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Welcome message

Dear reader,

This is the second issue of the TeleCARE News newsletter, which aims to keep a regular contact with the members of our Users Forum, and establishing a complementary channel for interaction and information dissemination.

Since the first issue, considerable progress has been achieved in TeleCARE.

After an initial phase more focused on identifying the major needs in elderly care, based on an extensive fieldwork carried out in Spain, Portugal, and UK, which was complemented by an analysis of additional statistical data from other regions, the TeleCARE software system was designed and developed.

The main component of TeleCARE is the so-called "TeleCARE Platform", which provides a generic safe infrastructure, on top of Internet, to which many service functions can be added. A pilot version of this platform is now finished and its evaluation started.

Furthermore, a number of demonstration services providing solutions for some of the most critical needs in elderly assistance were designed and implemented:

- 1- "Monitoring and intelligent assistance to elderly",
- 2- "Agenda scheduling and intelligent reminders",
- 3- "Entertainment service", e.g. games, books, movies, chat, ..., and
- 4- "Time bank" concept for mutual help, exchanging time/labour by elderly.

For the specification of these services the contributions and feedback received from the Users Forum were of vital importance.

We are now finishing the integration process, i.e. putting together all components that were developed by different partners, and a demonstrable system shall be available in early October.

After that, an evaluation phase will start. For this evaluation your contribution will be very important. Therefore we expect to get in contact with you soon in order to start a new interaction phase.

Thank you for your continued support.

The project coordinator
Prof. Luís M. Camarinha-Matos

TeleCARE

IST-2000-27607

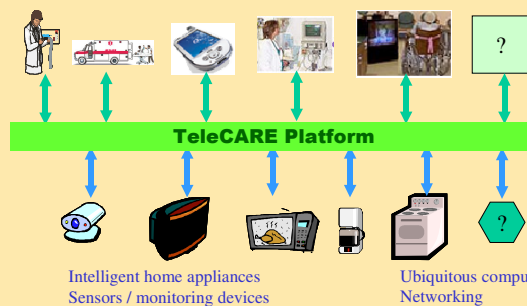
A Multi-Agent Tele-Supervision System for Elderly Care

Project funded by the European Commission



FP5/IST/Systems and Services for the Citizen Persons whit special needs (including the elderly and disabled)

Value-added services



Some fieldwork results



In order to get an accurate picture of the main needs in the elderly sector, an extensive fieldwork survey was carried out in Spain, Portugal, and UK. This fieldwork was also complemented with an analysis of published statistics from other regions. According to the results obtained through this study, the following broad user groups have been identified:

The end users:

- Relatives caring for an elderly person
- The elderly

The Clients / Companies:

- Public and private organisations managing Elderly care and leisure.
- Residential centres
- The Public Administration



As the age of persons increase, their physical and mental capacities tend to deteriorate. This loss of faculties can give rise to forgetfulness or negligence that can represent danger for their own physical integrity and for those persons living with the elderly person in question.

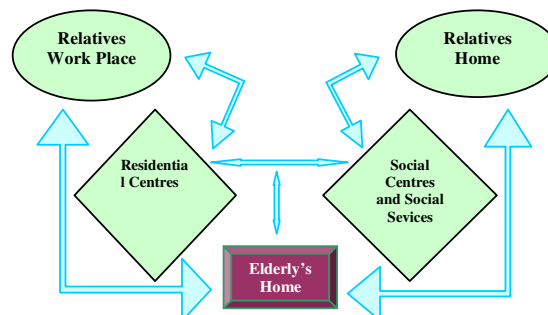
The results of the fieldwork show that among the things that the elderly forget with most frequency are:

- Forgetting to take **medication**.
- Leaving **lights** on.
- Forgetting to **flush the toilet**.
- Leaving **taps on**.
- Leaving **burners or stove on**.

Furthermore, one of the difficulties that the elderly face in their daily lives is difficulty in travelling **outside the home** for carrying out specific activities, which makes it necessary for other people to perform these tasks for them.

