SAID. Social Aid Interactive Developments

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Abstract (10-15 lines)

The objective of SAID project is to develop a suite of services for the Disabled & Elderly with the aim to aid Social Assistants achieve new levels of quality and efficiency in their daily work. The objectives are not only to provide basic social services as they are conceived today, but also to extend the ambit of social support to the new demands appearing in the 21st century in two main areas: supply of remote care services and making possible access to the IST for the elderly. The first objective is accomplished by means of an open platform based on Digital TV technologies, where a customizable number of services can be provided depending on the specific needs: videoconferencing, surveillance, alarms, entertainment, household services, etc. The second one will do extensive use of Intelligent Agents technology in order to implement personalized assistants allowing the system to act as information provider, intelligent reminder, shopping assistant, etc. Project developments will make heavy use of technologies such as: iDTV over Digital TV networks, Intelligent Software Agents and Mobile phone information services.

Communication text (maximum 5 pages)

Objectives:

The objectives of the SAID project are to analyse the problems of independent living for the disabled & elderly population of today and to develop a suitable environment for that task.

Rather than proposing a mere Telematic infrastructure SAID addresses the question from the perspective of involving, from the very beginning, all the actors present in this scenario in the solution of their problems: the Disabled & Elderly, family, public authorities, Social Workers, service providers, the technology domain, the research field, etc. This generic desire is materialised in two important aims:

- To provide the means to fulfil essential subsistence requirements for the Disabled & Elderly at their home environment by means of the development of an integrated framework that will combine the contribution from Information and Communications services based on Digital TV and mobile phone infrastructure with the support provided by human assistance.

- To attend to the less known but by no means less important requirements for improved access to information, participation in social and community activities, self-satisfying learning, leisure, etc. In other words, to significantly improve the quality of life of Disabled & Elderly by making possible the so long desired, but not yet met, access to the IST for that sector of the population.

It is widely known that one of the critical problems in the near future for the European society is the increasing ageing of European population. The result of this process is that social protection schemes are required for a greater number of people during a more extended period of their lives. Social

assistance needs today are hardly met due to lack of resources and unsatisfied social demand can only get worse in the short term due to the increased number of potential users, additional requests for improved quality of assistance, and the demand for new services imposed by the new society.

Given this situation, the popularisation of methods that make possible independent living for the Disabled & Elderly have obvious benefits for both parts. Independent living is not only attractive from the point of view of the service providers. Most experts agree that, unless constant supervision or 24 hours attendance is strictly required, the best way to handle social care is by allowing the Disabled & Elderly to stay at home in a known environment, close to their relatives and friends.

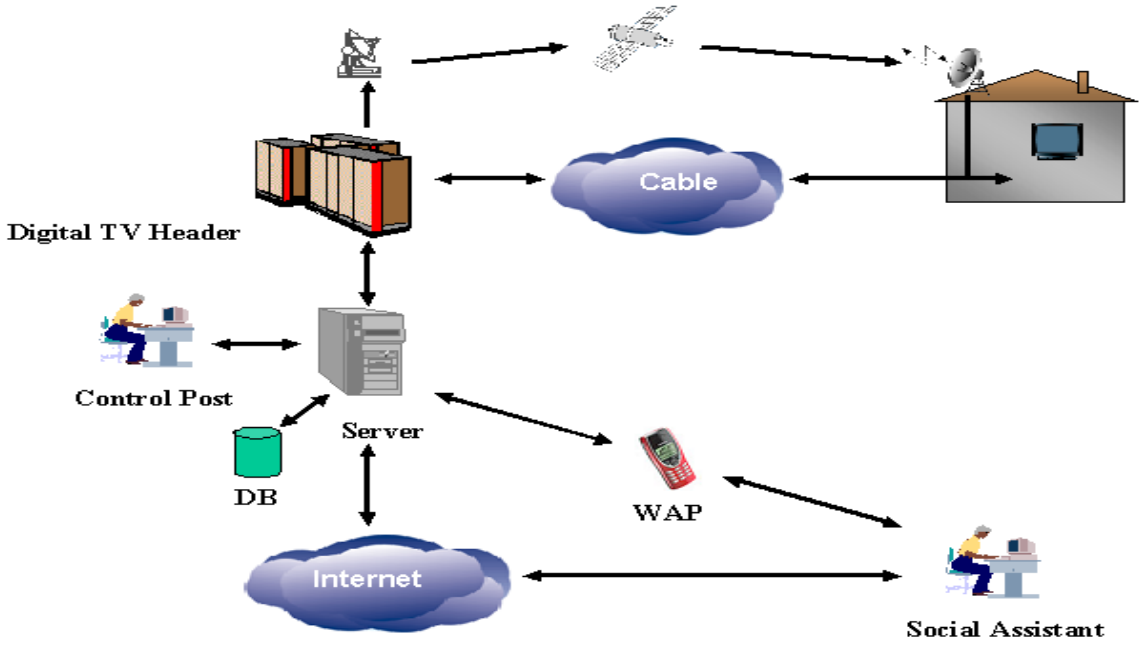
SAID intends to contribute to that objective by providing adequate means so that the Disabled & Elderly are able to take care of themselves most of the time (either by their own efforts or with suitable aids) while resorting to personal attendance for very specific services. Of course, the level of independence will be determined by each specific situation taking into consideration factors such as: mobility restrictions, support from family, requirements for medical attention, etc. In other words, it is necessary to develop a personalised treatment for each user.

