

★ The ageing population has been identified as one of the grand challenges facing society today, which makes the MIDAS project, which looks to ICT for solutions to help the elderly remain in their homes for longer, one of the more exciting developments in addressing that challenge. **Laure Chotard** explains why

Innovative solutions for the ageing population

The MIDAS project (Multimodal Interfaces for Disabled and Ageing Society) works in the context of prevention and healthcare. The project is part of the ITEA2 programme and has set out to develop complete and intelligent integrated solutions to provide customised support for elderly and disabled people. This is in accordance with their specific situations and needs by means of friendly, adaptive interfaces and it takes into account the uneasiness many ageing people have when interacting with technology. When identifying its aims and objectives, MIDAS identified the two related issues that would be eased by the development of these solutions. These were:

- The greater challenges that the traditional family would face with the “burden” of prolonged care of elderly relatives
- The increased pressure that the medical and social care systems would suffer.

Laure Chotard from Orange Labs is the Project Leader of MIDAS, while the project partners are made up of seven large companies, seven small companies and five research institutes from European and Asian countries.

The project's primary goal is the development of complete and intelligent solutions to support the elderly and disabled, using different types of sensors, actuators and connectivity technologies. It is hoped these solutions will provide customised support to all people in need of assistance in line with any impairments they may have relating to their age, their mental capabilities and disabilities in a non-intrusive and respectful way. To ensure this is achieved, friendly and adaptive interfaces have been developed for use both indoors and outdoors. These have been devised specifically to take into account the “natural scepticism and uneasiness” some of the ageing population



have towards technology. It was felt that if the technology was as unobtrusive as possible, it would be more widely accepted and adopted.

The project profile can be summarised as offering remote interaction services supporting users. This is done thanks to the development of an embedded intelligent system accessible via adaptive multimodal interfaces and connected by a communication gateway. These include the provision of friendly adaptive interfaces; the promotion of new communication technologies and the development of intelligent connecting systems. Midas has

looked to demonstrate this technology with a focus on home and driving scenarios faced by the target end users.

Taking care at home

The home scenario is defined by L. Chotard, as “involving communication with the individual's environment and social links, training like medication follow-up and stimulation – both cognitive and physical – and finally prevention which involves the supervision of the daily tasks of the user's life”. Other research areas include helping the user to organise their activities and keeping in contact with others.

Healthcare at home is simplified thanks to technology determining and preventing by measuring the activity of frail people in their daily life. Localised assistance can be provided to vulnerable people and this may enable them to move safely. All these fields of investigation are designed to increase the user's autonomy.

And on the go

The project has also researched technology to be used away from the home and on the go. Functionalities have been developed for the driving scenario and these include the acquisition of information about the health or behaviour of a car driver using non-intrusive sensors through the designed multimodal interface. The driver interface has also been simplified through multimodality in the form of voice commands, sensors, abnormal signs and detection etc.

The consortium identifies one of the major innovative challenges addressed by MIDAS to be related to multimodal human interfaces. To address this challenge successfully, MIDAS has built scalability into its solutions as well as a combination of several modalities, which they describe as the "height of innovation". For the first time, these dimensions have been considered together in the context of home and driving continuity applications to help the elderly.

Market and technological challenges

While the benefits of the MIDAS project seem clear in terms of the end user, the partners also state that extended concerns with the project also relate to the link with technological, business and the market needs. As such, the project is expected to combine these three approaches, including the use case definition based on market and technological needs; a legal, ethical and

business evaluation; architectural design; developments and integration; the integration of multimodality; and technology knowledge transfer.

Although there are clear challenges to address, the targeted mass market remains a complex one. As L. Chotard explains, "the project has an additional task of convincing the medical population of its relevance." Therefore MIDAS relies on its end-user representative partners for defining and testing their solutions.

"The market is a relatively new and exciting one," continued L.Chotard. "The baby boom generation is expected to accept assisted living at home more naturally than the oldest seniors now. Thus the technologically aware user of tomorrow is not the same as our target user of today."

Capitalisation on experience

Of course, the MIDAS solution will rely on interoperability and standards. The project expects, therefore, that the applicable results regarding the multimodal interfaces and service platforms will be disseminated to the relevant standardisation forums via the partners already involved in those programmes. The consortium further explains that the market is fragmented and thus provides greater opportunities for IT solutions.

MIDAS is clearly a project of research and innovation, dealing with collective and individual needs linked to the business of tomorrow. "This is a breakthrough subject which does have its difficulties including business perspectives and legal ones," explains L. Chotard. "It attempts to anticipate and outline some of these difficulties, which include questions that are independent of the project," she continues. "This is a challenge as it appears to be something out of the scope of the project, but it is not."

The care of our ageing population has been identified as one of the "great challenges" facing society today. Ways and means must be identified not only to find cures for and prevention of disease, but more research is needed into how older people can live safely and for longer in their own homes, retaining their autonomy.

The MIDAS project is developing essential relationships with the ITEA2 programme and national public authorities.

MIDAS presents a real opportunity for its partners to combine telecommunications and new technologies (including robotics, ambient intelligence and user profiling etc) to effectively address one of the crucial social challenges of our decade. ★

At a glance

Project Information

Project Title: MIDAS (Multimodal Interfaces for Disabled and Ageing Society)

Project Objective:

The main goal is to provide a solution offering remote interaction services supporting the daily life of the disabled and ageing society through communication, training, and monitoring at home and on the go. This ambient intelligent system proposes continuous and scalable solutions making use of different types of devices, sensors and connectivity technologies. A platform accessible via adaptive multimodal interfaces and connected by communication gateways allows to provide easy and personalized services.

Project Duration and Timing:

October 2008 – September 2011

Project Funding:

Labelled by the European ITEA2 program and funded by national public authorities from countries (Spain, France, Turkey, South Korea)



Laure Chotard



Laure Chotard obtained a Project Management Professional (PMP®) certificate (2010) and received a master in Management and Information Technology from IAE Graduate School of Management (1996). She has been working for the France Telecom-Orange Group for 13 years. Her resume listed a background as an innovation project manager, an e-health project coordinator, a usage and marketing senior analyst and a research and development engineer. Her main research interests included e-health, e-inclusion, mobility solutions, collaborative network, vertical markets and business process management. She has participated in several European projects related to these domains.

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Project Partners

CITIC	KIT
CEA LIST	LI2G-CHU
CNRS LIFL	Grenoble
CreativIT S.A.	Morgan Conseil
Energy Sistem	Orange
Soyntec	Robosoft
Fico Triad S.A.	Robotiker-Tecnalia
Geomobile	Siel Bleu
IIMS	Telefonica I+D
Intuilab	Thales Alenia
Katron	Space