In this context the TeleCARE services could address some of the following problems:

- **Loneliness** is one of the most serious problems affecting the elderly population. Because of this, it would be of great interest for this group to develop applications to enrich their social lives and avoid problems of loneliness. Fieldwork data show that the elderly today hardly participate in activities relating with other people and 16% of them express dissatisfaction with their social lives. From the perspective of family members, 28% of the elderly have little or no contact with other people.
- **Interconnection between the homes of the elderly and the homes or workplaces of the family members** caring for an elderly person to provide access to loved ones. According to the survey carried out with relatives caring for an elderly person, 31% of them indicate a need to be in contact with the elderly person (either by phone or visiting them) at times when they are alone.
- **Widening the interconnection to include entities dedicated to providing services to the elderly**, such as residential centres, social centres and social services could bring potential benefits to the elderly. These interconnection applications based on new technologies would limit loneliness problems of the elderly, would avoid the need for persons caring for them to travel each time the elderly person needs assistance or company, and would permit continuous contact with the elderly without the need for physical presence.



- The results of the fieldwork also indicate the need for having **rapid and easy access to information available about social services** for the elderly as a significant percentage of the sample stated having had problems in finding information.
- Some of the other activities which could be considered are **shopping and medical appointments**. However they are not in the scope of the TeleCARE system as there are already many applications supporting these activities, or supported and managed by other organizations such as hospitals and banks.

In summary, some of the task to solve trough TeleCARE system include:

- Quality of life – Routine/Mobility/Diet/Medication Schedule/Peace of Mind
- Independence – Care Support/Self-Esteem/
- Socialisation - Loneliness/Family/Leisure
- Security – Personal Safety/Financial Security
- Care and Support – Access/Quality
- Privacy – Intrusiveness
- Work/Skills – Activities/Opportunities Undertaken
- Costs (implementation, monitoring, maintenance...).

Angel Pascual

Elderly environment related institutions

In this section some of the characteristics of elderly related Institutions, indicating how TeleCARE could solve some of the different problems that these entities suffer, are presented.

Based on the experience and the interviews carried out during the first phase of the project, the TeleCARE consortium identified the following main entities as potential target users of the TeleCARE system:

- Public and private organisations that manage care and leisure activities for the elderly
- Residential centres
- Public Administration.

Public and private organisations that manage care and leisure activities for the elderly

One of the principal needs detected through in-depth interviews, and furthermore one of the most difficult to satisfy, is carrying out tasks that imply accompanying the elderly to places where there is a prolonged waiting time, like the social services centers for instance. This difficulty is principally due to the lack of caregivers to spend so many hours and the fact that the greater the number of hours employed, the greater the cost is, for which reason a large part of the elderly lack the economic means to pay for this type of service.

The implementation of systems through using the new technologies would allow many of these activities to be carried out from the home of the elderly person or from the service company, and thus eliminating these high personnel costs and need for physical displacement.

Residential centres

The waiting list to enter in a residential centre is a common problem. Waiting lists are very long due to the low number of places available, especially in the public ones. On the other hand, the high costs of private centres, except when there are agreements with the Public Administration, limit the access that the majority of the elderly have, whose economic resources are limited. Because of this, the development of some system by using new technologies is considered timely, allowing interconnection between the residential centres and the home where the elderly person lives.

One of the most mentioned function is the implementation of systems to allow constant monitoring of elderly, people that don't live in the centre, but in the neighbourhood, without the need of the permanent intervention of the care personnel, to be able to guarantee the safety and physical integrity of the persons living in their homes, above all those who suffer from some type of advanced dementia or suffer from memory loss.

The implementation of computer applications to facilitate carrying out daily tasks is another one to be emphasised for people either at home or in residential centres. For example, the design of a program of scales to measure dependence as well as personnel ratios, etc. would be useful. Furthermore, computers could be useful for the control of the caregivers as well as to complete a care plan for each elderly as some members of the personnel are reticent to spend long periods of time writing these reports. Furthermore, computers could be used as a direct connection method between the residential centres and social centres, as well as Social Services.

The introduction of computer systems as means of entertainment and leisure would be another useful application for elderly. Those interviewed are aware of the changes that are going to occur regarding the habits of the elderly in the medium term.

In the day centres interviewed experts indicated that a system to visually interconnect the centre with the home of the elderly person or family members where the person lives would be highly convenient, for when the circumstantial case when the elderly person could not travel to the centre. Care instructions could then be given to the family members caring for the elderly person.

Public Administration

Regarding Public Administration, interest is centred around those systems for coordinating and regulating the different applications used by different users (i.e. coordination of interconnection systems between private homes of the elderly and social services, public residential centres, social service departments, etc.).