It is also interesting to mention the fact that project's objectives include not only supplying basic social services as they are conceived today, but also extending the availability and style of social support to meet the new demands appearing in the 21st century. In that sense, the greatly extended period of retired life implies that even for people in reasonable physical condition, their quality of life can be greatly degraded due to loneliness, lack of activity, boredom and isolation from the core of the society. In that sense, it must be seriously considered that the impact of new information and communication technologies if not correctly managed, can increase discrimination and isolation for those that are not able to adapt to new technology situations.

By designing SAID project with the Disabled & Elderly in mind, it is intended to demonstrate both usability and usefulness of SAID technology for a growing but vulnerable sector of the population. It is clear that the work proposed in the project is aimed at supporting the Disabled & Elderly. However, SAID is also designed around the figure of the Social Worker. SAID intends to support Social Workers with all the resources modern technology allows to do their work more efficiently, to extend the current range of services provided, to improve human care by concentrating human efforts on those aspects that are really worth it and to extend the benefits of social aid services to that part of the community that currently does not enjoy them due to distance, lack of resources or reluctance to communicate or accept permanent help from other human beings.

In short, it is not the intention of the project to substitute the presence of human carers (something considered neither possible nor convenient), but to support Social Workers by reducing their workload and providing them with improved access to information, regulations and communication services at the point of need. In that sense SAID has two participants: the Disabled & Elderly as the final user or beneficiary of the results of the project and the Social Worker acting as the professional who promotes and manages the services proposed.

Designing an advanced environment for the Disabled & Elderly is a big challenge since every older generation is less used to computers. The problem is not only that they lack the knowledge and the experience; the bigger problem is that they are less interested in new, unfamiliar gadgets than in a lifestyle they already know. In that sense, one of the most important questions is the selection of an adequate user interface that does not disturb their current way of living, integrates seamlessly in the home environment and allows immediate use of the services proposed without major training requirements.



SAID's answer to this question is the use of the TV set as the sole interface to the new services. Using the TV set / remote controller combination is considered the best solution to the interface requirements, which will make possible the improved access to a wide range of information and communication technologies.

Other important aspects for user acceptance are personalisation and autonomy. In that sense, SAID is meant as a personalised companion for the Disabled & Elderly materialised in a system where each user will have an associated personalised Agent able to interact with the user and with agents from other users. The Adaptive Agent will learn with the user, adapting his / her profile as more information is gathered and more requests are made. The Agent will guide the user to those sources of information or news that are of most interest, based on the user's personal profile. The Agent will supply him with news, advice, entertainment, companionship (by communicating with other agents associated with other users) and remote medical assistance. On the other hand, the Social Worker will also be able to monitor, supervise and even guide the agent to more appropriate information.

The Adaptive Agent will be the polite interface between the user and the technology and will be ready to respond to user's requests 24 hours a day. The Agent will be capable of anticipating common user requests, reminding the user of important daily events, monitoring the user's activity and deciding autonomously to request external help from relevant knowledgeable carers if it detects something abnormal is going on.

Finally, the Agent will put into the hands of the Disabled & Elderly the power of Internet by providing them information that can be automatically filtered or prioritised according to the user profile. In summary it will become an active component in the life of the Disabled & Elderly that will isolate him from the burden of technology and will encourage him to take care of himself and share experiences with other people.

This is the environment SAID proposes: an integrated platform based on Digital TV infrastructure composed of distributed clients using the TV / STB combination as the unique user interface connected to a central post where permanent professional attention is provided to the users. The environment in each client will support autonomous / personalised services by means of distributed Agents as well as human aid in the form of Information & Communications services or home delivery services. The system will be complemented at the server side by sophisticated information

management and planning facilities and mobile phone information access for the use of the Social Workers.

