The EasyReach Graphical User Interface

The EasyReach Project's development has always followed a user-centered design approach, providing significant guidance for particularly sensible issues.
All the EasyReach ingredients combine to create an application that aims at limiting the isolation of the elderly users by encouraging the communication between a user constrained to stay at home and her/his network of friends. EasyReach allows to:
✓ create social contents (e.g., audio and video messages, etc.) by means of the camera-equipped EasyReach remote control
✓ manage such contents by means of a Graphical User Interface specifically tailored to create an immediate and comfortable interactive environment.

The EasyReach interface is composed of two main structures:
✓ **t**he frame, which is the static part of the environment and is composed of the contact bar (on the bottom), the thematic groups bar (on the left) and the commands bar (on the right).
✓ **t**he Information Area (at the center of the screen), whose contents are dynamically modified according to the user's actions.

The EasyReach Consortium

Eight Partners from three countries : Italy (University Bicocca of Milano, CNR - Consiglio Nazionale delle Ricerche, Fondazione Ugo Bordoni, FIMI S.r.l., Federazione Nazionale Pensionati CISL), Germany (University of Potsdam) and Greece (Center for Research and Technology, iKnowHow) - *Coordinator: University Bicocca of Milano*.
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For more information, please visit: http://www.easyreach-project.eu/

MINISTERO DELL'ISTRUZIONE, DELL'UNIVERSITÀ E DELLA RICERCA

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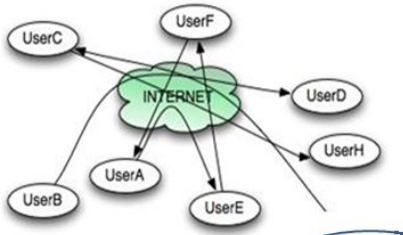
Fostering social interactions of home-bound and less educated elderly people

What is EasyReach?

The EasyReach project is funded under the second call of Ambient Assisted Living (AAL) Joint Programme. The project aims at providing easy access to ICT-based technological solutions to elderly users. For that purpose, the EasyReach system employs state-of-the art technologies that ensure easy access to an ad-hoc social network that is particularly tailored on the requirements and preferences of a pre-digital divide user basin. To facilitate the system's utilization and acceptance, the EasyReach solution is based on the most common appliance in the world: the TV set.



In particular, the EasyReach project is to support the following social interaction services:

✓ Organizing groups of already known people, including relatives and friends
✓ Creating groups of people that care for a certain topic (discussion)
✓ Organizing "interface" groups with existing organizations, e.g., a church
✓ Organizing help sessions where a skilled user can help or train other users

EasyReach is an IT-based "active" interface between people

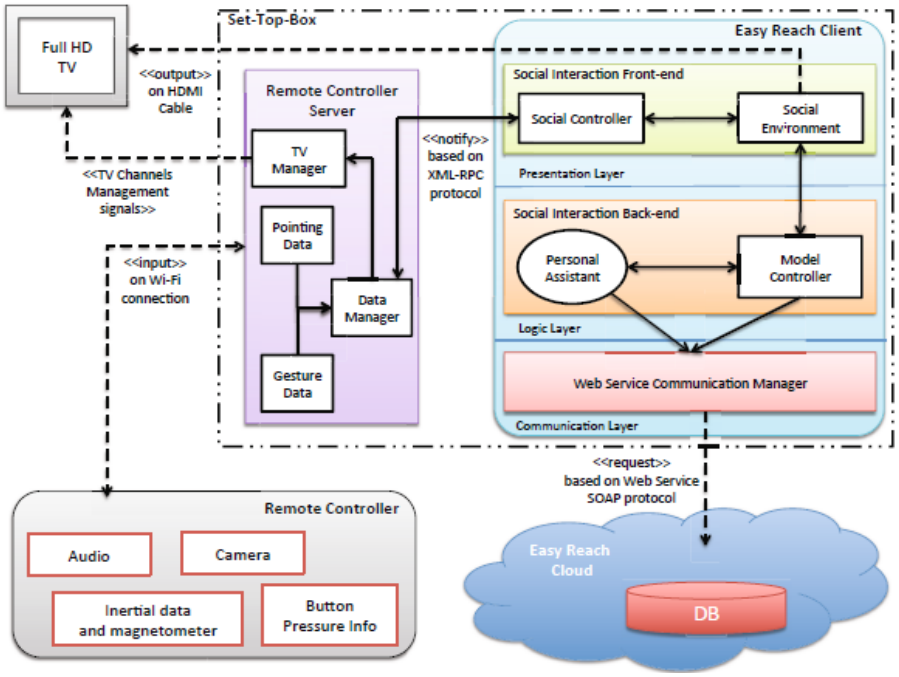
AAL AMBIENT ASSISTED LIVING

The EasyReach Architecture

The EasyReach system employs the TV set as the main user interface and is composed of two main hardware elements: **(i)** a Set Top Box (STB) that allows the user to access the system functionalities and join the EasyReach Network and **(ii)** the EasyReach specialized Remote Control, which is based on gesture-recognition capabilities. The STB hosts the remote control server, which is the interface between the remote control and the TV, and the EasyReach client. The Easy Reach Client contains the software that implements:

✓ the Social Interaction Front-end, which creates an elderly user-friendly EasyReach Graphical User Interface
✓ the Social Interaction Back-end, which offers proactive services to stimulate the users (e.g., the Personal Assistant)
✓ the web service-based connection to the EasyReach Cloud.

The EasyReach Cloud realizes the EasyReach user network and its main role is to abstract the data localization, thus masking the possible data fragmentation and ensuring a proper service availability.



The EasyReach Hardware Components

EasyReach Set Top Box: A small system with big entertainment power.
✓ i3 Intel processor
✓ 4 GB of memory
✓ 250 GB hard drive
✓ wireless support and Ethernet connections
✓ dedicated HD graphics processor (Intel HD 2000)

The remote control includes:
✓ three dimensional inertial unit
✓ camera
✓ microphone
✓ simplified button layout
✓ rechargeable battery

The EasyReach Proactive Functionalities

The EasyReach System offers a number of "intelligent" functionalities provided by AI-based specialized software components, such as the Personal Assistant and the Daily Agenda. Such functionalities are:

✓ The management of the local knowledge base of user-related information, such as the user's interests, preferences, etc. (Personal Assistant)
✓ The automatic suggestion of possible interactions with other users and/or groups that share common interests, thus encouraging the socialization among EasyReach users (Personal Assistant)
✓ Providing proactive support for the user's daily life by generating on-line notifications relatively to the user's commitments (Daily Agenda)

Logic-based representation and reasoning engine based on ASP

$$\dfrac{\dfrac{p \rightarrow (q \rightarrow r) \quad \dfrac{[p \wedge q]}{p} \wedge_{e1}}{q \rightarrow r} \rightarrow_e \quad \dfrac{[p \wedge q]}{q} \wedge_{e2}}{\dfrac{r}{p \wedge q \rightarrow r} \rightarrow_i} \rightarrow_e$$

Personal Assistant

Timeline-based representation and reasoning engine

Daily Agenda