ITEA 2

INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

Project Results

GUARANTEE

An active launch pad for safety first

The ITEA 2 project GUARANTEE set out to develop new 'active-safety' systems that can take a much more pro-active approach to risky situations, offering automatic in-home support or involving external support services, with the potential of a whole new market in software-based home-safety solutions. The result is non-intrusive, active-safety systems that respond to and interpret human behaviour in an approach capable of preventing many of the more common accidents in the home.

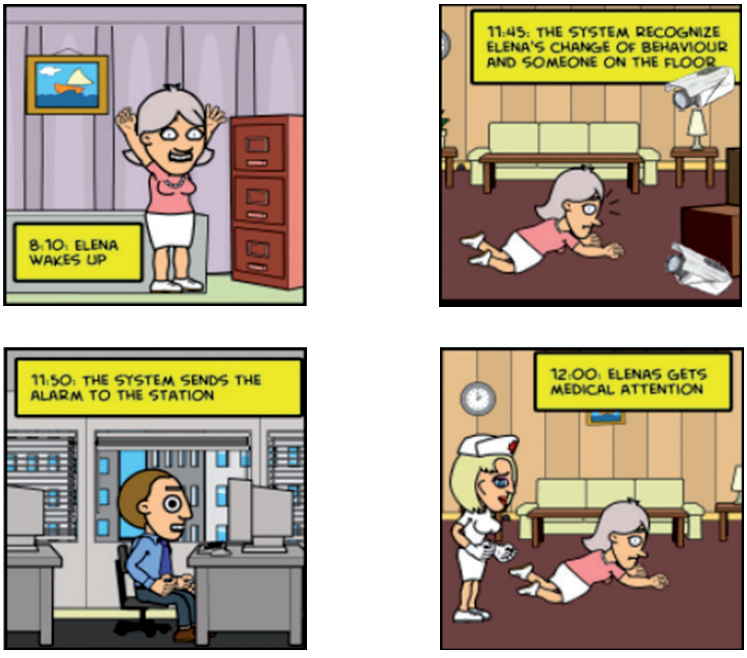
GUARANTEE aims to develop 'active-safety' products and services for the residential environment. The potential of a range of new software-based home-safety solutions could open up a whole new market as well as bring real innovation to the consumer. In another market, home security, where traditional home-security systems are simply intrusion-detection systems, GUARANTEE goes much further, developing the automatic operation of home-security systems using industrial-grade techniques that add individual identification, activity detection, scenario analysis and decision making.

A SENSE OF SECURITY AT HOME

As more and more people live relatively independent lives, home safety represents a major societal challenge. Accidents in the home are one of the biggest causes of hospital treatment in the EU and the associated costs have risen accordingly. Existing home-safety products are essentially passive in nature and limited in their scope, like electrical-safety products that detect hazardous situations (fire or burglar alarms) or cater for surveillance (CCTV or panic buttons). By focusing on active-safety systems that respond to human behaviour, adding the intelligence to interpret human behaviour within a context, and act if a hazardous situation develops, many of the more common accidents in the home can be prevented.

LEVERAGING CAPABILITIES

Such home-safety software solutions leverage the capabilities of existing sensor components, connectivity and communications infrastructures. GUARANTEE has developed signal-processing and decision-making algorithms for specific home-safety situations as well



Characterisation of Eldery Behaviour

GUARANTEE
(ITEA 2 - 08018)

Partners

ACTIMAGE
Active Life Village
AltFactor
Armakom
Arvento
COMmeto
Eagle Vision Systems
ESI-Tecnalia
ETIC
Forthnet
Ibermatica
iDeal Technologies
Innohome
Laurea
Noldus
Orange Logic
Philips Applied Technologies
Philips Consumer Lifestyle
Phillips Research
Rinnekoti-Säätiö
SIVECO
Sound Intelligence
Spikes
TEI of Crete
UAB Kardiosignalas
Uni Kaunas Cardiology
Uni Kaunas Fundamental Sciences
Uni Kaunas Geriatric Clinic
Universidad Polytecnica Madrid
University of Deusto
University of Twente
Videra LTD
Visual Tools
VTT Technical Research Center of Finland

