

ABC1 Ambient Assistant Living – AAL-project WEITBLICK

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Time: Monday, 13.09.2010

Location: Humboldt-Building, Lecture Room 202

Chairman: F. Roß (DE-Ilmenau)

1:30 p.m.	St. Lutherdt, K. Lienert, C. Stiller, F. Roß, Ch. Ament, H. Witte (DE-Ilmenau)
<p>WEITBLICK – An Assistance System for Elderly in User’s Appreciation</p> <p>To successfully develop an assistance system for a certain user group, it is important to identify the user's needs at an early stage of development. This is the important the more heterogeneous the user group is composed of. An example for this is the development process of the public-funded project WEITBLICK. This paper describes the current activities of the project to accompany the technical development. A requirements analysis, divided in three consecutive parts, was held at the very beginning of the project. It comprehended of expert interviews, focus groups and a comprehensive questionnaire. Resulting of these analyses the requirements of system components, required services and offers for the users and design requirements for hard- and software components were derived and given to the project partners. Jointly with this stage of development a demonstrator system was designed. With this it is feasible to test the user’s experience and understanding of menus, navigational structures and different input strategies. To support the users it was realized that a special input device is congruently designed to the graphic user interface. The input device consists of four colors which are the same the users need to use for navigation thru the GUI. To evaluate the results of the whole development process some scenarios will be used which also were set up with results of the beginning analyses. For these evaluations were defined three different groups of users: “younger”, “middle” and “very old” seniors because the analyses showed that there are differences between them in matters of their expectance of the system and its components. Also in matters of desired services, problems in use of pushbutton-based input devices and additional system components for monitoring of vital functions these groups are differing. The survey had shown the general interest of potential users to have and use such a system, but it will not only up to the user-friendly developed system but also up to a user-friendly concept of operating. Most of the potential users will spend no or less money to have such a system what is a high requirement to future management activities.</p>	

A Hybrid Recommender System for Information Brokering within WEITBLICK

With this paper the concept for individualized information brokering within WEITBLICK, an assistance system developed in a public founded research project, is introduced. The aim of the project WEITBLICK is to enable elderly people to a longer self-fulfilling life in their own homes by providing information about health, care and leisure activities over one comprehensive source. To filter the large amount of information and services to the needs of the user, a recommender system will be used. The design of the recommender system follows a three tier structure: The first tier is used to generate candidate services depending on the user's wish, which is reproduced from the settings provided by the user over the UI. The wish might contain constraints about content, time and location, but also about personal interests and physical capabilities. With this approach it is possible to offer a wide range of different services while still be able to present only recommendations currently adequate to the user's needs. The second tier contains different single recommender system, which generate predictions of how useful the candidates are. Here several different approaches can be implemented in parallel, for instance demographic filtering, content-based filtering and collaborative filtering. All of these approaches are known to work well in different situations, while not working that well when sufficient information is lacking. Furthermore the generation of recommendations based on geographic relations seems to be promising for the described task, so according enhancements to the aforementioned approaches will also be utilized. Finally, in the third layer, the results of the recommender systems from the second layer are combined into a single prediction of the candidate's usefulness. Here, different metrics for the quality of the available data about the user and the candidates can be used to weight the results of the single recommender systems. Thereby insufficiencies from the one or the other single recommender can be counterbalanced.

Design and Development of a Communication Middleware for Ambient Assisted Living Environments

The changing demography requires new kinds of support for elderly people. Technical assistance systems could allow (aged) people to stay longer in well-known neighbourhoods. While utilizing familiar media usage habits, the acceptance rate of a technical assistance system will be increased. Therefore, as many as possible potential communication methods between users and the assistance system are required. This paper describes an assistance system which get designed, developed and deployed within the research project called "WEITBLICK". A Server represents the central system component with data and information management. Here, information about user abilities, their usage history and offered service descriptions are stored in different profiles. This key module is linked with a recommender system, which continuously analyses the present data and link services to users and vice versa according to the profiles and abilities. Prospective users should be able to access the assistance system through technical devices or "human interfaces" like e.g. a call-centre agent. A communication middleware, located between server and clients, which will be discussed in this paper, has the aim to supplying a homogeneous communication interface in a heterogeneous infrastructure. So it's possible to utilise a wide range of different user device and many different communication technologies like cellular (2G/3G), DSL or broadcast media (DVB, DAB). Each communication technology has its unique properties. A communication middleware is helping to simplify assistance system design, especially when a consistent message exchange over many different communication technologies should occur. While designing such a communication middleware the following goals should be considered: - Providing a flexible and uniform communication infrastructure. - Smart selecting of appropriate communication technology for each communication session. - Communication technologies should be interchangeable and independent (as far as possible). The communication middleware implementation is based on JMS (Java Message Service) and it is scheduled to be done by the end of this year. The paper will further describe general challenges and it will show the approaches and development concepts which gets utilized.

2:30 p.m.	M. Oswald (DE-Erfurt)
<p>WEITBLICK – An Information Based Server Platform for AAL-services</p> <p>In the project WEITBLICK Kirchhoff Datensysteme Services concentrates on the research and development of an information based server platform for mediation social services, social contacts and technical assistance functions.</p> <p>Central functions such as data collection, data delivery, the communication interfaces, and self-management of the system are the basic modules of this platform. Any content functions can be integrated by using these basic modules. Defined processes allow interaction with each other function module and with the user. The primary visualization and communication is done via a generic web interface for different types of content, user groups and interface devices. These universal interfaces allow the use of functions and contents by any device that is equipped with web browser functionality. This allows maximum mobility.</p> <p>Developing the server platform attention will be paid to independence from the operating system and from the SQL database type. This allows optimal adaptation to changing environments and performance demands. Intrinsic safety of the platform by controlling the built-in function modules and data security by tampering protection and access protection is automatically provided by the designed system. This is done via a complex set of rules, the compliance of which is monitored by the basic components. These and other measures are supposed to ensure safe and continuous operation as well as compliance with the legal requirements.</p> <p>At the end of the project KDS will take over the hosting of the platform and the further commercialization.</p>	
2:50 – 3:10 p.m. Coffee break	
3:10 p.m.	
Demonstrations of the project WEITBLICK	
3:30 p.m.	
Demonstrations of the project WEITBLICK	
End of Lecture Session	