A Common Platform for AAL Services and a Common Future – The universAAL Project

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Abstract -- **universAAL is a European project set in motion to push and aid the market for AAL services and products. Its main objective is to make it technically possible and economically affordable to develop AAL services by providing a common, open, European platform, which sets up a market for buyers, sellers and users to meet and by supplying tools, a reference architecture and software components which aid the developing process. Simultaneously, a community is being established to foster interest and to gain widespread adoption of the universAAL platform.**

Keywords – AAL; platform; interoperability.

I. INTRODUCTION

The demographic challenges are rising as the European population ages. More support is and will be needed with fewer hands to cater for these needs. A large EU project has been established to make new Ambient Assisted Living (AAL) services technically feasible and economically viable to develop [1].

The potential benefits of AAL solutions have already been clearly recognized with a huge market potential, while societal trends indicate that they will be attractive to a large and increasing number of people. This potential has not yet been fulfilled and uptake and implementation of AAL solutions have so far been limited because it requires large resources to be committed. The few products and services made available on the market are often stand-alone solutions and not interoperable and have, therefore, had limited success.

With these challenges in mind, the universAAl project was initiated in order to standardize the approach to developing AAL solutions.
There have previously been several other funding initiatives within the EU to create a platform, services among others. However, this is the first to gather and group all the needs from within the AAL community under one single project [2]. universAAL is built upon previous EU funded projects, such as PERSONA, AMIGO, MPOWER, SOPRANO, OASIS, VAALID, GENESYS [3]
The project has 19 partners from allover Europe with the aim of developing an open, common European IT platform for AAL solutions and services.

II. OBJECTIVES

Facts about universAAL:	
Full Name:	UNIVERsal open platform and reference Specification for Ambient Assisted Living
Start date:	01.02.2010
Duration:	48 months
Budget:	13.980.164 €

The main objective [4] for the project is to make it technically feasible and financially viable to develop, design and launch new and innovative AAL solutions. Part of this strategy entails the development of a full suite of software components which can compose an environment for developing and running AAL applications for companies, private individuals, institutions etc. This will be done through the establishment of e.g. the universAAL developer depot and the uStore. In addition, the project aims at gaining widespread adoption and acceptance of the platform and to expand the number of companies which develop AAL solutions.

An overall goal for the project**,** and especially the platform, is that companies and other actors can use it for free, for incorporating into intelligent systems for e.g. elderly homes, care facilities, hospitals and hereby boost the market for AAL by opening up for more digital services.

III. THE PLATFORM

The platform will be produced by a mixture of new developments and consolidation of state-of-the-art results from existing initiatives and entails 3 main parts, as seen on the Figure 1 below: runtime support, development support, and community support.

Runtime support is a software environment which offers core output and services within AAL, making it easy to construct applications such as fall detection, alarms, GPS (global positioning system) detectors, etc.
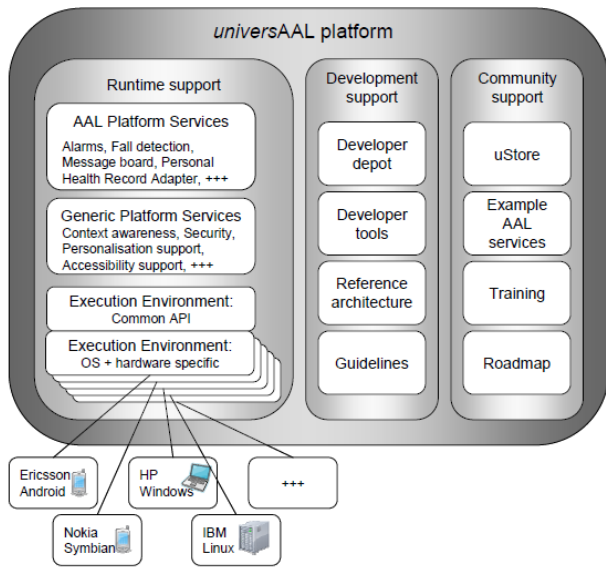
Figure 1. universAAL platform

Development support includes documentation, tools, and an online depot of several development resources such as software components, which are open and should make the integration and development of AAL services and applications easier.

