

**Project title: Advanced Sensors and lightweight Programmable middleware for Innovative Rfid Enterprise applications**

**Start date** : January 1, 2008  
**End date** : December 31, 2010  
**Duration** : 3 years  
**# of Partners** : 10

**Submitted by** : Prof. Dr. Neeli R. Prasad  
**Company** : Center for Teleinfrastruktur (CTIF), Aalborg University  
**Phone** : +45 9635 9835  
**Email** : +45 9815 1583  
**Address** : Niels Jernes Vej 12, Room #: A5 - 210, 9220 Aalborg East, Denmark

**Partners (Industrial, SME, Institutes):**

INRIA (2.1 ObjectWeb@INRIA – 2.2 POPS) (Research Center); Université Joseph Fourier – Grenoble University – LIG Laboratory (Institute); Research and Education Laboratory in Information Technologies - Athens Information Technology (Research Center); Melexis technologies SA (Industry); Open Source Innovation Ltd (British technology charity); UEAMPE European Office of Crafts, Trades and SMEs for Standardisation (SME Association); Dimitropoulos - SENSAP LTD (SME); Pole Traceability Valence (SME Initiative); Instituto Telecomunicações (Institute)

**Project objectives:**

ASPIRE will change the current RFID deployment paradigm, through introducing and boosting a shift towards royalty-free RFID middleware, while also placing the middleware at the heart of RFID infrastructures. In this paradigm a great deal of an RFID's solution intelligence is placed on the middleware, which is freely offered to end-users (particularly SMEs). Accordingly, the RFID middleware can integrate with low-cost hardware, as well as with legacy IT and networking infrastructures of the networked enterprise. To support this paradigm ASPIRE will develop and deliver a lightweight, royalty-free, programmable, privacy friendly, standards-compliant, scalable, integrated and intelligent middleware platform that will facilitate low-cost development and deployment of innovative fully automatic RFID solutions. The above attributes of this middleware platform can be analyzed as follows:

- o Royalty-free
- o Lightweight
- o Programmable
- o Intelligent
- o Standards-Compliant
- o Scalable
- o Privacy-Friendly
- o Integrated

**Project description:**

ASPIRE will research and provide a radical change in the current RFID deployment paradigm through innovative, programmable, royalty-free, lightweight and privacy friendly middleware. This new middleware paradigm will be particularly beneficial to European SME, which are nowadays experiencing significant cost-barriers to RFID deployment.

European networked enterprises in general and SME in particular are still reluctant to adopt RFID, since they perceive RFID as unprofitable or too risky. This is largely due to the fact that the adoption of RFID technology incurs a significant Total Cost of Ownership (TCO). ASPIRE will significantly lower SME entry costs for RFID technology, through developing and providing a lightweight, royalty-free, innovative, programmable, privacy friendly, middleware platform that will facilitate low-cost development and deployment of innovative RFID solutions. This platform will act as a main vehicle for realizing the proposed shift in the current RFID deployment paradigm. Portions (i.e. specific libraries) of the ASPIRE middleware will be hosted and run on low-cost RFID-enabled microelectronic systems, in order to further lower the TCO in mobility scenarios (i.e. mobile warehouses, trucks). Hence, the ASPIRE middleware platform will be combined with innovative European developments in the area of ubiquitous RFID-based sensing (e.g., physical quantities sensing (temperature, humidity, pressure, acceleration), mobile re, low-cost), towards enabling novel business cases that ensure improved business results. The ASPIRE RFID middleware paradigm, as well as the unique and novel characteristics of the ASPIRE middleware platform are thoroughly described in this proposal.

**Field of Application:**

Mobility Scenarios e.g. mobile warehouses, trucks, logistics, etc.