

[Plenary Talk]

The Role of Advanced Automotive Electronics: Recent Progress & Development

Kimimori Hamada
Toyota Motor Corporation

Abstract

The automotive industry is pursuing a wide variety of technological developments, including reducing CO2 emissions and other measures to improve the environment, enhancing safety performance to help reduce the number of traffic accident fatalities and injuries to zero, and improving the performance of connection functions to make vehicles easier to use.

In recent years, hybrid vehicles (HVs) led by the Prius have entered the mainstream of environmentally friendly vehicles. Attention is now beginning to shift to the next-generation, such as plug-in hybrid (PHV) and electric (EV) vehicles. As this occurs, the development of inductive power supply systems is regarded as a useful way of increasing the popularity of PHVs and EVs.

Safety technology development has moved beyond a single focus on passive safety systems such as airbags that operate when a collision occurs. Automakers are also actively developing active safety systems that detect objects in front of the vehicle using millimeter wave radar and other sensors to help prevent collisions from occurring. Issues in this development include improving the performance of sensors, developing more precise recognition technology for the detection objects, and cost reduction to encourage the widespread adoption of these systems.

Moving, turning, and stopping are regarded as the fundamental aspects of a vehicle's performance. In addition, automakers are also focusing on connecting vehicles to society through information and communication technology (ICT). Although ICT promises to create new added value by improving vehicle usability, highly reliable and high-quality communication must be achieved before connection functions can properly deliver this value potential. Consequently, various efforts are underway to develop new wireless and on-board antenna technologies.

This presentation describes the activities of Toyota Motor Corporation in the field of automotive electronics for improving the environmental friendliness, safety, and comfort of its vehicles, and discusses Toyota's hopes for radio wave technologies.

About the speaker



1985: Graduate for Osaka Prefecture Univ.
Electronics Engineering MS degree

1985: Joined Toyota Motor Corporation

2009-: General Manager

Electronics Development Division 3

responsible for semiconductor development

Member of Program Committee for
ISPSD2003/2010/2011/2012/2013, IPEC-Niigata2005, PCC-
Nagoya2007, APE2006/2007/2009/2011