The Public Administration, as a provider of services for the care and leisure of the elderly, through the network of their own centres or through agreements with entities or companies and private home assistance, would also be interested in all those applications designed for residential centres, private homes of the elderly and homes or workplaces of family members caring for an elderly person.

Conclusions and recommendations

Based on the above requirements the following conclusion can be reached:

Elderly people need to maintain, as much as possible, the similar lifestyle and way of life as they had before becoming old and to find solutions to their problems caused by aging.

This means that the problems they need to cope with are:

- To maintain a continuous active life status while possible
- To get help with their memory which is diminishing, say through illnesses such as dementia
- To be able to maintain activities in their old age
- To help each other and have an acceptable social life
- To be part of a group and meet people with similar interests
- To reduce the loneliness that is brought about due to aging and loss of friends and family.

Based on the above conclusions, the TeleCARE consortium recommends the following services to prove the potential of the TeleCARE system. These services should offer:

- Monitoring the elderly's life (based on their permission).
- Helping elderly with remembering things they need to do (Agenda/Reminder services).
- Use of elderly's acquired skills and being valued in the society.
- Keeping elderly occupied and entertained either on their own or as part of a group (to help them cope with loneliness).

We believe that requirement of client/companies would then become to

- Provide the above services to the elderly
- Manage the way these services are offered to the elderly.

Angel Pascual

Example Solutions

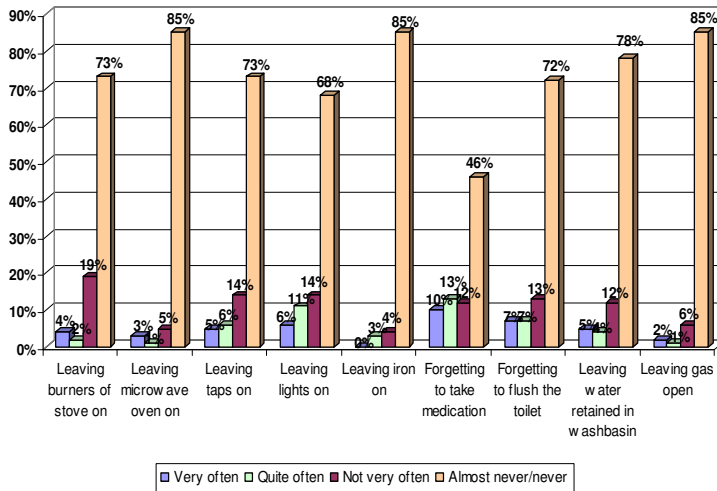
The principle objective of the TeleCARE project is to design and develop an open infrastructure to facilitate the interoperation of a large number of elderly care services supporting an independent lifestyle and thus improving the quality of life for the elderly and their families. In order to test and validate this horizontal platform developed in TeleCARE, to which different services can be plugged, **4 internet-based vertical (or value-added) services** and **1 support service** are being designed and developed. Further services can be developed and progressively added to the TeleCARE system.

The initial services are:

Living Status Monitoring: With the TeleCARE concept, elderly people are integrated in a community of actors (relatives, social workers, carers, doctors, care/leisure/health centres, etc) minded to support and to help them in their daily life. Furthermore, the TeleCARE system takes advantage of cutting-edge technology, which allows these actors to achieve their goals with effectiveness. The living status monitoring service aims to cover the elderly 24 hours a day, 365 days a year, ensuring the contact among these people and qualified staff, belonging to the assistance and healthcare providers, all year round.

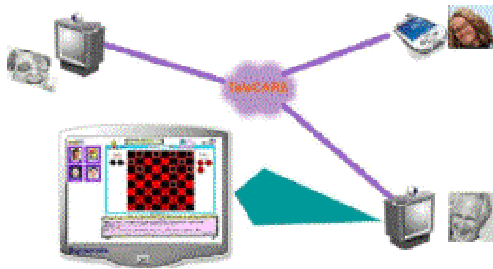
Agenda Reminder: The agenda and alert system planned for the TeleCARE platform aims to provide the elderly with a better well being by reminding them of the activities they have to do in order to keep them healthy and socially integrated, representing an important compensation for their loss of memory.