Project Description:

SAID proposes several key innovations involving the use of a set of recently appeared technologies that will make possible the objectives foreseen for a successful system implementation:

- The first one is the use of the TV set and its remote controller as the unique means of interaction with the user. This design approach has tremendous implications on the rest of the system: from the user interfaces to the telecommunications infrastructure required.

- The second one is the bet for Digital TV technology, which is considered the only reasonable way to implement a complex system like the one proposed through the TV set.

  In particular SAID will support the DVB-MHP European standard. MHP is a brand new set of norms that have been recently published and whose full implementation is still on the way. MHP will make possible the convergence of the PC and traditional TV in the near future, which in turn will open enormous possibilities.

- Support for mobile technology. SAID will provide remote information access and forwarding by means of WAP or other available mobile technologies. It is not necessary to mention the importance of such support from practical or strategic points of view.

- Convergence of communications media. SAID will integrate several heterogeneous communications media: satellite, cable TV, mobile phones, ISDN, UMTS (when it becomes available), etc.

  SAID intends to work transparently with all these media using as much as possible the standards available. In that sense SAID will support the DVB standard in its various formats (DVB-T, DVB-S, DVB-C).

- Working with XML. SAID will use XML to hide portability details across the different platforms foreseen. SAID intends to design content-based applications instead of the traditional way of designing application dependant systems.

- Intelligent Agents research. Software Agents are probably one of the most important points in the system. SAID will use a client / server conceptual design based on Intelligent Agents in order to gain in efficiency, portability and fast implementation.

  Intelligent Agents will be also the instruments selected to provide intelligent behaviour to some of the critical components of the project. By means of Intelligent Agents, it will be possible to automate certain tasks and provide immediate response to certain stimulus; something that is not possible with other approaches.

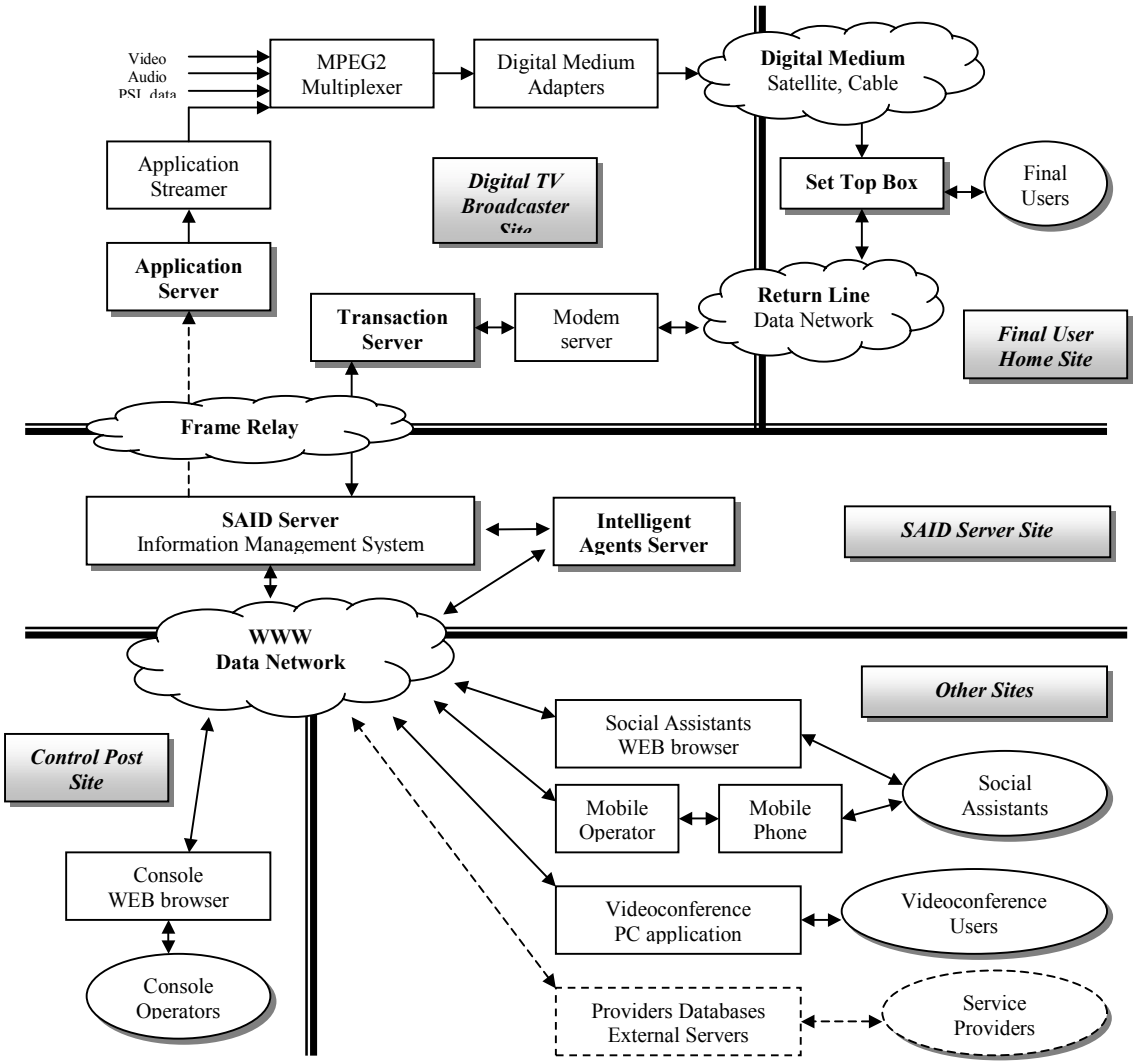
  Finally, Intelligent Agents will serve as intelligent statistical and information analysers that will help gather a knowledge base in order to make possible simple, easy to use access to IST for the sector of the population targeted. In that sense Agent's technology will provide improved access to information and services.

