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INCOBAT: Innovative Cost Efficient Management System for Next Generation High Voltage Batteries

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Description:

Electro-mobility is considered as a key technology to achieve green mobility and fulfil tomorrow's emission standards, however, challenges still need to be faced to achieve comparable performances to conventional vehicles and finally obtain market acceptance. Two of these challenges are vehicle range and production costs. The aim of the INCOBAT project (October 2013 - December 2016) was to provide innovative and cost efficient battery management systems for next generation HV-batteries.

INCOBAT presents a platform concept that achieves cost reduction, reduced complexity, increased reliability and flexibility while at the same time reaching higher energy efficiency. Advantages of this approach include:

- Tight control of the cell function leading to a significant increase of the driving range of the FEV;
- Radical cost reduction of the battery management system with respect to current solutions;
- Development of modular concepts for system architecture and partitioning, safety, security, reliability as well as verification and validation, thus enabling efficient integration into different vehicle platforms.

The INCOBAT project focused on the following twelve technical innovations grouped into four innovation groups, which are summarized in this book:

- Customer needs and integration aspects
- Transversal innovation
- Technology innovation

Keywords: Electric vehicle, high voltage battery, battery management system, multi-core computing platform, functional safety, systems engineering, reliability, electrochemical impedance spectroscopy, thermomechanical robustness analysis