

G. Bestente, M. Bazzani, A. Frisiello, A. Fiume, D. Mosso, L.M. Pernigotti. *DREAM: emergency monitoring system for the elderly*. *Gerontechnology* 2008; 7(2):72. DREAM is a system devoted to monitor both elderly behaviour and the environment where they are living in order to support them in emergency situation. It is the result of research work conducted in Piedmont by ISMB (Istituto Superiore Mario Boella) in collaboration with Politecnico di Torino. **Methods and system description** DREAM was conceived, developed and tested by an interdisciplinary team, made up of engineers, computer scientists, psychologists, biologists and physicians. The system is a prototype (is underway the technology transfer driven by Torino Wireless in the DOCUP project) based on a wireless terminal integrated into a wrist watch, designed and developed according to criteria of high usability and intended for the elderly. The wearable device detects a number of physiological measurements: skin temperature, micro and macro-movements (fingers, wrist), the heart rate of a conscious person; it is fitted with a button to send out a call manually. The base station monitors a number of environmental parameters: room temperature, humidity and luminosity. The system can automatically generate an alert if an anomalous situation occurs, i.e.: extraordinary immobility, high body temperature, critical environment parameters (e.g. high temperature and humidity); it shows when the device is being worn and monitors the battery charge level. The Service Control Centre manages the flow of calls and keeps track of answering times. The innovation lies not solely in technological research but also in the concept of the service, the system can be adapted to the context in which it is used (homes, hospitals, residential and nursing houses). It can be customised on the basis of the clinical history, the characteristics and the habits of the person wearing it. The technology and the service model have been tested both in the laboratory and in field trials taking into account feedback from the final users: elderly people, social and health workers, doctors. **Service scenarios** The components of DREAM – the wrist watch, the local base station, the service control centre, are able to generate different services: (i) at home the data acquired by the watch are transmitted by a local base station to a service control centre located in the area (via analogue modem, GSM, GPRS, ADSL). (ii) In a residential and nursing home the data acquired by the watch is collected by local base stations which provide wireless coverage to the facilities, and is transmitted to a local service control centre. Benefits for the elderly and their families: greater safety, better quality of life, optimised service time and personalised service. For social/health workers DREAM support in providing assistance, gets more information about the individual and provide a technological evolution of their work. **Results and discussion** The system and the different service models have been tested with success with more than 25 users; a larger field trial with 100 users is underway with the cooperation of ASL1, ASL2 of Turin, ASL16 of Cuneo and the Municipality of Turin.

## References

1. DANTE project (Interreg) Home Scenario (Narrow Band) with Municipality of Dogliani (CN)
2. ADITECH project (Department of Family Policies of the Piedmont Region) Nursing House Scenario with Residential Home for the Elderly of the City of Asti
3. CANTALUPA project home scenario (Wide Band) 'Pro Senectute', Centre for the Elderly of Cantalupa, Torino
4. DOCUP project home scenario (Narrow and Wide Band) on larger basis into Torino Municipality

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