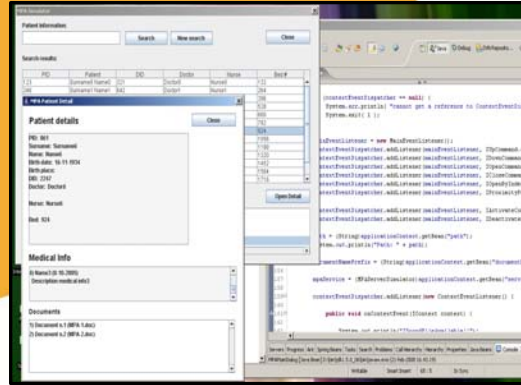


WEARIT@WORK: The Open Wearable Computing Framework (OWCF)



One of the goals of wearIT@work project is the definition, design and implementation of an Open Wearable Computing Framework (OWCF), which aims at being a standardized, cost-effective platform that can attract the interest and consensus of the major players in the field of development of wearable applications.

OWCF is a software layer, which enables wearable applications built on top of it to seamlessly take advantage of its functionalities/capabilities. The main reasons for having such a layer are:

- simplify the development of wearable applications
- encourage reuse of software components across different applications
- promote better software engineering practices

OWCF is meant to be a standard-based platform. This means that the design and implementation of the framework not only leverage on existing standards, but potentially bring to the modification of existing standards, or the definition of new ones. In fact, project research activities, and software technologies built in the framework may be consolidated through a bottom-up approach in proposals for new standards (or for modifications of existing standards) that may outlast the wearIT@work project. These standardization efforts (supported by thorough research background, solid technical design and implementation, and adequate dissemination) may be inherited and further pursued within the envisioned Open Wearable Computing Group (OWCG) or other existing standardization bodies.

The OWCF has a service-based architecture. A set of services are available for the developers of the end-user application, who can select and use only those that support their specific requirements. The framework has a core component, which provides some basic functionalities both for the framework's services and for the application developers.

There is no single overall system that can be used for all wearable applications. Instead we provide a set of software components (framework services), which can be used together in different applications. The framework services simplify the development process, and encourage the reuse of software components across different applications.

wearIT@work was set up by the European Commission as an Integrated Project to investigate "Wearable Computing" as a technology dealing with computer systems integrated in clothing.

The project has 42 partners with a project volume of about 23.7 million € and a funding of about 14.6 million €

It is the largest project world-wide in wearable computing.

<http://www.wearitatwork.com>



The OWCF is currently developed for two platforms: Java (J2SE) and .NET

The service-based architecture provides good extendibility and flexibility. All services are basically independent from each other, and therefore it is possible to extend the framework with new services according to new requirements. At the same time the developers of the end-user application can selectively pick the services that they need to build their application. Our experiences with the four pilots of wearIT@work have confirmed that such architectural approach is valid.

The framework services

Core Framework

The OWCF uses the Spring Framework. Spring allows the efficient development of component based applications.

Context Services (JContextAPI and .NET Context Framework)

Context services are a software library exposing a set of APIs that provides handling and processing of context information. Context Services simplify the development of context aware applications.

Communication Services: intermittent networking

Intermittent networking library is a .NET API for registering client code with specific networking state, thus providing easy to handle notifications for the programmer about when the network is available for custom operations.

User Interface Services: Wearable User Interface Toolkit

User Interface Services allow the model based development of wearable user interfaces with reusable components, and the integration of context information to form context-aware user interfaces.

Multimedia Services (Content Management Services and Speech Recognition Services)

Multimedia services are in charge of supporting creation, management, delivery and visualization of multimedia contents.

Workflow Services

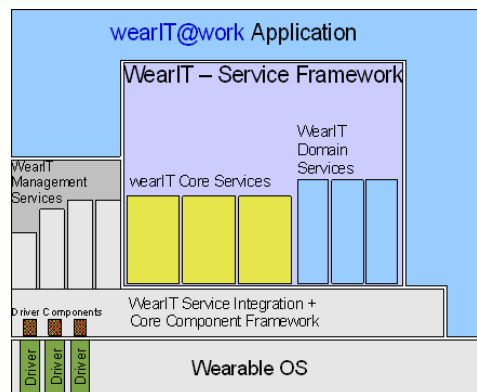
Workflow Services simplify the implementation of applications for wearable devices supporting worker who perform their duties following a predefined sequences of steps.

Localization Services

Localization Services transparently interface several localization technologies, and provides aggregated information.

Collaboration Services

Collaboration Services provides end-users with several communication channels (video, voice, instant messages).



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