2. COIN-Ausschreibung
„Kooperation und Netzwerke"

Projekt: Smart Cameras for Detection and Surveillance

Förderungsnehmer: SLR Engineering e.U., Graz Steiermark

Kurzfassung

SMARTVIS is a co-operation of **five SMEs and a research organisation** for the purpose of **developing and marketing novel visual surveillance applications which are based on smart camera hardware**.

Visual surveillance has important applications in various domains such as transport telematics, security, retail, advertisement and urban planning. Automated video analysis usually involves 1) detection of interesting objects (e.g. cars, pedestrians), 2) tracking of objects over time in order to obtain their motion paths and 3) analysis of object tracks to reason about their behaviour and interaction. Contradicting to claims of marketing departments, **existing video surveillance techniques still have limited accuracy and usability** when it comes to complex real world scenarios. Furthermore, a large number of cameras in a network prohibits the processing of video data in real-time (despite for the simplest tasks) by centralised systems based on PCs due to either bandwidth and/or computing limitations.

Smart cameras combine video sensing, processing and communication in a single embedded device. They have gained remarkable processing power and maturity since their invention in the mid 90's. One of the drawbacks of currently available smart camera solutions is the **gap between software development tools and libraries for the PC and the software development facilities on the smart camera**. Hence, compared to PC-based solutions, today's software on smart cameras is years behind current research when it comes to the demanding tasks of object detection, tracking and object track analysis for automatic visual surveillance.

The SMARTVIS objectives are 1) to develop high end algorithms for object detection, tracking and object track analysis which will exceed the state-of-the art level, 2) to create a software framework for object detection, tracking and object track analysis both on Smart Cameras and PCs which will be used by the partners and can be licensed to customers and integrators, 3) to design protocols and implement software for the integration and configuration of smart cameras over a network, 4) to create new sensor types based on the smart cameras, 5) and to setup a marketing and distribution for the new smart camera solutions.

Development of video analysis applications based on smart cameras requires expertise in fields like hardware design, signal processing, algorithm development, imaging and pattern recognition/machine learning. SMARTVIS brings together some of the best companies and people in Austria and the Slovak Republic for this purpose. **SLR Engineering** will be responsible for the computer vision algorithms for real-world scenarios, supported by **arsenal research** for trajectory analysis and traffic telematics applications, **sensotech** and **SOFTHARD** will take care *of* software integration and hardware product development, and finally marketing and design will be done by **vision-partner** and **blickwinkel**.