

CACTUS

MODELS AND METHODS FOR THE EVALUATION AND THE OPTIMAL APPLICATION OF BATTERY CHARGING AND SWITCHING TECHNOLOGIES FOR ELECTRIC BUSES

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A bus in public transportation covers an average distance of 250 to 300 km each day. A suitable battery that would enable the bus to run for such a long distance without having to be recharged would be far too big, heavy and expensive. In order to overcome this problem, several technical approaches are currently being investigated.

The available technical solutions must be considered separately against the prerequisites and requirements of every single public transport company in terms of transportation, technical, economic and environmental aspects. Only on this basis a decision for a technology can be made that optimally meets the requirements of a public transport company. The ultimate goal of the CACTUS project is to find the best technical solution for the participating associated public transport companies depending on their real input data (timetable, operation plan, etc.). Of course, the best solution may vary between the participating public transport companies due to the strongly different prerequisites, assignments and aims. The best solution does not only involve a technology, but also its optimal application.

To achieve this aim, models of all relevant transportation, technical, economic and ecological values will be elaborated. Methods will be developed to find the most suitable technical solution (depending on the input values) and to apply it in an optimal way.

Until summer of 2013, the following main project results have been achieved: The questions to be answered during the project have been collected and described in detail. An extensive investigation on energy storage technologies, energy transfer technologies as well as battery charging modes and battery exchanging technologies have been performed. A lot of types of electric busses being composed of these technologies have been researched. Transportation, technical, economic and ecological models have been created. The development of evaluation and optimisation methods has been started.

PROJECT DATA

Funding/€	Total cost/€	Duration
773.590	838.380	36 months

Partners	
	Institut für Automation und Kommunikation e.V. Magdeburg, DE
	Fraunhofer Institute for Materialflow and Logistics, DE
	Silesian University of Technology, PL

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