D. Guénaux, V. Ly, F. Hervieu. UbiQuiet: fighting loneliness by analysing environment and habits as a whole. Gerontechnology 2009;8(2):113; doi: 10.4017/gt.2009.08.02.008.00 In 1950, 12% of the population in developed countries was aged 60+ compared to 19% in 1998 and possibly 28% in 2025[1]. Meanwhile, the number of health professionals and home caregivers is lowering. In France, there are 1,100,000 persons older than 85 years. In 2015, it will be 1,900,000[2]. The number of Alzheimer's patients is estimated at 650,000[3]. These figures reveal that older people will live longer, many of them alone, and that monitoring their home and habits may become a necessity. UbiQuiet is a non-intrusive telecare solution that aims at offering independent living to its users with little or no assistance from a caregiver[3,4]. This is achieved through (i) analysis of the user's environment to catch situations of immediate danger, (ii) detection of early symptoms of cognitive deficiency, and (iii) creation of a new communication medium between users and their relatives. **Technical description** Inside the home of a user, the system consists of a network of wireless environmental sensors measuring movements in a room, temperature, door opening, etc.. A stream of sensor data is sent continuously to the data centre where it is analysed anonymously. From this analysis, alerts can be generated according to rules defined previously. These rules are based on different kinds of situations: single events that are interpreted as dangerous like a fall or a gas leak, and sets of related events that indicate a change of habit by the user. The alert is then sent to the telecare staff in charge of taking the adequate measures according to the events that generated the alert. Thanks to feedback of the care providers, the rules can also evolve dynamically to better suit each individual's different behaviour. After a learning period of a few days, the system becomes less intrusive as specific situations are identified as false alarms. Rules can be created by user's physician, occupational therapist or relatives through an intuitive graphical user interface. For example, the physician may add rules that remind the user to take his/her medicine at given hours or check the duration of resting time each month, while the relatives can define a time period when the system temporarily shuts down because the user has to leave the home for a weekly appointment or so. While UbiQuiet gives its users the possibility to live independently, it also provides an easy-to-use communication means for the older person to keep in touch with her/his relatives, even if they are far away. This is realized with a modem presented as a simple box, provided with smart features such as text-to-speech or voice recording. Thus, a text message sent by a relative will be vocalized on the box; then, pressing a button on the box allows the user to acknowledge receipt of the message and provide a response. Finally, a web portal displaying the results of the user's environment analysis is accessible to the relatives and physicians so that they can get an overview of the user's status – no detailed information- and detect early signs of cognitive deficiency with the alert history. **User studies** In 2009, UbiQuiet will be evaluated in two user populations by Pole Allongement de la vie Charles Foix (Paris, France): (i) Alzheimer patients and (ii) older people living alone at home.

References
1. Velkoff V, Lawson A. Gender and Aging: Caregiving. International Briefing. US Department of commerce; 1998
2. Bas P. Rapport du Ministère délégué à la sécurité sociale, aux personnes âgées, aux personnes handicapées et à leur famille. Plan Solidarité – Grand Age. Paris: Ministère de Solidarité; 2006
3. Rialle V. Technologies nouvelles susceptibles d'améliorer les pratiques gérontologiques et la vie quotidienne des malades âgés et de leur famille. Paris: Rapport pour le Ministère de la Santé et des Solidarités, 2007
4. Poulain A, Piovan R, de Varax A, Letellier M. Etude prospective sur les technologies pour la santé et pour l'autonomie. Rapport Alcimed remis à l'ANR et à la CNSA; 2007

A smart modem as a lamp