Consortium

i-HeCoBatt is carried out by a highly focused consortium covering the whole relevant value chain of the EV batteries industry: A top automobile manufacturer (AUDI), a leading automotive components manufacturer (MIBA), an automotive data management software developer (DATIK), a printed electronics developer (EPI) and an eco-design expert (VERTECH), supported by first order two European research centres (CEA, CIDETEC).

cidetec energy storage

datik Irizar Group

Miba

VERTECH GROUP

EPI

liten CEA tech

Abstract

i-HeCoBatt stands for Intelligent Heating and Cooling solution for enhanced range EV Battery packs.

i-HeCoBatt's industrialization will enhance the efficiency of the heating and cooling system, through the cost reduction of its design and development.

To achieve so, i-HeCoBatt will integrate an innovative heat exchanger, which will allow to remove the currently used gap filler between the heat exchanger and the battery.

This design not only reduces weight but enhances the efficiency of the heating and cooling system. The generated temperature data feed in the battery management control unit, as well as an external early diagnostic and safety system connected to the cloud. Different interfaces will be created to access these data according to user profiles: designers, testers, maintenance teams or driver. The i-HeCoBatt technology targets EVs with a time to market of about five years.

i-hecobatt

ihecobatt

www.ihecobatt.eu

i-HeCoBatt

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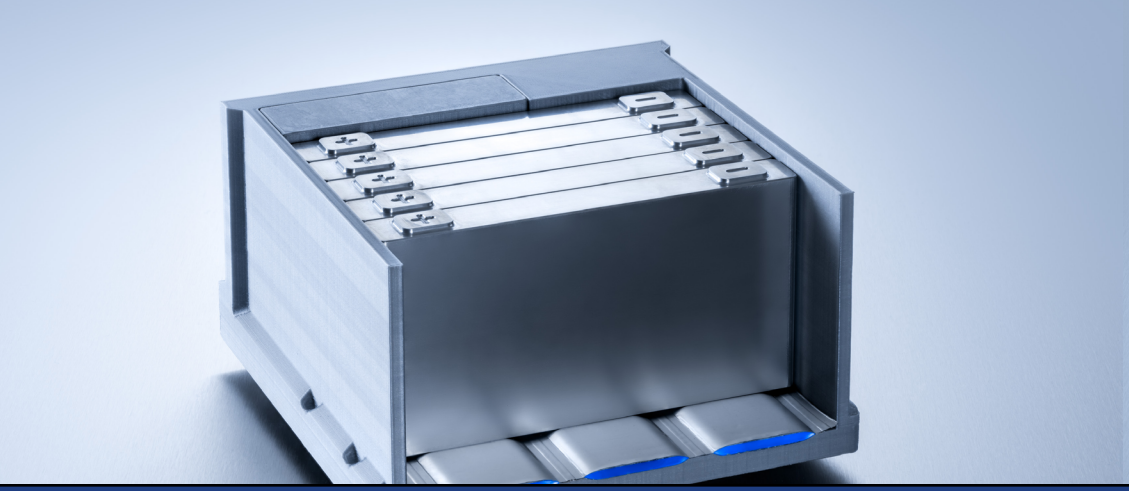

Thermal strategy to reduce impact on vehicle range

Enhancing thermal strategy imply to first measure and analyse the full thermal behaviour for the vehicle battery pack and then to build up a complete numerical model. This has been realized for iHeCoBatt project using the CEA's facilities in Nantes (France) and CEA's expert team in Grenoble (France).

The first part has consisted in acquiring internal and external temperatures for different test profiles and external conditions. Several electrical profiles were imposed to the battery to fully define the thermal response of it, starting from the internal component, up to the entire system.

With the results of the testing and modelling activity, CIDETEC will develop a thermal management strategy to operate the heating and cooling system efficiently and to reduce the impact of extreme conditions in the battery.

Miba FLEXcooler®: The innovative thermal management solution for batteries

i-HeCoBatt answers to the "Integrated, brand-independent architectures, components and systems for next generation electrified vehicles optimised for the infrastructure request» of the LC-GV-01-2018 topic.

The aim of i-HeCoBatt is to achieve a smart, cost bursting industrial battery heat exchanger to minimize the impact on full electric vehicle range in extreme conditions.

Smart, because new sensing functionalities will be implemented in the thermal system in order to monitor the behavior of the whole battery pack thermal system.

Cost bursting, because expensive components of current SoA products will be replaced by cost efficient components as well as the number of parts minimized.

Industrial, because mass production means will be used to manufacture the heat exchanger.

Printed Integrated Functionalities

Printed electronics stands for a revolutionary new type of electronics, which is thin, light, flexible, robust and inexpensive, and therefore suitable for mass production. Printed electronics opens up the possibility of integrating functionalities such as temperature sensors, leak sensors, impact sensors, heater coils etc. into products and components.

Based on the EPI Know How & Experiences in developing Printed Electronic Products and Control & Readout Electronics, EPI uses its established development process for i-HeCoBatt Project:

- Definition of functionality for printed electronics
- Definition of properties of substrate and usable space
- Selection of conductive or insulation ink or past
- Selection of Connectors
- Definition of Control & Readout Electronic