Purpose Assistive homes enhance safety, security and comfort of the home environment, supporting the independence and self-reliance of elderly people. In the Parma region of Northern Italy, depopulation of mountain regions has become a critical concern, so that the Province administration started a program aiming at supporting elderly "ageing at home", by exploiting ambient-assisted-living technologies (AAL) within the public social- and health-care delivery system. In this framework, we introduce the extension of the CARDEA system[1] through a set of web-based services, which make CARDEA features straightforwardly accessible through an internet connection, so that home status information can be accessed remotely and activation of home functions can be carried out. Since CARDEA also manages wearable sensors for the monitoring of vital signs or falls, the remote-communication module enables tele-monitoring and tele-rescue functionalities as well. This can be especially valuable for people living alone: by combining conventional caregiving with AAL more efficient and cost-effective services can be delivered. **Method** The overall system architecture (*Figure 1*, left) includes home sensors or actuators (S/A) access the network through the smart interface FEIM, the full configurability of which allows for high interoperability. The supervising unit embeds the decision engine, which is fully XML-configurable and can manage arbitrarily complex rules. Home events, abstracted and classified through a suitable ontology, are also logged onto a dedicated database, making them available for further processing and for exporting to the remote environment. Then, a web-server makes ambient information and the command interface accessible through the network. Any browser-enabled device (PC, touch-panel, PDA or smartphone) can thus be exploited for controlling and monitoring the home, from anywhere. The tool can have multiple applications: it can be used 'in-home' to provide remote controllers (e.g., interactive TV or PDA); it allows for remote control of the home safety status by relatives or caregivers. The supervisor is capable of autonomously recognizing hazard conditions, and to promptly react either by dispatching alarm messages (over different, redundant channels) and to proactively restore safety conditions (e.g., by stopping the water flow in case of flooding). The software interface is fully accessible and compliant with WCAG and W3C recommendations. It includes authentication procedures which enable control functionalities depending on the user's profile (home user, caregiver, technical maintenance, remote monitoring center, etc.). Finally, the web interface can be easily accessed by means of alternative communication devices, making it suitable for supporting visually or mobility-impaired users. A simple vocal-command interface has been implemented. **Results & discussion** CARDEA trials are already active: the first one has been running since 2007 at a nursing home in Neviano degli Arduini (PR). By the end of 2010, 6 facilities will be enabled in the region. Eventually, CARDEA-web will be deployed at individual homes, scattered over the province territory. Web-based services are already running active trials (*Figure 1*, right). Remote supervision and technical maintenance is currently carried out by the TAU-lab, at the University of Parma, located some tens of kilometres apart from the monitored structure.

References

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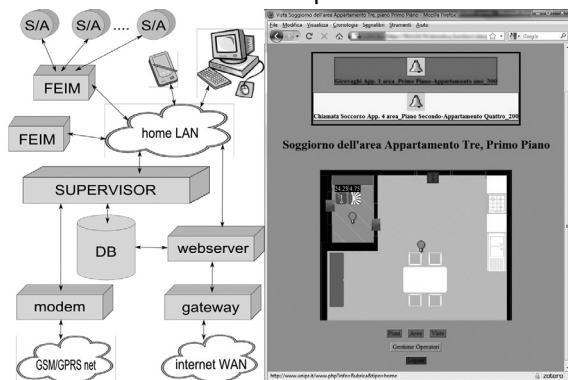E: paolo.ciampolini@unipr.it

Figure 1. Network architecture (left) and interface screenshot