

# ARTES application for mobility funding

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## **Complementary funding for industrial mobility of PhD students in the ARTES projects AIDA-II (9811-2) and FINE (9905-13) is sought from ARTES, amounting to 200KSEK, for year 2000-2001.**

The vehicle industry is faced with an increasing amount of functionality that is being implemented in software where the infrastructure is based on embedded distributed computer systems. In such systems, the networks, forming a backbone for information exchange, are enablers for the introduction of new functionality. Examples include diagnostics, sensor or state sharing, new functions and their coordination. This implies a necessary shift from function design per node to functionality based design independent of the physical allocation. Functions are then developed and verified separately, the computer system architecture is developed or incremented based on a synthesis of all functional and non functional requirements, and the implementation is concerned with mapping the functions to the physical components and verifying this integration. The research themes of AIDA and FINE deal with the related challenges referring to the resulting system complexity, multidisciplinary and dependability (see the AIDA and FINE proposals for more details).

For the ARTES projects, AIDA-II (9811-2) and FINE (9905-13), a cooperation has been established with Saab Automobile. At a meeting in Trollhättan this spring, Saab demonstrated a great interest in both projects, an interest so positive that it was agreed to arrange student mobility to formulate and carry out a case study within the projects, and to formulate an additional project for one more PhD student (see the separate PICADOR project proposal).

This proposal seeks support for the student mobility part, primarily for ARTES students Jad Elkhoury and Ola Redell. The concept used for mobility draws inspiration from the DICOSMOS project (*Integrated Real-time Computer and Control System Architectures*), partly funded by NUTEK, Complex Technical Systems Program) which received mobility funding from ARTES. The mobility concept is based on the following experiences:

- To organize a fruitful cooperation, initial time needs to be spent to build up a mutual understanding
- A successful continued cooperation can be built around a case study that involves both Academia and the Industry. To accomplish this, it is important to form a small interdisciplinary group of people and to choose a case study with ingredients corresponding to an industrial pre-study (e.g. developing concepts for a future system, method or tool).
- To implement and stimulate the actual work, having the PhD students working a few weeks per year (around eight weeks in DICOSMOS) at the industrial site on the case study, provides natural milestones, meetings/discussions and dedicated time for the case study work.

A preliminary time schedule for the mobility is as follows:

Year 2000: ~ five case study weeks, beginning week 26. The main tasks during these first weeks are to; (a) have the PhD students learn about industrial practice, techniques and experiences in developing embedded distributed control systems with respect to the AIDA and FINE themes. Deliverable: Industrial experience report and comparison with the state of the art findings. (b) formulating a case study to be carried out during year 2001.

Year 2001-mid 2002: The actual number of weeks to carry out the case study depend on the size of the case study (~ 12 case study weeks is an initial estimate).

The funding from ARTES is sought to cover expenses associated with the mobility including traveling, accommodation, and allowance. The funding is roughly divided into 50KSEK for the remainder of year 2000, 100KSEK for year 2001 and 50KSEK for year 2002.

## **References**

Project applications for the projects AIDA-II (9811-2) and FINE (9905-13).

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