PASSION FOR TECHNOLOGIES

DEVELOPMENT OF DIAGNOSTIC ALGORITHMS IN THE CHARGING PHASE

START OF RESEARCH PROJECT BETWEEN AKKA AND INSTITUTE OF AUTOMOTIVE TECHNOLOGY AT THE TECHNICAL UNIVERSITY OF MUNICH

PRESS RELEASE

Munich, November 10th, 2021. AKKA Technologies, European leader in engineering consultancy and R&D services in the mobility sector, is pleased to announce the launch of the Charge.COM research project on development of diagnostic charging methods for commercial electric vehicles together with the Institute of Automotive Technology at the Technical University of Munich (TUM).

Innovative nature of the project

The consortium is intended to address the question of how the battery condition of electric vehicles can be determined during the charging process. Lithium-ion battery systems are subject to complex aging mechanisms during the operation of electric vehicles. With a longer operating time, this can lead to a reduction in the amount of energy available and thus a reduction in the electric range of the vehicle. At the same time, varying load and environmental conditions in different vehicles provide for different aging behavior within a fleet. In particular, operators of commercial fleets are facing challenges, as route selection is usually not made by the driver, but via a control station (disposition). This means that it is not always possible for the vehicle to fulfill the range requirements of an assigned route, such as a long distance in logistics or a public transport operation. In addition, fleets typically consist of vehicles from different manufacturers that do not provide a uniform data interface for transmitting the battery status.

Research project

The research project addresses the need for vehicle-independent battery diagnostics to provide fleet operators with vehicle-specific and cloud-based information on battery status for vehicle dispatching. Over a period of three years, the project partners will work on the development of diagnostic algorithms for charging phases of electric vehicles in order to precisely determine the battery condition through extended charging communication protocols.

In this regard, a unique test field will be set up, which will enable the testing of the algorithms in hardware-in-the-loop (HIL) testing close to the application by simulating various battery systems and health states. The data collected on the current state of the vehicle will create the basis for the application of predictive analytics methods, i.e. prediction models from which recommendations for action can be derived for the optimal use of commercial vehicles.

“The topics of predictive analytics and charging communication standards are an important part of the development of a new mobility ecosystem. The Charge.COM project contributes to the digitalization of the charging infrastructure and the plannability of the use of electric vehicles by developing diagnostic charging processes with the help of artificial intelligence and cloud connectivity. We are looking forward to a good and constructive collaboration with TUM," **says Felix Jakob, Director AKKA Research Germany.**

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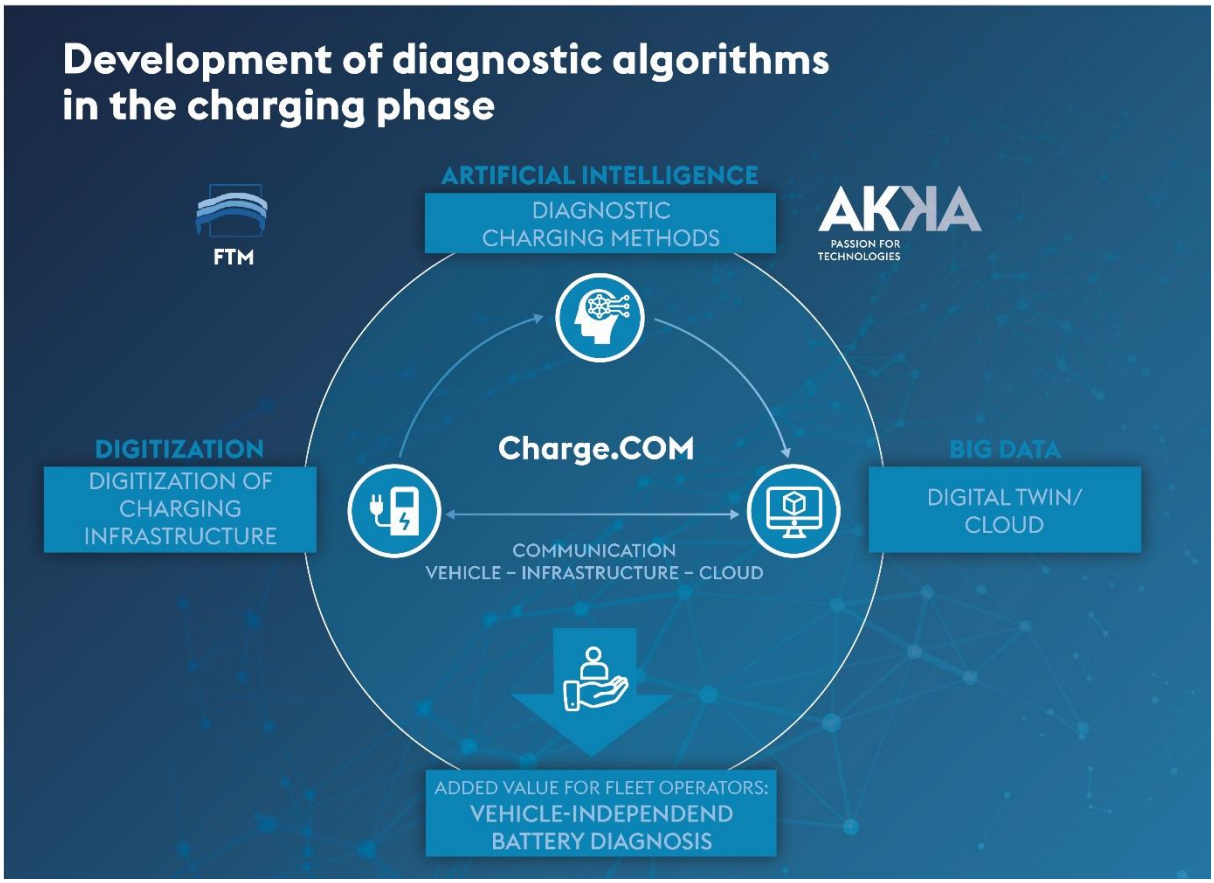

