AWARENESS

Context AWARE mobile NEtworks and ServiceS

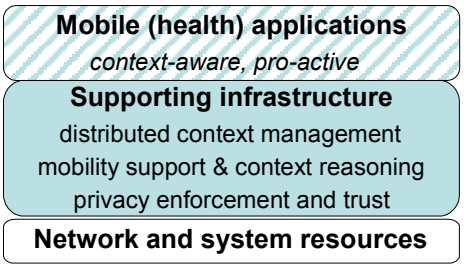
An increasing number of mobile devices, sensors and consumer electronics are equipped with (wireless) networking capabilities. These devices communicate via different types of networks, and together enable a complete new generation of applications: *context aware* and *pro-active* applications. These applications make use of the context of their users, i.e., are able to react on changes in the end-user's context, such as available network resources, user preferences, user environment and situation. These applications are pro-active because of their ability to timely react on (predicted) changes in the context of the end-user. The AWARENESS project focuses on an infrastructure that enables rapid and easy development of context-aware and pro-active applications in a secure and privacy-conscious manner. For validation purposes particular attention is paid to mobile health applications for tele-monitoring and tele-treatment, but the AWARENESS infrastructure can also support applications in other domains.

Project goal & vision

The goal of the Freeband AWARENESS project is *to research and design an infrastructure for context-aware and pro-active mobile applications, and validate this through prototyping with mobile health applications*. In the AWARENESS project vision a human user is always and everywhere surrounded by a networking environment ('ubiquitous') that is able to determine the identity of the user and the (upcoming) context information that is (or might become) relevant to service provisioning ('attentiveness'), such that the user can have anywhere, anytime access to mobile services in a secure and privacy-sensitive manner. One of the results of the project will be an Integrated Health Demonstrator using proof-of-concept software components.

The AWARENESS architecture

The AWARENESS architecture consists of three layers: the mobile (health) applications layer, the infrastructure layer and network and systems resources layer. The focus of AWARENESS in on the infrastructure layer, and on context-aware mobile health applications that are supported by this infrastructure layer



AWARENESS architecture

The AWARENESS infrastructure

Infrastructure support is needed to enable wide deployment of context-aware applications. A major benefit of an infrastructure is interoperability between heterogeneous context sources and applications in a privacy-sensitive way. The three main technical challenges that the project identified to realize such an infrastructure are:

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(i) reasoning to infer higher-level and better quality context information,
(ii) efficient exchange and distributed processing of context information in dynamic and pervasive environments
(iii) end-user controlled handling of the privacy aspects.

The mobile (health) application layer

The added value of the AWARENESS infrastructure is validated in the healthcare domain. AWARENESS develops a mobile health service platform and health applications. The health applications support tele-treatment of patients with chronic pain and tele-monitoring of epileptic seizures and uncontrolled movements in spasticity. These applications are context aware, e.g., in case of an epileptic seizure the system uses location and availability information to select which (voluntary) caregiver is notified to check on the patient.

Part of the mobile health service platform is a health Body Area Network that collects sensors data and sends this to health care centers and/or healthcare professionals.

Partners involved

- Lucent Technologies Nederland BV, Bell Labs Europe (www.lucent.nl/bell-labs).
- Telematica Instituut (www.telin.nl).
- University of Twente, Centre for Telematics and Information Technology, (www.ctit.utwente.nl), ASNA and DACS groups.
- Roessingh R&D (www.rrd.nl).
- Twente Institute for Wireless and Mobile Communications (www.ti-wmc.nl).
- Ericsson Telecommunicatie, Service Layer area, Technology Strategy group (www.ericsson.nl).
- Yucat mobile business solutions (www.yucat.com).
- Twente Medical Systems International (www.tmsi.com).

Freeband

AWARENESS is part of the research programme Freeband Communication (http://www.freeband.nl)

Project website

http://awareness.freeband.nl

Duration

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