HERMES

Cognitive Care and Guidance for Active Aging

A home-based and mobile device to support the user's cognitive state and prevent cognitive decline based on intelligent audio and visual processing and reasoning

Episodical Memory

HERMES Past

Prospective Memory

HERMES Future

Cognitive Training

HERMES Training

Overview

HERMES provides an integrated approach to cognitive care. This is achieved through an assistive technology that combines the functional skills of the older person to reduce age-related decline of cognitive capabilities and assist the user where necessary.

Based on intelligent audio and visual processing and reasoning, the project results in a combination of home-based and mobile devices to support the user's cognitive state and prevent cognitive decline.

HERMES will be capable of reminding users based on actively set reminders like a typical calendar. At the same time the system facilitates the episodic memory of its users by the provision of important moments. That means that the system "knows" the name of the user's appointment and can e.g. show a photo of him/her and shows the recent topics of their conversation.

Analysis of User Needs

The system has to deal with some stringent requirements and constraints associated with building context-aware applications for elderly users.

Speech processing applications and speech based emotion detection require customization to the peculiarities of elderly speech.

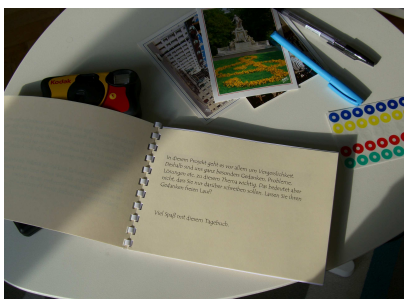
Also, a number of usability issues are raised, given that elderly people are not accustomed to using devices and context-aware applications.

A systematic and complete resolution of these important issues asks for a thorough and consistent understanding of end-user requirements, which is in progress in the scope of the first eight months of the HERMES project.

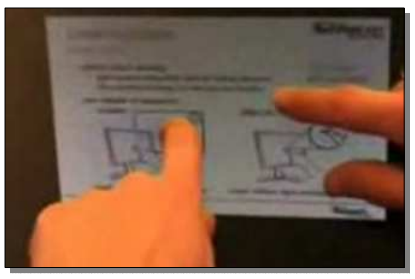
Technical Approach

HERMES' research challenges require profound research and development in areas such as image and video content processing, including visual pattern recognition, automatic speech recognition, speech analytics, speech data retrieval, emotion detection, text-to-speech synthesis, coding, and noise cancellation.

All the technical work is driven through user-centered design, ensuring that the user is always at the heart of all design decisions. A detailed user analysis provides the geriatric, user-based underpinning of the project



User Requirements: 'Probe' Package



Speech and touch displays for interaction

Lab test environment

Consortium Members:

CURE, Austria
INGEMA Foundation, Spain
IBM Haifa Research Lab, Israel
University of Bradford, UK
Athens Information Technology, Greece
TXT E-Solutions, Italy

Project duration:
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End: December 31st, 2010

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cure
center for usability research & engineering