![ITEA 2 logo]

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Project Results

Enabling the elderly in their homes

Maintaining a long-term quality of life for an ageing population

The AmIE project has developed an intelligent software-based system advising elderly people on their health and wellbeing, while monitoring their status and daily lives. The objective is to help a rapidly-ageing population overcome isolation and loneliness to enable them to stay in their own homes for as long as possible. Innovations include fully-configured systems and multimodal interfaces depending on location, adapted to specific users in existing situations, that were acceptable and understandable to an older population without being intrusive.

Ageing is a growing challenge as Europeans live longer than ever thanks to economic growth and advances in healthcare. It affects individuals, families, communities and nations, and may have profound consequences for the economies of European states – and all other developed countries around the globe. It will not only make it more difficult for families to take care of an increasing number of ageing relatives but also impact the cost of medical and social-care systems.

EXPLOITING NEW TECHNOLOGIES
AmIE targeted the development and use of new technologies to provide care and independence to the elderly, enabling them to enhance their quality of life in a non-intrusive, helpful and friendly way. The result is increased autonomy for the elderly through tele-monitoring and home support.

Innovations include:
- Use of multimodal interfaces depending on the location of the user determined by an indoor location system; and
- Assessment and tracking of users' health using medical devices and new applications to facilitate prevention and diagnosis of illnesses.

A habit-tracking system (HTS) tracks user habits and detect deviations. Some health deterioration can be predicted by analysing night-time activity and preventive action taken. HTS builds on home-sensor information, involving a bracelet worn by the user and a set of beacons distributed around the home. The bracelet interconnects with the beacons through ZigBee technology and these with a central node via Wi-Fi.

Such ICT functions help the elderly overcome isolation in their own homes, increasing the possibilities for keeping in contact with friends and extending their social networks. Applications include electronic alarm systems, tele-health monitoring and home automation for remote control of heating, lighting and fridge contents. The AmIE platform also opens the way for further technical developments oriented to user needs.

IMPROVING ACCESS TO APPLICATIONS
Many older people face barriers in exploiting ICT products, services and applications to their full potential.

AmIE
(ITEA 2 ~ 06002)

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■ **Partners**
Alcatel Bell
Audio Riders
City of Oulu
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Soneco
Technische Universiteit Eindhoven
Telefonica I+D
Vrije Universiteit Brussel
VTT Technical Research Centre of Finland
Yrjö ja Hanna
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■ **Countries involved**
Belgium
Finland
The Netherlands
Spain
Turkey

■ **Project start**
May 2007

■ **Project end**
January 2010

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Project Results

Some are physical – 21% of the over-50s have hearing, vision or dexterity problems, making it difficult or impossible to use standard equipment. To break down such barriers, manufacturers must think much more about usability and accessibility when designing systems for the elderly.

The ITEA 2 project developed a solution where interaction with the user is neither standard nor partially configured, but adapted specifically to each individual and to each situation for optimal acceptance and understanding. The design is based on the principle of non-intrusiveness so that the daily life of the user is not affected by the system.

DEVELOPING A COMMON PLATFORM

AmIE focused on how to put services together – integrating different offers on a common platform, while adding specific

elements to provide tailored interactions. One addition was a localisation service which enabled the system to know where to send/display messages.

A series of demonstrators was developed, including:

- Monitoring sleep quality;
- Measuring vital signs in tele-medicine;
- Organising the user's service diary; and
- Preparing laundry or shopping lists.

Results will have a major impact as it is the first time all these services have been fully integrated. In addition, the way the systems react according to personal preferences is particularly relevant to getting such products to market; adapting services to individual users – such as taking into account their hearing levels – is a real innovation.

Key target markets are in tele-care and tele-medicine. Partners will also try to exploit the results according to their own business plans. The resulting applications should save governments money by helping people stay at home and live autonomously for longer. The results could also be extended to other target groups – including patients in prison facilities and people in drug-rehabilitation programmes.

Major project outcomes

DISSEMINATION

- Participated in 42 events, including 3 ITEA Symposia, AAL Forum 09, European Conference on Ambient Intelligence and HEALTHINF'09
- 31 publications, including conference papers, magazine articles and theses.
- Other dissemination materials like a website, video, posters, leaflets

EXPLOITATION

- Telefónica addresses the implementation of Ambient Intelligence applications using the different techniques and devices involved in the AmIE project. They are working with many other Spanish companies to develop a telecare platform which could be used by end users directly or by caregivers to supervise the services offered to the patients.
- VTT has developed two potential touch screen application SW which can be commercialised by partner companies: "Online Wellness Monitoring System (OWMS) and "Physical exercising application (PEA)".

STANDARDISATION

- Partners Mextal and Zuidzorg participate in the development of an European Standard on Quality which is based on the Dutch national standard NTA 8028 Telemedicine.
- Contribution to the normative ISO11073: the DIM (Domain Information Model) for Vital Signs Monitors has been implemented in accordance to the norms, and it has proven that normative works are perfectly able to cope with AMIE requirements.

EUREKA

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