Picture 1: Goals of Charge.COM

"*In the course of the constantly growing range and model diversity of different electric vehicles, it is of great relevance, especially for operators of heterogeneous vehicle fleets, to be able to compare the vehicle status across manufacturers. Through the development of an AI-based diagnostic charging method, the Charge.COM project makes it possible to evaluate, independently of the vehicle, the condition of the battery, as the most expensive component in an electric vehicle, and to make the use of electric vehicles more efficient. We are glad to have AKKA Research as a competent partner in the field of charging infrastructure and look forward to an exciting and productive collaboration*." **say Prof. Dr.-Ing. Markus Lienkamp, Chair of FTM (TUM), and Thomas Kröger, PhD student at FTM (TUM).**

The research project is funded under the Bavarian Collaborative Research Program (BayVP) as part of the funding line Digitization - Information and Communication Technologies AI- Big Data according to the Strategy Bavaria Digital and the Hightech Agenda Bavaria.

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ABOUT AKKA

AKKA is a European leader in engineering consulting and R&D services. Our comprehensive portfolio of digital solutions combined with our expertise in engineering, uniquely positions us to support our clients by leveraging the power of connected data to accelerate innovation and drive the future of smart industry. AKKA accompanies leading industry players across a wide range of sectors throughout the life cycle of their products with cutting edge digital technologies (AI, ADAS, IoT, Big Data, robotics, embedded computing, machine learning, etc.) to help them rethink their products and business processes. Founded in 1984, AKKA has a strong entrepreneurial culture and a wide global footprint. Our 20,000 employees around the world are all passionate about technology and share the AKKA values of respect, courage and ambition. The Group recorded revenues of €1.5 billion in 2020. AKKA Technologies (AKA) is listed on Euronext Paris and Brussels – segment B – ISIN code: FR0004180537.

For more information, please visit: https://www.akka-technologies.com/

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About Technical University Munich (TUM)

Technical University of Munich is one of the first three universities of excellence in Germany and is one of the best universities in Europe. Top performance in research, teaching, as well as strong alliances with companies and scientific institutions around the world make it a distinguished institution. Under the direction of Prof. Dr.-Ing. Markus Lienkamp, the Institute of Automotive Technology (FTM) deals with the current requirements of mobility. In addition to automated driving, the focus of the 70 employees, including 50 scientists, is primarily on electromobility and the smart networking of vehicles and charging infrastructure. Through numerous research projects with renowned partners from industry, extensive expertise has already been developed in the development of simulation models as well as prototypes, thus increasing the efficiency, range and service life of electric vehicles. The research of the scientists is supported by numerous students as well as an in-house mechanics and electrical workshop, making validation of the developed solutions on test benches or even in real vehicles in road traffic possible.

Further information at https://www.mos.ed.tum.de/en/ftm/home/

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