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Adaptation and customization of services for the elderly

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Information and communication technologies may be used to improve the quality of life of elderly people. However, the use of such techniques may be challenging for the elderly. In this paper, we present our experience on the deployment and experimentation of ICT technologies for older people that lead us to focus our work on adaptation.

Methods

Since 2001, the SID research group of Telecom Bretagne works on proposing a service-oriented platform intended to help people with disabilities to improve their quality of life. The platform is composed of a set of servers and interaction devices to access available services. These devices have been advocated by the end users themselves and concern a TV set and its remote control device. The platform [1] was intended to be deployed and evaluated by seniors in a retirement home in the district of Bellevue in Brest by June 2009. The district of Bellevue was chosen due to strong relationships between the SID team and the City Hall, associations, and social services. In order to identify services to be developed, a team of sociologists interviewed the technical staff, elderly people, caregivers of the retirement home, and local authorities during six months. Four types of services have been identified: (i) communication with the social network of the elderly; (ii) infotainment services, and in particular accessing local news; (iii) management of daily activities; (iv) access to individual games or multi-players.

Results and discussion

Early returns showed the difficulties experienced by some seniors to access services. For example, seniors who suffer from muscular problems have great difficulties in using the first proposed remote control device which was not stable enough. The visually impaired people cannot read text on the television. So a text to speech system was added to the platform. Nevertheless, the adaptation of services for each person need seems impossible in the context of a deployment on a larger scale.

Therefore, we are currently working in a new project, SIGAAL, (Special Interest Group on Ambient Assisted Living), supported by French State ("*Direction Générale des Entreprises*"). The project brings together 11 partners and will focus on adaptation of services. It allows for low cost devices helping on maintaining or even strengthen social ties and detecting incipient vulnerabilities of older people at home. In this sense, work is underway on changing size and font of characters in real time to address each individual reader and to adapt to her current capabilities. We are also working on an expressive text to speech system that is able to vocalize text using the voice of the person with whom one exchange messages. Finally, as adapting services depends on elderly capabilities as well as the execution environment where services execute, developing each configuration is not a satisfying solution. Moreover, changing from one configuration to another may be challenging depending on the changes to be performed. Therefore, we intend to propose a methodology for automating the development of adaptation mechanisms based on the work proposed by [2] and [3].

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