TOWARDS HUMAN-FRIENDLY AND CONTEXT-AWARE SYSTEMS

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Context-aware mobile systems perceive environmental signals, detect their context (i.e. the state of the system and its local environment) from these signals, and calculate appropriate actions for the detected context. In its simplest form, such a system can be a mobile telephone adjusting its profile based on the noise level and brightness of the environment. A service robot equipped with a vision system and a manipulator is a more complex example of a context-aware mobile system.

In this presentation key technologies developed for realization of context-aware mobile systems in the ISG will be presented. These include development of software and hardware architecture, 3-D sensing technology, machine vision, context recognition and control methods. A distributed software architecture is being developed for mobile context-aware systems. The architecture offers well defined and reusable interfaces for different resources like sensors, actuators, computing devices and user interfaces. The location and implementation of a software component are transparent for the rest of the system. We have also developed a modular electronic concept, called Atomi, and created software components for building complex activities.