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Author(s):	Albena Mihovska, Sofoklis Kyriazakos
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Dissemination Level

PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Abstract:

This deliverable reports about the 1st project workshop that was held on May 13, 2014 in Aalborg, Denmark.

Keyword list: eWALL workshop, GWS 2014

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1 Executive Summary

This deliverable 7.6.1 describes the 1st project workshop held as a one-day event on May 13, 2014 in Aalborg, Denmark, and part of the eWALL dissemination strategy. The workshop was under the theme “TOWARDS SUPPORT SYSTEMS FOR INDEPENDENT LIVING: TECHNOLOGY AND USER PERSPECTIVES” and featured interactive presentations and discussions involving the project consortium and end user audience.

Experienced professionals and researchers in the field discussed the innovative approaches and pinpointed the existing gaps in the field with the goal to contribute to the development of a roadmap for enhanced Activities of Daily Living (ADL). The workshop stimulated open discussions and exchange of participants’ personal experience and insights.

2 Summary of Workshop

The notion of Activities of Daily Living (ADL) refers to the everyday essential activities a person performs with the goal of well-being. The extent, to which a person is able to perform these activities indicates the person's functional status and it becomes a particularly relevant measure for older adults. The latest developments in the fields of sensor networks (both wired and wireless) and intelligent reasoning have allowed enhanced ADL support inside user's home involving healthcare professionals, hospitals, end-user organizations, local councils and the families of the persons in need of ADL support. Despite the fact that the domain is relatively new and the market not fully developed, there is a substantial number of projects and commercial services that provide ADL support utilizing cutting edge technologies and users' personal devices.

The 1st eWALL workshop aimed to provide a discussion framework towards enhanced ADL support for older adults with mild to moderate cognitive impairments, physical impairments (in particular COPD) and healthy individuals. The main focus of the workshop was on:

- State of the Art, namely the current landscape of assisted living projects, their innovative approaches and drawbacks.
- Interaction and service design concepts that view ADL support systems from a user's perspective.
- Technology back-end such as wearable and non-wearable sensors monitoring users' vital signs, domotics systems monitoring critical in-home parameters, notification systems sending relevant data to medical experts or family members, etc.
- Independent reasoning based on novel data acquisition, data gathering and data mining techniques.

2.1 *Agenda*

13:00-13:30: Introduction to ICT for independent living and the eWALL project

- Welcome and Introduction
- Keynote speech (Dr. Horst Kraemmer)
- Introduction to the eWALL project (Prof. Sofoklis Kyriazakos)

13:30-15:00: Landscape of current projects and user-centered design

- User perspective of activities of daily living (Stine Veje Hangaard)
- Landscape of assisted living projects (Angeliki Angeletou)
- Towards an easy-to-use application for healthcare monitoring and coaching, in the home environment: eWall principles of user experience (Cristian Bara)
- Privacy and legal aspects of monitoring solutions (Matthias Pocs)

15:30-16:30 Technology aspects for independent living

- Automatic caring for the needs of elderly: eWALL sensors and signal processing (Dr. Aristodemos Pneumatikakis)
- Sensor-based improved ADL (Prof. Octavian Fratu)
- RF-based tracking of humans (Prof. Liljana Gavrilovska)
- Integration, optimization and verification of eWALL (Prof. Dina Simunic)

16:30-17:30 Interactive session

- Parallel working groups on different aspects of the workshop

2.2 *Interactive session on user-related aspects*

In the session regarding the user-related aspects of eWALL, we acknowledged first of all, that assisted living technology can be intimidating for older adults. Unusual high-tech devices installed in their living-rooms can act as a manifestation of their special needs and make them feel exposed in the eyes of relatives, friends or acquaintances who visit their home. Therefore, the user should have the choice to switch off the system when she wishes to. An ethical question spurs out of this choice: who decides? In the case, of a cognitively healthy individual, we can rely on her judgement for turning the system off/on when needed. But in case of a person with cognitive impairments, the responsibility and the choice is automatically transferred to the closest caregiver (e.g. family member)? The question remains open to one's interpretation and requires further ethical investigation.

Moreover, we discussed about how older adults appreciate when their caregivers “keep an eye on them” and how we can possibly personalize monitoring with messages from caregivers who can reassure older users that “their pressure was a bit higher yesterday, but don't worry, we will have a look at it tomorrow”. Monitoring older adults' activities of daily living (ADL) can produce a ton of notifications and alerts about what user did and what not. Notifications can result in making the user even more reluctant to perform certain activities, simply because they are reminders of what she should be doing and this can raise guilt feelings. We concluded that a lot of notifications can be replaced by motivational cues, inspiration towards certain well-being goals and encouragement. For

example, instead of reminding the user that he should increase his water intake, the system could display short “advertisements“ in the morning manifesting the importance of water in our body: “over 60% of our body is water. Water flushes body waste, delivers oxygen and is the major component of all our organs. Keep a jug of water always next to you”.

