Software- and Systems Architecture for Smart Vehicles

Cornel Klein
Siemens AG, Germany

Abstract: Both fully automated driving and electromobility are promising approaches to address the challenges of mobility with regards to sustainability, urbanization and demographic change. Moreover, they also change the usage patterns and concepts for future passenger vehicles and enable new kinds of applications for special purpose vehicles, for instance in logistics. Recently, many projects and demonstrators have shown the feasiblity and tremendous potential of driving automation for building such "Smart vehicles". However, we are convinced that for the cost-effective development, validation and deployment of automation functions current vehicle architectures are insufficient. Therefore, we present results and research directions in software- and systems architectures. Moreover, we discuss their relevance for the efficient implementation of new vehicle functions and innovative applications.

BRIEF BIOGRAPHY

Cornel Klein is Software Architect and Project Manager for the Technology & Innovation Project "eCar" at Siemens Corporate Technologies in Munich. He is project manager and coordinator for RACE (Robust and reliable Automotive Computing Environment for future eCars) which aims at the development of an advanced automotive E/E architecture. In various positions at Siemens, he has been responsible for software technologies and SW based innovations. Starting his career 1998 at Siemens Public Networks, he has gained an extensive knowledge in communication networks, embedded systems, IT platforms and SW architecture as well as in application domains like eCars and smart environments. He holds a master and a PhD degree in Computer Science from the Technical University of Munich.