Countries involved

Belgium
Crete
Finland
Lithuania
Luxembourg
The Netherlands
Spain
Romania

Project start

September 2009

Project end

November 2012

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Project Results

as software architecture for in-home safety systems. Concentrating particularly on the needs of young children, the elderly and the disabled, the work involved three phases:

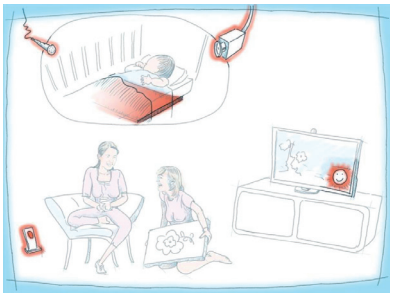
1. Sensing what is happening to people using sensor-technology software together with devices such as video cameras, microphones and pressure sensors;
2. Processing the resulting signals using situation-awareness analysis algorithms;
3. Decision making on what actions are necessary, such as switching on lighting when an elderly person is trying to climb the stairs, or activating/alerting remote-monitoring services provided either by a support service or family and friends.

The potential of a range of new software-based home-safety solutions could open up a whole new market as well as bring real innovation to the consumer, especially in terms of supporting independent senior citizens. Here active-safety services can help, for example by warning elderly homeowners if the cooker is overheating or a sink is flooding in the bathroom. Such products can also function as a memory aid for people, enabling them to keep their independent living standards for longer. Another market is home security where traditional home-security systems are simply intrusion-detection systems.

GUARANTEE goes much further, developing the automatic operation of home-security systems using industrial-grade techniques that add individual identification, activity detection, scenario analysis and decision making.

DELIVERING BENEFITS

As already indicated, GUARANTEE set out to use technology to enable a more pro-active approach to dealing with risk situations by employing 'active-safety' systems. Among the examples of how the project's output has been quickly exploited is the baby cry algorithm developed by Sound Intelligence and licensed to Belkin, a major American company. Belkin has integrated this algorithm in its baby listening product of which substantial units are expected to be sold in 2013. In this same area, Philips will also be making use of the GUARANTEE deliverables to develop a new baby monitoring system along with other related products. An integrated home care system is demonstrated in the Active Life Village apartment, which enables the operation of different elderly homecare applications to be demonstrated from both end user and care provider perspectives. The work of the project is taken into a wider arena by Eagle Vision's non-invasive video monitoring system. The number of technologies that has been mastered and integrated within the GUARANTEE project is both considerable and impressive, ultimately resulting in very tangible pay-offs in respect of creating a safer society and greater quality of life.



Baby safety

Major project outcomes

DISSEMINATION

- 116 publications
- 18 presentations at conferences/fairs

EXPLOITATION

- 18 new products
- 4 new services
- 2 new systems

STANDARDISATION

- Contributions to re-evalaution of the use of APIs in exploiting the Internet by SMEs

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■ ITEA 2 – Information Technology for European Advancement – is Europe's premier co-operative R&D programme driving pre-competitive research on embedded and distributed software-intensive systems and services. As a EUREKA strategic Cluster, we support co-ordinated national funding submissions and provide the link between those who provide finance, technology and software engineering. Our aim is to mobilise a total of 20,000 person-years over the full eight-year period of our programme from 2006 to 2013.

■ ITEA 2-labelled projects are industry-driven initiatives building vital middleware and preparing standards to lay the foundations for the next generation of products, systems, appliances and services. Our programme results in real product innovation that boosts European competitiveness in a wide range of industries. Specifically, we play a key role in crucial application domains where software dominates, such as aerospace, automotive, consumer electronics, healthcare/medical systems and telecommunications.

■ ITEA 2 projects involve complementary R&D from at least two companies in two countries. We issue annual Calls for Projects, evaluate projects and help bring research partners together. Our projects are open to partners from large industrial companies and small and medium-sized enterprises (SMEs) as well as public research institutes and universities.

EUREKA

GUARANTEE
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