An additional consideration is how to ensure that cognitively impaired people will be able to use the system and interact with the interface for their benefit. We concluded that the interface and the system itself should be adapted to user’s needs, wishes and limitations. In other words, if user is able and wishes to handle more and more complex features, allow her to do so, whereas if the user wish-es as little technology as possible and is cognitively impaired, provide her with the basic setup, with minimal or no interface at all (in this case, caregivers take care of interacting, customizing and get-ting information from the system).

As a final remark, we considered additional speech-based interfaces as a possible solution to the problem of customizing interfaces for different users. Indeed, it sounds like a viable solution as language is the most intuitive interface for humans and technology is becoming more and more robust and reliable in responding to simple commands such as “call my daughter”.

Fig. 1 shows the snapshot of the poster used for noting down the points of the participants in the interactive discussions in order to make a relevant conclusion of the session.

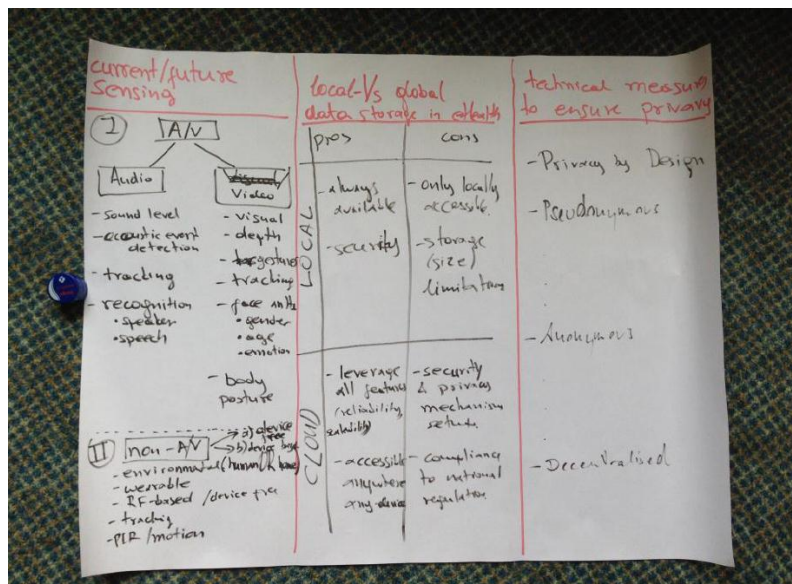


Fig. 1 Poster with notes from interactive session.

2.3 Interactive Technical Session

At the interactive technical session we discussed sensing, data storage and privacy in the caring home environment.

Regarding sensing, we focussed on A/V and traditional (non-AV) sensing. The aim of AV sensing is to use stereo sound, visual and depth data streams in order to obtain a wide range of information, ranging from simple sound level, to elaborate acoustic event detection, dialogue detection (speaker turns), recognition of speech, speaker, or face (gauging age, gender or emotion), gesture understanding, body and face tracking and body posture. Non-AV sensing is centred around the house

(in-house environment and air quality, domotics and human presence) and the body (utilising wearable sensors for motion/activity, positioning and physical condition).

Regarding metadata storage we considered the pros and cons of local vs. global (cloud) storage. Local storage allows for metadata being always accessible and is an inherently secure option. On the other hand locality does not allow combination of metadata from multiple homes to get global modes of behaviour, or simply allow our users to compare/compete with friends and people of similar conditions. And one should not underestimate the local storage requirements for long term operation. Cloud storage allows ubiquitous and scalable metadata, but on the other hand raises privacy concerns and necessitates compliance to national regulations. We are aiming at a hybrid approach, where there is short-term local storage and forwarding to the cloud. Time-critical applications receive their metadata from the home database, while the others receive combined metadata from the cloud.

Regarding privacy, we had an introductory session on the technical measures that can ensure privacy, centred around privacy-by-design. Pseudo-anonymous, anonymous and decentralised solutions were sketched, while any decisions were deferred to the following months.

Photos and detailed program are available on the project Website: <http://ewallproject.eu/papers-and-presentations>.

3 2nd eWALL Workshop

A 2nd eWALL workshop is envisioned in the second project year. The consortium has submitted a proposal for a eWALL related workshop as part of the IEEE ICC 2015 conference (<http://icc2015.ieee-icc.org/>) to be held on June 8-12, 2015 in London, UK. The proposal has been accepted and currently preparation of the workshop program is ongoing.