WayFiS: From Geospatial Public Transport Information to Way Finding Seniors

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The European WayFiS project (2011-2103) launched in the Ambient Assisted Living program aims at improving the capability of seniors to plan, manage and execute travel and transportation projects at their own discretion by solving the problems elderly people cope with when trying to move in unknown indoor and outdoor environments, thus enabling them to take part in the self-serve society. The problems that are approached are mainly related to the access to information, sight problems, walking and/or motor abilities, cognitive abilities, associated health limitations, scarce availability of proper information regarding transport adaptations, stations/stops accessibilities, and so on. The target group of the project constitutes the elderly people older than 70 years old and not familiar with ICT and with technologies in general, usually living alone and suffering from health limitations due to aging. The resulting WayFiS services will be tested at target groups in Spain, Hungary and possibly Switzerland.

The innovation of WayFiS is the development of a personalized way finding services for elderly people, considering both public transport and paths by foot, and focused on the objective of making the elderly feel healthy-well and safe and that takes into account their specific limitations and healthy habits, with the challenge of aggregating a huge amount of information from different sources and including them into one mobile service with an intuitive interface (e.g., voice-touch-write). The WayFiS is the first route planning service for elderly people that considers both the pedestrian and public transportation mobility issues and that is based on a wide range of personalization features, building up user profiles that include the health state of the person and his common behaviors and needs. WayFiS also includes localization and positioning features for both indoor and outdoor environments that will guide the elderly along complex paths.

The success of WayFiS service will largely depend on use and usability of, amongst the other sources of information, public transport maps, web-based and mobile services. To ensure its success, we will start the development of the project by defining detailed user scenarios, which will depend on the target population's characteristics and needs and hence be specific for each participating country. Based on the defined scenarios, we will design the system and its services by delineating the WayFiS architecture and its components, which furthermore will serve as a basis for the system implementation. We already remark that availability of public transport information is very different in each participating country, which will to a large extend influence the way the system is deployed there. With respect to deployment platform, due to its openness and flexibility, we define an Android operating system as a target system for WayFiS deployment.

The evaluation of the WayFiS will be done with its end-users and will include quantitative as well as qualitative evaluation procedures. Namely, based on measurements-based performance evaluation methods we will quantify WayFiS service speed, accuracy, dependability and scalability for a real-time, continuous navigation of seniors in real life environments. Moreover, we will employ evaluation methods from human computer interaction domain in order to evaluate WayFiS usability, interface design and effectiveness of service interactions on mobile devices. These methods will be employed at least in two stages, i.e., involving first young and healthy student volunteers to get their initial feedback, and then the target end-users at the later stage of the system development.