D7.1 Analysis of the existing standards and regulations

Contract no   AAL-2009-2-068

Start date of project   24/02/2012

Due date of deliverable   T24

Completion date of deliverable   March 2014

Lead partner for deliverable   BME

Type of version   v1.3

NATURE OF THE DELIVERABLE		
R	Report	**X**
P	Prototype	
D	Demonstrator	

	Project co-funded by the European Commission within the AAL Program, call 2	
	Dissemination Level	
PU	Public	
PP	Restricted to other programme participants (including AALA)	X
RE	Restricted to a group specified by the consortium (including AALA)	
CO	Confidential, only for members of the consortium (including AALA)	

Document History

Issue Date	Version	Change Made / Reason for this Issue
01/03/2014	V1.3	First version to review
10/10/2014	V1.3	Review of the document by BZN
24/10/2015	V1.3	Corrected based on the review, by BME

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Motivation

The Paelife aim is to focus on AAL issues in the ICT domain (particularly social interactions) and specify the requirement of elderly people with an extension to available recommendations and standards. We therefore investigated the available ISO standards related to the project.

Introduction and goal of the deliverable

One of the goals of the Paelife project is to contribute to standardization for elderly people. Our proposal is to analyze and extend available human-centered design standards for elderly usage. This standardization document starts by presenting the PLA – the communication system designed in the PaeLife project. Furthermore, the document presents the state of the art of user interaction standardization related to the PaeLife project.

In the research, design and service definition work package of the PaeLife project the end users were deeply involved, therefore the PLA user interaction model will be based on end user needs. We have to synchronize the recommendations of the standards and the end user needs emerged during the project. End user usability and usefulness tests are ongoing now, so this version of this document is based on preliminary results, and our main goal was to focus on the possible extension and improvement topics of existing standards.

General presentation of PLA

The Personal Life Assistant (PLA) is a desktop, tablet and mobile-based platform, supported by cloud-hosted services that allows senior users easy access to a set of services of fundamental relevance in today's digital society. These services included, but are not limited to email, calendar, weather forecast, social networks (Facebook and Twitter). The platform allows users to easily interact with technology through multiple input modalities, such as touch, gesture and speech (ASR), besides the traditional keyboard and mouse. The output can be displayed on-screen or through speech output (TTS). These modalities are integrated in a seamless way, increasing the overall platform usability.

It is not obvious how to design user interfaces integrating multiple input and output modalities in one application especially for elderly end users. Each modality must be examined as standalone modality but moreover combined tests are essential as well, because if the user can use more modality in parallel the result must be unambiguous. A further dimension of the research is the possibility of multiple output devices. The screen of the tablet and the TV can present the same information as well.

State-of-the art standards for seniors

By the time of the Paelife project proposal, ISO 13407:1999 was the most recent ISO standard in the domain of the interaction of human with computers. Originally the ISO 13407:1999 standard deals with human-centred design processes for interactive systems. However, since then the ISO 13407:1999 has been revised technically and replaced by an updated standard: ISO 9241-210:2010. This latter has been created as a larger general standard (ISO 9241) having the title *Ergonomic*

requirements for office work with visual display terminals (VDTs). Part 210 deals with general computer ergonomics including design, planning, implementation and evaluation of systems for human. The changes between the 1999 and 2010 include the following: the role of iteration in the whole design process has been clarified; it has been emphasized that human-centred methods can be used throughout the system life cycle; design activities are further explained; and the principles of human-centred design are clarified.

There seems to be no CEN and ITU standard in this field.

However, there are several W3C recommendations, guidelines and articles relating to the needs of older people with Web accessibility needs due to ageing. Here, (e.g. in W3C-WAI-AGE) there is a definition of the people belonging to the elderly group. The document contains related materials about how older people use the web and which age-related limitations might occur during web browsing. Several guidelines are introduced to design and create websites that older people can use easily as well. There are studies about older users Web behaviors, about how to train older adults to use ICT techniques and general usability studies involving elderly people are also included. It seems that W3C-WAI-AGE is a detailed and complete material that deals with the needs of elderly people, although mainly for web usage and not specifically for the social interactions of elderly.

How to improve state-of-the art standards

It was included in the Paelife project proposal to investigate and analyze existing standard in the domain of the interaction of elderly people with computers / machines, and to further improve the available standards if necessary. During our analysis and investigation we found that although ISO 9241-210:2010 has been created as a general standard for human and not specific for young, middle-aged or elderly, it can be applied for elderly usage without significant modifications.

Several examples for suggested modifications of ISO 9241-210:2010 for elderly are:

1. it could be added to the 'Rationale for adopting design' part to improve the quality of systems with:
    a. health issues of elderly people
    b. making social interactions easier for elderly
2. the 'Principles of human-centred design' part could be extended with
    a. the needs of elderly people, including
        i. larger screens
        ii. more loud sound
        iii. simpler interfaces
        iv. slower animations
        v. …
    b. the difference between elderly familiar with computers vs. 'computer analphabets'
3. in 4.3, elderly people shall be involved throughout the whole design and development process
4. in 4.7, the design team could be extended with
    a. psychologists
    b. caretakers / nurses for elderly

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c. family members of elderly

Summary

We found that during Paelife project small modifications and recommendations can be done to extend available standards. However, this project alone is not enough to run a full standardization process and only the initiation can be done. By contacting other AAL projects and the AAL association, a standard that is specific for the social interactions of elderly can be done in the long term. Any standard-related output of Paelife is planned to be given to the AAL association in order to be able to continue the standardization process through other AAL projects.

References

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