Relevant industrial problems related to the DEEDS proposal[1]

SCANIA develops trucks and buses and the trend is to control more and more functions by electronics, especially mechanical functions. When more systems have inherent intelligence the idea of co-operation between different subsystems, in order to increase functionality, becomes natural. This in turn leads to a distributed real-time architecture.

The following issues are of interest to be investigated and discussed:

Modelling:
• Methods and tools for functional decomposition and allocation.

Timing related issues:
• Execution strategies for systems with both arbitrary and statically scheduled data exchange, i.e. mixed periodic and aperiodic systems.

• Off-line scheduling for multirate sampling systems.

• In real-time distributed systems information must be valid, i.e. both correct and timely. How to specify this for the subsystems that are integrated into the architecture? Rules for specifying valid data and tools for verification.

SCANIA hereby declares the intention to take part in the reference group of the DEEDS (Design of Embedded Distributed Systems) research project.

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[1] Ref. M. Törngren, "Design of Embedded Distributed Control Systems - DEEDS", Research Proposal.