

Never again a flat vehicle battery: Researchers develop early warning system

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Test of the battery management system. © Philip Dost

A flat battery can turn an unsuspecting car driver into an unintentional pedestrian. The fact that vehicle batteries go flat all of a sudden is a well-known problem, but one that can also be avoided in future. Scientists from the Ruhr-Universitaet-Bochum working group for Energy Systems Technology and Power Mechatronics headed by Professor Dr. Constantinos Sourkounis and Philip Dost have now developed an effective early warning system.

The new battery management system for lead-acid accumulators is intended to prevent drivers from a total breakdown. The car driver is informed via the on-[board computer](#) that a change of battery or a new vehicle battery is imminent. Compared to previous battery management systems, no subsequent reprogramming is required in the garage.

"During the first journey the system automatically measures and recognizes at the same time the current battery parameters", said Professor Sourkounis. Information is provided about the age, the charge and functionality of the vehicle battery. This intelligent control is urgently required as modern cars require more and more energy. Apart from the combustion motor and headlights, dozens of small electrical motors and sensors need electric power.

"Accumulators with big capacities mean a prolonged service life, but they age as well", explained Professor Sourkounis. High-performance vehicle batteries are also more expensive and also not completely immune to cold and long periods of non-use. If the life of the battery is not eternal, it is practical to be informed permanently about its current state. "For the first time it is possible to predict with our battery management system whether a new start will be possible before the motor is turned off – and without the need to adjust difficult to determine parameters such as the diffusion capacity of the battery", said Sourkounis. Furthermore, an advanced warning function indicates to the driver if the [battery](#) needs charging.

Provided by Ruhr-Universitaet-Bochum

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