SAID bases its functionality on the infrastructure of Digital TV considered as such the means to provide information and services through the domestic TV screen of home users. From a technical point of view the core of digital TV technology is the STB acting in front of the user as a link or

gateway to the world of digital services offered by third party providers. Those services will include two types of contents:

- Standard TV programs (in digital form, Usually MPEG2): movies, news, magazines, etc.
- Interactive services.

SAID will be focused in the development and integration of interactive services for digital TV that should be delivered together with the standard TV broadcasting and should be accessed by the home users through the same common device: the TV screen plus the remote controller. It is not the intention of SAID to develop contents (considered as such traditional TV productions) except when it is strictly needed for the demonstration of the prototypes.



From a conceptual point of view, the system will be based on a client / server approach. The general layout of the system is planned as a distributed system composed of client nodes and a control post that will contain the server side of the system.

Each client will implement a number of functionalities with a certain level of autonomy by means of Software Agents technology while they will relay on information stored on the server to carry out their

work. Additionally, the server will provide its clients with improved access to Internet when the requested information is not available in the server Database.

Following the scheme described above, SAID system will be composed of two big sub-systems:

1. The Client will be the part of the system that will interface and provide direct services to the senior citizen.

2. The Server will comprise all the information gathering, management and presentation to social assistants. It will also implement the console of the control post and will provide support for the Mobile Information Service.

SAID will implement a number of standard services included in the Services Catalogue. Other services are possible by means of project extensions or third party providers. The catalogue include the following services for the users (the Disable & Elderly):

- 24h Alarms.
- Surveillance (permanent and emergencies).
- Communications: videoconferencing, audio email, etc.
- Catering.
- Households: repairs, etc.
- Tele-Education.
- Internet access (active system).
- E-Commerce (supervised).
- Information: medical, administrative services, payments, etc.
- Entertainment.
- Virtual Assistant: reminder, supervision, adviser, user clubs, etc.

The catalogue include the following services for the Service Providers:

- Agenda.
- DBM: Medical History, User profiles, etc.
- Data access through WAP / Internet: real time alarms, agenda, information retrieval, etc.
- Planning tools.Management tools.Tools for generation of user profiles.
- Tools to aid user supervision.
- Tools to implement quality control of Services.

Project Web Page: www.eptron.es/projects/said

A Few Words About The Author:

Tomás Rodríguez. BSC in Physics and MSC in electronics by the Universidad Complutense de Madrid. Extensive experience in Computer Vision, systems programming, parallel processing networks and real-time control software.

Knowledged in Digital TV, Mobile technologies, traffic monitoring, industrial control systems, UNIX system administration, real time OSs, image processing electronics, etc.

Extensive experience in European projects. Acting either as technical responsible or project co-ordinator. Participation in Eureka, ESPRIT (HPCN and Multimedia areas) and V Framework IST (areas I, III and IV) projects: VICTORIA, CAMELOT, ON-LIVE, VISIRE, EVENTS, SAID.

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