The AI making a difference in lithium batteries

bauma
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UTILISING ARTIFICIAL INTELLIGENCE, FLASH BATTERY'S NEW DATA CENTRE IS ABLE TO CARRY OUT ADVANCED AND PREDICTIVE ANALYSES OF BIG DATA FROM THEIR BATTERIES IN REAL TIME

The Internet of Things (IoT) and Machine Learning (ML) are today's buzz-phrases. They're part of the digital revolution, a transformation that is changing the world at a breakneck pace.

The most advanced companies have been facing up to the challenges of the market for some time with product innovations that are not an end in and of themselves, but based on a customer-centric culture. This means that needs are analysed in depth before creating a product/service that brings real improvement and value.

Battery self-diagnosis

That's what Flash Battery did ten years ago when it decided not to merely design lithium-ion batteries for industries according to the highest standards of safety, performance, autonomy and life cycle - but to push the boundaries by setting up the structure for the Flash Data Centre, an automatic remote-control system that today runs the self-diagnostics and predictive analysis on the batteries.

A lithium battery does more than power the vehicle. It relies on a comprehensive system that uses computing, IoT and artificial intelligence to thoroughly examine battery operation in real time and prevent faults, delivering both predictive and preventive diagnostics.

Bauma finalist

The next evolution of Flash Battery's remote control is the new release of the proprietary system Flash Data Centre 4.0, which will be presented at Bauma 2022, and has been selected as a finalist for the Bauma Innovation Award in the Digitalisation category.

"What an amazing satisfaction this is," said Marco Righi, CEO of Flash Battery, which operates with over 70 employees, 30% of which are devoted to research and innovation. "It's a recognition that goes beyond the quality of our batteries and into everything that's linked to them in terms of reliability, advanced and predictive analysis of the big data from the battery systems."

ABOVE: **Flash Battery today has a global reach**
BOTTOM LEFT: **The company's portfolio of battery solutions**

Real-time analysis

The Flash Data Centre 4.0 is an automatic and real-time data control system that harnesses the power of AI. The cloud system is integrated into a virtual environment with containerised architecture and, with the advanced support of machine learning technologies, ensures the interconnection of every battery system produced by Flash Battery.

OEM manufacturers and end customers have the opportunity to carry out advanced and predictive analyses of the big data from their battery systems in real time, thanks to the support of machine learning and AI technologies.

Battery health

The state of health of a lithium battery installed in any part of the world is monitored 24/7 and any detected warnings, faults or misuse are immediately sent to the Flash Battery's service department, and the customer. Misleading reports are stopped before they gain traction and extraordinary maintenance work is supported with advanced planning. This avoids expensive downtime, saving time and money.

The system also enables the industrial machinery and vehicle manufacturer to keep track of the battery's end of life thanks to an accurate state of health (SOH) control system.

In this way, the SOH and End of Life are accurately predicted and make it possible to plan the replacement of end-of-life batteries in entire fleets, optimising and reducing the cost of disposal and making the process of re-using components more efficient thanks to the component blockchain.

In addition to the Flash Data Center 4.0 software, Bauma will also showcase Flash Batterty's development of third-generation cells that have dramatically improved the energy density of the batteries from 134 Wh/L to 207 Wh/L in as little as three years, paired with the choice of LFP (lithium-iron-phosphate) chemistry.

Participants at Bauma will get a chance to navigate and interact with the dashboard at Flash Battery's Booth 339 in Hall A5, where the technical staff will also be busy presenting the latest-generation lithium-ion batteries designed for the construction industry. **iVT**

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