António del Cura



Frequency of forgetfulness

Entertainment Services: the main objective of the entertainment services within TeleCARE is to address the above two issues with services which provide a compelling value to the end user (i.e. the elderly). They would be designed to ease the sense of isolation elderly feel and provide light entertaining applications to improve their sense of well being. A combination of games, music and education programs would be offered as part of these services. The TeleCARE Consortium will provide the following services as the initial games and entertainment services offered by :

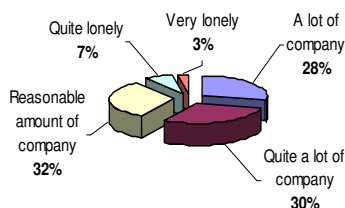


- EasyBingo (EBingo) There are many variations of Bingo games across the world. They are offered in many shapes and forms and a large number of population play these games. They are now even offered on Internet where participants play the game managed by a virtual Bingo hall.
- Educational and adventure games: The value of educational games to help elderly adjust to their environment and learn about other matters such as health, self reliance and leisure where they would be spending most of their time, should not be underestimated. :
- Action-Puzzle: The value of educational games to help elderly adjust to their environment and learn about other matters such as health, self reliance and leisure where they would be spending most of their time, should not be underestimated.

- Personal Library (Library@home): Having access to a library of your choice at home would allow elderly to access their favourite materials without the need to leave their premises. Library@home offers the elderly the choice of listening to their favourite music from a collection of music (music library provided) or selecting a book (from a selection of materials provided). A choice of reading a book or listening to the book would be offered to the elderly (easy listening) such as bedtime stories or morning news. The availability of the service would be highly dependent on the usual copyright issues, which govern each country of deployment and the availability of the source material (in native language) for the country of deployment.

Mohammed Touman

One of the factors that TeleCARE Consortium take into account to develop different actions related with the entertainment activities is the feeling of **loneliness** that many elderly feels during the day as show this graphic extracted from the D1.3 of the TeleCARE field Work.



There are times when we all feel lonely, when do you feel most lonely?	COUNTRY		
	SPAIN	PORTUGAL	U.K.
Never	59%	33%	44%
Only at nights	12%	33%	21%
When you are ill	3%	8%	1%
All day long	3%	6%	1%
Only during the day time	5%	6%	1%
At weekends	1%	2%	3%
At other times (on special occasions)	15%	12%	23%
TOTAL	100%	100%	100%
INTERVIEWS	130	131	133

Time Bank: The main idea of Time Bank is to offer a way of people helping each other just by exchanging the performance of simple tasks among them. Examples include gardening, cooking, repairing small problems with home appliances, etc. These exchanges are particularly interesting in ways that they are paid with an alternative currency – time; not money. Thus, time banks create reciprocal relationships between people and institutions, as well as between people and people, which are hard to achieve in other volunteering services.

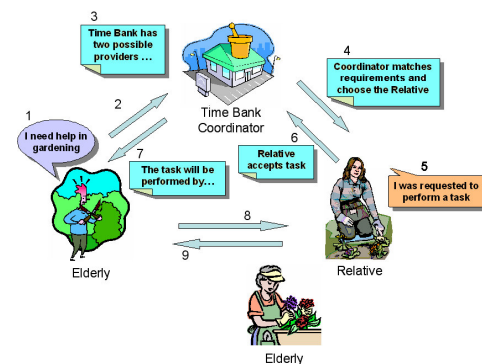
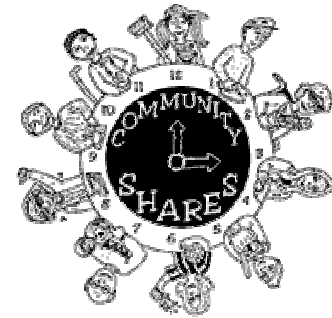
A time bank, as implemented in TeleCARE, is a realisation of a virtual community.

The way time banks manage the exchanges is by making a relationship between time and credits, thus each credit corresponds to one time unit. Credits can be earned if a participant performs a task or can be spent if a participant requests for a service. For instance, if someone needs help in a specific task he/she will spend credits accordingly with the time that the service will take.

The main goal of Time Bank service in TeleCARE is to provide the elderly people a way to feel useful to society, to share their experiences with others and to have their days fulfilled. At the same time, by being integrated in such community they obtain better support for their own needs.

