

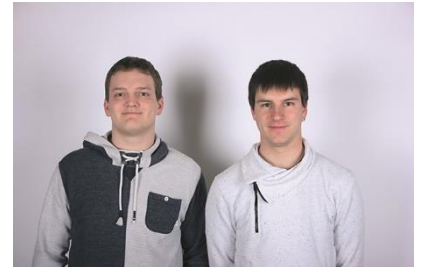
Energy Management for Energy Harvesting based Systems

Energy Harvesting describes methods for collecting and converting energy from the environment into electrical energy. Typical energy forms are wind, solar, heat and kinetic energy. It allows the use of e.g. sensors without power networks or batteries. The combination of different harvesters increases the security of supply. If an energy shortage occurs, the application is operated with stored energy.

A concept for an energy management is created and its functionality with a prototype proved. It is determined whether it meets the requirements and how it can be extended.

The concept is divided into several subcircuits. After successful testing, the subcircuits are merged and checked for the functionality. It is measured with which efficiency the energy is stored and delivered.

The prototype can obtain energy from several sources and store it in a long- and short-term storage. The efficiency of the short-term storage is 58.6%, while the long-term storage is 13%. The stored energy is delivered to the application with an efficiency of 60%. The prototype can be operated reliably without a battery. Optionally, a battery can be connected with the appropriate enable logic.



Diplomierende

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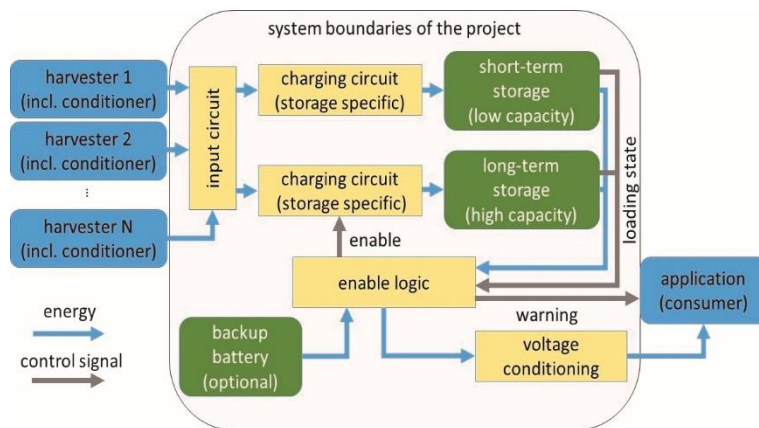


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