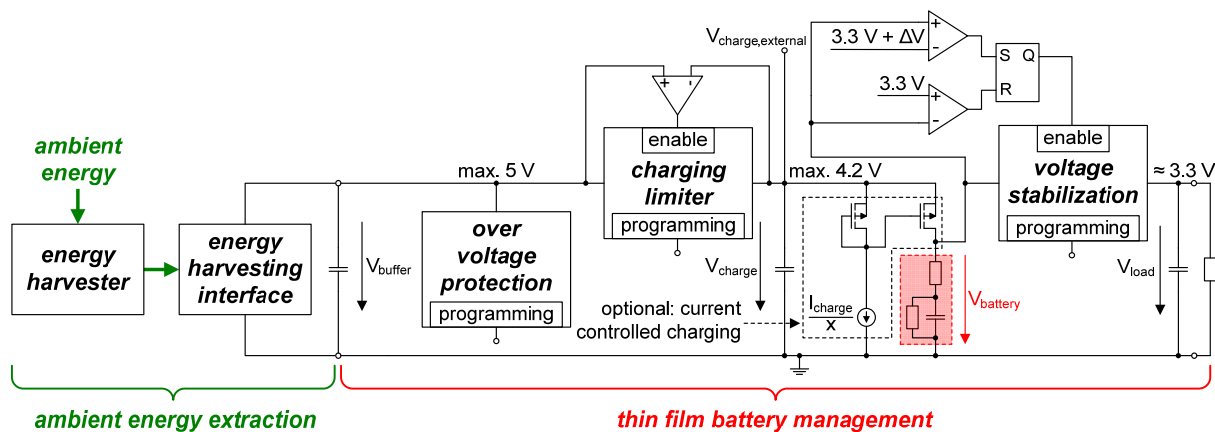


Figure 1: Overview of the energy harvester interfaced thin film battery management.

This work will focus on the design and implementation of a thin film battery management that allows storing of harvested energy efficiently. The goal is a fully functional printed circuit board (PCB) prototype. The electronic circuitry has to be designed using commercial off-the-shelf electronic components with special focus on low power operation. Therefore, the schematic of the thin film battery management and the layout of the PCB must be prepared. A self-starting autonomous system exclusively supplied by a kinetic energy harvester will be aimed and the operation of the designed system has to be verified by means of measurements. Finally, the work has to be documented by writing the bachelor thesis (English or German).

What we expect: Interests in the design of electronic circuits, willingness to familiarise with the topic and the needed design tools, well documented work, and teamwork.

What we offer: Intensive supervision of the thesis, nice work environment in a teamwork, latest simulation software tools, electronic design automation tools, excellent lab equipment, and free space for own ideas.

Starting date: As soon as possible.

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