

Press Release

Erlangen,
November 5, 2010

Energy Maximization of Complex Battery Systems – Increased Range of Electric Vehicles

Visit us at
Electronica 2010 Munich,
November 9 – 12, 2010,
hall B2, booth 518

Fraunhofer IIS develops battery management systems to maximize the energy efficiency of battery systems, providing for a significantly increased vehicle range.

The battery management system (BMS) developed by Fraunhofer IIS measures the current, voltages and temperatures of the battery cells. Based on the measured values the state-of-charge of the cells is calculated. So far the capacity of a serial multi-cell system is limited to the capacity of its weakest cell in the chain. Discharge has to be interrupted when the low-voltage limit is reached. Valuable cell energy of the other cells is lost and cannot be used.

This is where the battery management systems of Fraunhofer IIS come into play. In order to fully discharge all cells, the energy of the stronger cells has to be transferred to the weaker cells. When the BMS detects differences in state-of-charge, energy transfer from one cell to another is initiated with the help of a newly developed active balancing. This way the system efficiency is maximized and the power of every battery cell can be used. Fraunhofer scientists were the first to implement this innovative battery management technology. What is more, active balancing of energy reduces reduces the waste heat in the accumulator, which is generated i. e. by passive balancing.

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Powerful battery systems are used in i. e. electric and hybrid vehicles and in small, light-weight electric vehicles, like wheelchairs or electric bicycles. With the help of the Fraunhofer battery management system it is possible to significantly increase the range of electric vehicles.

Fraunhofer showcases its latest battery management systems and efficiency maximizing technology at the Munich fair Electronica from November 9 to 12, 2010.

About Fraunhofer IIS

Founded in 1985 the Fraunhofer Institute for Integrated Circuits IIS in Erlangen, today with more than 750 staff members, ranks first among the Fraunhofer Institutes concerning headcount and revenues. As the inventor of mp3 and co-inventor of the MPEG 4 AAC audio coding standard, Fraunhofer IIS has reached worldwide recognition.

It provides research services on contract basis and technology licensing.

The research topics are: Audio and video source coding, multimedia realtime systems, digital radio broadcasting and digital cinema systems, integrated circuits and sensor systems, design automation, wireless, wired and optical networks, localization and navigation, imaging systems and nanofocus X-ray technology, high-speed cameras, medical sensor solutions and supply chain services.

The budget of more than 90 million Euro is mainly financed by projects from industry, the service sector and public authorities. Less than 25 percent of the budget is subsidized by federal and state funds.

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