A. Anfosso, M. Bourdeau. Benefit of home monitoring technology for the ageing population. Gerontechnology 2009;8(3):180; doi: 10.4017/gt.2009.08.03.004.00 Activity monitoring is important for the detection of deviating situations in dwellings especially for aging people living alone. However, even if the detection of accidents will remain necessary, the next decade requests the prevention of frailty by offering the maximum of security for people wishing to age quietly in their home. Most aging persons wish to finish their lives in their current dwelling and this requirement should become a key stone for housing policies in the aging society with its lack of trained staff and nursing homes capacity. How can we protect the daily lives of older persons, as well as help formal and informal carers through the provision of efficient services?

Technical description Two main principles to monitor human activity exist: wearable devices (accelerometer sensors, motion sensors), and environment sensors embedded in the home[1]. Domestic risks prevention, daily activity assistance and detection of drifting daily activities are the three main services. Prevention may require a fast decision (warning the dweller, the formal or the informal carer, or taking control of a piece of equipment). It may be linked to a simple oblivion of the dweller: electric equipments stayed on (stove, oven), taps remained open (washbowl, sink, shower). Daily activity assistance may provide advice: too cold, too hot, don't forget to drink or eat. Some detections may be linked to the early diagnosis of cognitive decline as far as they can be interpreted as incoherent behaviour: heating is on while outside temperature is hot, cooling is on while outside temperature is cold, going outside directly from the bed (without dressing, having a bath, having a meal) or repetition of simple activities in a short period. Daily activity coaching for people with cognitive impairment such as loss of memory (e.g. Alzheimer) rests on comparing normal daily activity provided by automatic learning activity system or based on a personal activity memory board (manually initialized) with current activity realized. In case of deviations, the coaching system may remind the dweller (for example on the TV) the list of the daily activities already performed and the list of activities still to be done. Based on the assumption that the activity profile is unique and stationary for each dweller, the drifting of daily activities like cooking, resting, having a bath/shower, watching television, phoning, taking a meal, moving in the apartment, sitting on the sofa/chair, dishwashing, could be the beginning of frailty. At present there is no formal diagnosis linked to the drifting of daily activity.

User studies The GERHOME project (*Figure 1*) has successfully installed this technology in a standard 2-room apartment (facility laboratory) with 14 volunteers, and will soon start in-vivo tests in four normal apartments[2]. However, we need to be thoughtful to privacy aspects: protection of the data collected by such a system especially regarding the use to be made from this information.

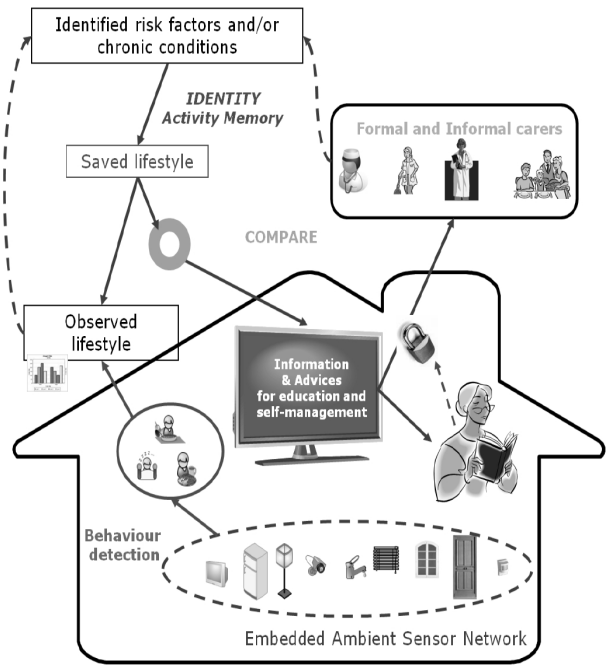

Figure 1. Architecture of the GERHOME project

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2. http://gerhome.cstb.fr; retrieved: June 14, 2009

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