Community support includes training and an online one-stop-shop which offers easy access to services and applications.

The online one-stop-shop is called uStore and functions as the market place where suppliers can offer their services (both hardware and software and human resources) so that others can find them. In addition, this platform supports the use of several existing platforms and allows interoperability with existing systems and domains.

IV.   THE UNIVERSAAL NOVELTIES

The universAAL project presents some novelties with respect to other AAL platforms. We distinguish between the technological and academic aspects.
The Technological Aspect: universAAL has been designed and implemented by following a 3-level approach:

- Reference model (RM): the consortium fist concentrated on the definition of the common understanding of the AAL domain. The reference model defines the relevant concepts and relationships among them.
- Reference architecture (RA): this architecture provides a high-level structure of the universAAL components. The RA has been designed in order to be independent from the enabling technologies and protocols. The RA defines the role of the components of the universAAL project and the functionalities that are provided.

- Concrete architecture (CA): the CA is a concrete implementation of the universAAL platform inspired from the RA. The universAAL consortium has released the official CA in order to demonstrate the real benefits of the universAAL platform.

The benefit of this approach is the design of a unified AAL platform that takes advantage from a high-level modeling independently from specific technologies.

V.   THE ACADEMIC ASPECT

The project comprises the runtime, the development tools and the community support. This makes universAAL a useful toolkit for academic lecturers and seminars. Students interested in developing new AAL service, are supported by the universAAL tools (a notable example is the universAAL AAL Studio). Such tools allow following the developers during all the steps: designing, coding, testing and integration by reducing the learning curve of the universAAL platform.

VI.   THE COMMUNITY

As part of the strategy of achieving the above mentioned objectives and to gain a widespread implementation and adoption of the universAAL platform, universAAL has started AALOA – an AAL Open Association together with other projects – see figure 2. The idea with AALOA is to create a non-profit organization open to individuals, institutions, and industry. It provides a meeting point for the industry and academia and will be able to catalyze interests and efforts around AAL, promoting standardization and identify key areas of interest. AALOA works independently from the universAAL project.
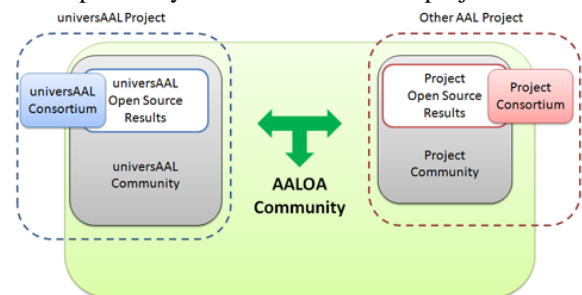

Figure 2. AALOA overview

In connection with the Open Association AALOA, an annual AAL competition has been created and is called EvAAL (Evaluating AAL Systems through competitive benchmarking). The competition has been established to foster interest from the research and development environments within the many disciplines of AAL and to develop new metric systems to measure, test and evaluate AAL systems.

VII.   WHAT UNIVERSAAL SOLVES

universAAL has brought experts, end users, and developers together to address the growing need for a common reference architecture within AAL applications as well as creating a virtual meeting point for developers and users, initiating a common standard to heighten the quality as well as interoperability with the health care sector.

In short, this project has the goal of initiating and boosting the market for AAL as well as creating a common standard so that interoperability can be secured and costs will decrease.

It is the vision of the project partners that it should be simple for users to download and setup AAL services as it is to download and install software application on modern operating systems.

VIII.   THE DEVELOPMENT OF THE PROJECT TO DATE

While the goal of the project is to have all the above mentioned objectives ready by the end of the project period, with around 1 years left of the project, it has at this point already released first versions of uStore, the market place in which it is possible to search for and download applications (but not yet to install it), and developer depot which will be further enhanced during the project period. The middleware is under construction, some of it ready, while AALOA has been created and has already hosted 2 successful EvAAL events.

IX.   REFERENCES

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