The Time Bank service is managed by a Coordinator, who is in charge of participant's accounts and of providing the best supplier for a service by performing matches with the given service requisites.

Participants in the TeleCARE Time Bank include the elderly people, their relatives and care center personnel. To these types of members several TeleCARE agents, which perform the tasks of this vertical service, are associated.



The macro functionalities provided by the TeleCARE Time Bank service are:

- Support creation and management of the Time Bank Virtual Community.
- Support matching between the service requester and the potential service providers.
- Support negotiation process between clients.
- Provide member account statements.
- Provide member account management.

The TeleCARE Time Bank service consists in the development of a tool that can support all these time bank needs.

Luis Camarinha-Matos, Filipa Ferrada, Octavio Castolo

Virtual Community Support: This is a base service that will provide key functionalities to support other vertical services designed to take place in the virtual community, as explained below. A typical definition of Virtual Communities (VC) that is widely accepted and has been quoted in many other publications and discussions is:

"Virtual communities are social aggregations that emerge from the Net when enough people carry on public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace".

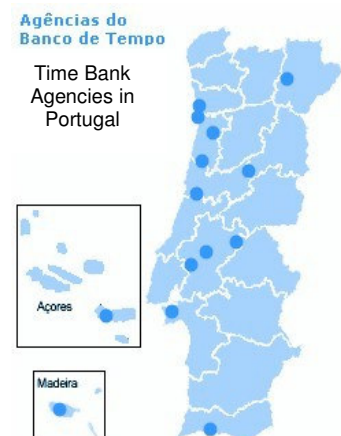
Hamideh Afsarmanesh, Victor Guevara

GRAAL – A Time Bank promoter in Portugal

GRAAL (www.graal.org.pt/index.htm) is a Portuguese NGO, which among other activities promotes the creation and operation of Time Banks in the country (www.graal.org.pt/BdT/apresentacao_bdt.htm).

The Portuguese Time Bank initiative is divided in two structures and levels of organization: the central bank, which is coordinated by GRAAL, and the local agencies, which are working under local institutions (e.g. city hall or other local entities) with whom GRAAL establishes a working partnership. Nowadays, the Portuguese Time Bank has 14 communities (agencies) with a total of approximately 1400 members (see figure below). One of these agencies, in the city of Santarém, is in fact for elderly (and installed in an elderly residence).

On 29 May 2003 there was a bilateral meeting TeleCARE – GRAAL held at Uninova. The purpose of this meeting was to present the TeleCARE Time Bank service and to discuss its suitability. The TeleCARE approach was highly appreciated by GRAAL representatives who provided useful information based on their experience of running Time Bank organizations. As a result of this meeting it was agreed to pursue bi-lateral cooperation and GRAAL joined the TeleCARE Users Forum through one of its directors.



Public Event in Seville

The last TeleCARE Public Event was held in Seville, Spain, on 13th of June 2003.

The objective of this TeleCARE public event was to spread the project idea among key actors in the elderly sector and to obtain feedback from them, i.e., first hand information which could be useful for the implementation of the pilot tests and the consecution of further agreements with potential partners.

The event was scheduled to be coinciding with Seniors 2003, the Fair for the New Elderly People, that took place between the 12th and 15th of June in the Conference and Exhibition Centre of Seville (FIBES). Associated to this Fair, the A.S.T.E. association “*Asociación por una Sociedad para Todas las Edades*” (Association for a Society for All Ages), based in Madrid, organised a Congress entitled “*Una vivienda adecuada para todas las edades*” (An adequate dwelling for all ages), which is an annual Spanish congress, usually held in Madrid, which for the first time was held in Seville.

Considering that this Fair and, more concretely, the A.S.T.E. Congress, was a very appropriate framework to arrange the TeleCARE Public Event, conversations were successfully held with the organisers of the event in order to focus one part of the Congress on the TeleCARE Project. In this context, A.S.T.E. and Skill designed, for the 13th of June and from 16 to 19 hours, a conference session related to seniors' dwelling and teleassistance, where a number of personalities from different sectors presented their ideas:

1. Antonio del Cura, TeleCARE.
2. The seniors' dwelling.
 - By Eduardo Rodríguez Rovira, president of the CEOMA.
 - Manuel Altaide, general secretary of FOAM.
 - Manuel Sánchez Alonso, general secretary of UDP.
3. Projects and actions for elderly people - Teleassistance.
 - Tomás Mañas, Counsellor for Social Welfare. Government of Castilla-La Mancha.
 - Caterina Ramis, Dwelling Council of the Barcelona Town Hall.
 - Carmen Zabala, director of ASISPA.
 - Juan de Ávalos, Architect.



