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Jan Wikander (KTH)

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Regarding the project "Pre-implementation computer and control system analysis in distributed applications - PICADOR"

General

The requirements to improve the vehicles in terms of fuel consumption and emission of harmful substances, and at the same time enhance the comfort and safety are some of the primary drivers behind the increasing electrical content of the cars. Some areas that are developing rapidly are telematics, entertainment, X-by-wire systems, vehicle dynamic control systems, electrical power management, etc. In addition to that is the requirement of short time-to-market of new functions.

Saab has been working with electrical control units (ECU) since the 9000 model (introduced as model year '84), and with serial data buses since the 900 model (introduced as model year '94). The purpose of introducing data buses was to reduce the weight and cost of the wiring. Additional needs in later models are to share sensor information between different systems, and to diagnose all systems from one connection. Today the primary needs are to distribute more functions on existing ECU:s, and to integrate different functions to make them interact in optimizing the overall performance of the electrical system.

Relevance to the vehicle industry

The proposed topics to study in the project are closely connected to everyday decisions when dealing with distributed functionality. Up to now many of the decisions are based on common sense and experience. With increased functionality, getting more and more complex, a more systematic and analytical way of making that type of decisions is essential. Therefore, the proposed project is considered as highly relevant.

Saab Automobile participation

Saab is interested in participating in the reference group of the project, and will contribute with industrial experience and relevant research topics.

Kenneth Lind,
Electrical System Architecture, Saab Automobile AB