The business model framework

A third objective of the HYDRA project is to research and develop a business modelling framework for analysing the business sustainability of the developed applications. Since producers of devices are increasingly facing the need for networking in order to provide higher value-added solutions for their customers, the HYDRA project will develop value-oriented business models allowing the producers, in particular SME's, to develop solutions that are both technically and commercially viable.

User domains

The HYDRA middleware, the SDK toolkit and the business models will be validate in real end-user scenarios in three user domains: Healthcare, facility management and agri-culture.

The Hydra scenarios are constructed from a varied background of knowledge and guess-work about the relevant environment and the trends and discontinuities likely to happen in the future and affecting the users business and way of work. A set of functional user require-ments has been derived from the scenarios and related storylines.

An open source reference implementation will be available, which will demonstrate the applicability and quality characteristics of the HYDRA middleware.

For more information, please consult the projects website at www.hydra.eu.com.

The project partners are…

COORDINATOR
C INTERNATIONAL, LTD.
WARWICK, UNITED KINGDOM
www.cinternational.co.uk

CNET SVENSKA AB
DANDERYD, SWEDEN
www.cnet.se

FRAUNHOFER - APPLIED INFORMATION TECHNOLOGY, DE
www.fit.fhg.de

FRAUNHOFER - SECURE INFORMATION TECHNOLOGY, DE
www.sit.fhg.de

IN-JET APS
BIRKERØD, DENMARK
www.in-jet.dk

PRIWAY
KGS. LYNGBY, DENMARK
www.priway.dk

T-CONNECT S.R.L
TRIESTE, ITALY
www.t-connect.it

TELEFONICA I+D SA
MADRID, SPAIN
www.tid.es

UNIVERSITY OF AARHUS
AARHUS, DENMARK
www.daimi.au.dk

INNOVA S.P.A.
ROME, ITALY
www.innova-eu.net

UNIVERSITY OF READING
READING, UNITED KINGDOM
www.reading.ac.uk

MESH-TECHNOLOGIES A/S
ODENSE, DENMARK
www.meshtechnologies.com

SIEMENS BUSINESS SERVICES,
PADERBORN, GERMANY
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TECHNICAL UNIVERSITY OF KOSICE, KOSICE, SLOVAKIA
www.tuke.sk

HYDRA

Networked Embedded System middleware for

Heterogeneous physical devices in a distributed architecture

The Hydra project is co-funded by the European Commission within the Sixth Framework Programme under contract IST-2005-034891

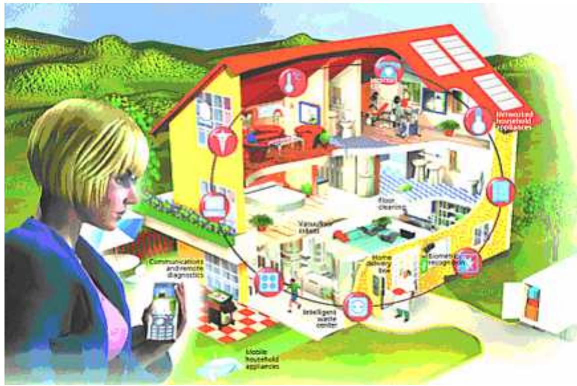
Information Society Technologies

Great benefits to users

Producers of devices and components are increasingly facing the need for networking their own and complementary products in order to provide higher value-added solutions for their customers or because citizen-centred demands require much more focus on intelligent solutions where the complexity is hidden behind user-friendly interfaces in order to promote inclusion.

Given the enormous amount of heterogeneous devices, sensors, and actuators with embedded systems already existing in the market, the diversity of the producers and manufactures, the different clock speed of technology deployment (from several decades to some months), there is a very large need for technologies and tools that easily can add, implement and exploit the intelligence embedded in the devices. The goal for the producers is to be able to build cost-efficient Ambient Intelligence (AmI) systems with high performance, high reliability, reduced time to market, and faster deployment and still build on the assets of the installed base.

Access to device features is radically different among the various devices, ranging from human-only access (e.g. screens and buttons), to exclusive machine-to-machine communication over standard protocols and possible wireless transports. This wide array of access mechanism is acceptable for most developers of the device-based intelligent solutions, such as skilled system integrators, who need to access only a few devices. It is much more difficult to build solutions based on a large number of devices from different manufacturers with heterogeneous access protocols, that for the most remain proprietary or unknown.



Tomorrows home (courtesy Siemens AG)

The current status on the market thus makes it almost impossible for existing devices to communicate and exchange information, without the direct involvement of the device manufacturers in one way or the other.

The first challenge is thus to allow for the seamless access to the features of many devices, regardless of its manufacturer, technology, interfaces, location, communication mechanism, etc. and to provide intelligent and secure interoperability.

Applications should adapt to changing local and global sets of accessible sensors and actuators, and must piece together partial states of internal and location-determined information. When an end-user moves around interacting with any device in either private or public space, it is the right information that must follow their migration from different locations in changing surroundings.

Another challenge is thus to develop a framework for secure, trustworthy communication among networked embedded systems and supporting self-adaptive interplay of different components, not only sensors but also controlling components and actuators.

Hydra objective: Middleware for networked embedded system

The HYDRA project aims to research, develop, and validate middleware for networked embedded systems that allows developers to develop cost-effective, high-performance ambient intelligence applications for heterogeneous physical devices.

The first objective is to develop middleware based on a Service-oriented Architecture, to which the underlying communication layer is transparent. The middleware will include support for distributed as well as centralised architectures, security and trust, reflective properties and model-driven development of applications.

Can be deployed in existing and new distributed devices networks

The HYDRA middleware will be deployable on both new and existing networks of distributed wireless and wired devices, which operate with limited resources in terms of computing power, energy and memory usage. It will allow for secure, trustworthy, and fault tolerant applications through the use of novel distributed security and social trust components and advanced Grid technologies.

The embedded and mobile Service-oriented Architecture will provide interoperable access to data, information and knowledge across heterogeneous platforms, including web services, and support true ambient intelligence for ubiquitous networked devices.

The second objective of the HYDRA project is thus to develop a Software Development Kit (SDK). The SDK will be used by developers to develop innovative Model-Driven applications.