

Louvain Technology Transfer Office

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Advanced Energy Management Systems

KEYWORDS

- Energy Storage
- Hybrid battery
- Management systems

Technology market

Application-driven supercapacitors, Li-ion cells and packs are complex devices, and developing technologies to cost-effectively monitor and manage important performance parameters, while precisely predicting product life, is a key challenge.

We focus on residential and industrial applications, where cost and reliability are important constraint factors. Examples are (i) energy storage systems for residential users that can shave the high current peaks from the grid electricity network and are concerned by next generation internet-of-things and (ii) flexible, lightweight power sources for medical devices, intelligent textiles...

The UCL background

One of the goals of this technology is the development of intelligent Li-ion cells and hybrid super-capacitor/Li-ion batteries and of energy management systems using novel control techniques and modeling software to manage how high power/high energy modules are connected, charged and discharged in the pack.

Related patent application: EP13183530 – Hybrid electrode for non-aqueous electrolyte secondary battery.

For stationary energy storage, the system evaluates physical internal states of the Li-ion batteries (hybrid supercapacitors/Li-ion batteries) fast and accurate, enabling thus the measured data to be useful in making decisions about how to control and optimize the battery packs in real time.

The UCL collaboration offer

The core of battery management system is a Field Programmable Gate Array [FPGA] and a Real Time Operating System [RTOS] in order to manage the battery modeling algorithms and configurability of the battery packs and modules of packs. The system can be scaled up to any number of required packs. Demonstrators, shown here for four cells per pack, are designed to handle up to 100 W.

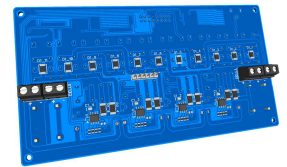
Control theory, automation control, software engineering, electrical engineering groups with interests to further co-develop this technology.

Technology status

[TRL 3] – Development and demonstration for mobile and stationary applications (feasibility).

Preferred partnership

Joint development, collaboration with a company.



Battery Management System

UCL
Université
catholique
de Louvain



INTERESTED TO COLLABORATE AND CO-DEVELOP THIS TECHNOLOGY?

Please contact :

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