A.S.T.E. also included the folder of the TeleCARE presentation within the portfolios given to all attendants of the event, and distributed the TeleCARE flyers and questionnaires produced for the event among the audience.

There were approximately 120 people attending the Congress, among which there were personalities from different social welfare regional governments and municipalities, architects, teleassistance companies, residence and health care centres, elderly people and their relatives.

Publications

For those interested in technical details on the TeleCARE approach and results:

Virtual Communities and Elderly Support

Luis M. Camarinha-Matos and Hamideh Afsarmanesh . In “Advances in Automation, Multimedia and Video Systems, and Modern Computer Science”,

V.V. Kluev, C.E. D'Attellis, N. E. Mastorakis (Ed.s), WSES, ISBN 960-8052-44-0, pp. 279-284, Sept 2001

Design of a virtual community infrastructure for elderly care

L. M. Camarinha-Matos, H. Afsarmanesh. In “Collaborative Business Ecosystems and Virtual Enterprises”, L.M. Camarinha-Matos, (Ed.), Kluwer Academic Publishers, ISBN 1-4020-7020-9, Mai 2002 pp.439-450

A multi-agent based infrastructure to support virtual communities in elderly care

L. M. Camarinha-Matos, H. Afsarmanesh. To appear in Intern. Journal of Networking and Virtual Organisations.

Virtual community support in TeleCARE

Hamideh Afsarmanesh, Víctor Guevara Masis, L.O. Hertzberger. To be presented at PRO-VE'03, Lugano, Switzerland, 29-31 Oct 2003. www.pro-ve.org.

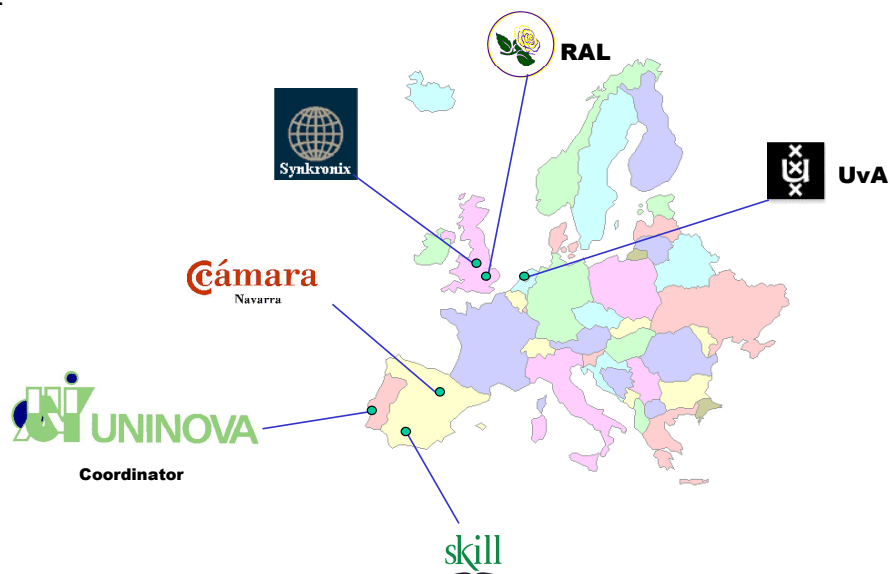
A multi-agent based platform for virtual communities in elderly care

L. M. Camarinha-Matos, O. Castolo, J. Rosas. To be presented at ETFA'03, Lisbon, Portugal, 17-19 Sep 2003.

See more references on the TeleCARE web site.

The TeleCARE Consortium

The TeleCARE project is a pan-European research and development project involving 6 organisations from 4 countries in Europe. The project is co-funded by the European Commission under the IST programme.



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For additional information
visit the web site:
www.uninova.pt/~telecare

A Multi-Agent Tele-Supervision System for Elderly Care
IST Project 27607

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"Supporting Virtual Elderly Assistance Communities"

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