The Innotruck Case Study on A Holistic Approach to Electric Mobility

Abstract:
We present an interdisciplinary approach to electric mobility based on three main research areas: Energy Management, System Architecture and Human–Machine Interface. A flexible energy management model is developed to suit the needs of arbitrary aggregated configurations in different hybrid vehicles. Our modular and data-centric vehicle ICT architecture reduces communication overhead, while addressing component plug-and-play and automotive safety. The classical human–machine interface is extended with a highly integrated HMI module which analyzes the interaction context. A drive-by-wire hybrid vehicle prototype has been constructed, the Innotruck, which serves as both testing ground for the developed concepts and a presentation area for communicating the results to public. Emphasis is placed on the societal importance of our work, impact and dissemination of results. More than 20 industry and research partners contribute directly to the project and the further development of the prototype vehicle.