

Alarm systems and video communication. Old problems solved by modern technology

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Abstract: Alarm systems have become an integrated and growing part of modern society. Alarm signals are sent when personal safety is in danger, at fires, by emergency vehicles etc. To people who are deaf or hard of hearing this causes problems, which can be solved by modern technology. Also, to these groups - and some others - video communication is a necessity as a substitute for ordinary telephony and a benefit in emergency situations.

INTRODUCTION

In well operating alarm systems two conditions must be fulfilled, viz. the possibility to send a personal alarm signal when in danger and to be aware of alarm signals sent by somebody or by some automatic awareness device. - A common denominator for the two situations is that in almost all cases, acoustic signals and sometimes also human voices are used, both for drawing attention and transferring a more detailed information. This causes problems in so far that people who are hard of hearing or deaf, experience severe difficulties and run a high risk to get injured. It also means, that personnel at service centres for emergency alarms often get very restricted information about what has happened to a client and thus have problems in deciding what measures to take - except for always sending an ambulance.

PERSONAL SAFETY SYSTEMS AND VIDEO COMMUNICATION

Systems for emergency service involve in general rather unsophisticated technical solutions. A body-worn remote control device or adapted switches in the home are used for activating the local transmitter, which in most cases is a telephone terminal with an automatic dialling function.

Sending a personal alarm signal, e.g. in an emergency situation, does not per se cause problems induced by a hearing loss. The procedure is in general very simple: what one has to do is to press a button, pull a string or similar. However, an alarm of this kind is often followed by a clarifying procedure so that the rescuing service knows the cause of the alarm and what measures to take. Therefore, a common solution is to use the telephone network for a spoken clarification. And here the problems of hard of hearing or deaf people occur: a substitute for the ordinary telephone conversation is needed. Also, with hearing people, in emergency cases a visual link between the care centre and the care taker is essential.

For deaf or hard of hearing people two possibilities could be identified. One is to arrange the conversation with the aid of a text telephone, providing that the person can operate a text telephone satisfactorily.

Probably much better is to arrange a communication with moving pictures where a transmitting TV-camera could be installed so as to overview the place where the alarm signal was sent out. Technical solutions are available at decreasing prices and hopefully problems that have to do with integrity could be overcome.

Work is going on in many countries with safety alarm systems as well as picture communication systems. Promising - but still a bit expensive - results from practical applications are already available.

Fig. 1 below shows an experimental setup in Germany, where Cable TV is used for the communication between an emergency centre and residents in the area.

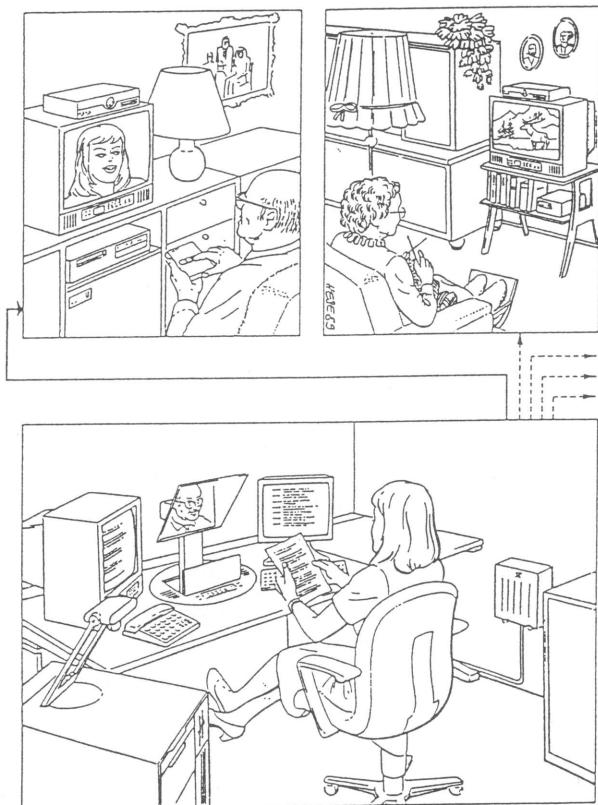


Fig 1. A video communication based emergency alarm system in Germany (courtesy by Alcatel)

An important part of this system is the service centre. It has turned out not only to be the kernel in emergency situations, but also used for many other purposes. As could be seen in the picture, the centre is equipped with various devices for information retrieval (access to data bases) and a scanner for document reading. This means that the service personnel can get quick access to all sorts of information and also display documents to the client on his/her home screen. Indeed, the system also allows for - and has been utilized for - simple demonstrations like physiotherapy!

AWARENESS OF ALARM SIGNALS

As mentioned above, audible alarm systems are used for many purposes. Deaf and hard of hearing persons often have no possibility to be aware of these signals.

Possible solutions should take into consideration the needs of the users in daily living, at home and work. Economic realities and growing global integration makes it self evident that such systems should be standardized all over the world. The method to be described below, has been elaborated by COST 219 and later by TIDE in the FASDE project.

The system is based upon transmitters one of which has to be connected with an interface and installed in the user's home or working environment. Connected with the interface are personal alarm devices such as the door bell and the telephone bell via suitable transducers. Also connected is an RDS radio receiver with a PTY31 alarm code facility. Since RDS radio receiver signals are emitted by local FM radio transmitters, the system is well-defined geographically. - The system is shown in fig. 2



Fig. 2 The FASDE awareness system.

CONCLUSIONS

A large fraction of elderly people need some kind of emergency service system. There is also a need for such systems for people who feel threatened.

A large minority of people in all countries are deaf or hard of hearing. This disability makes them feel unsafe in their daily lives as they can not hear auditory alarm signals. Another large minority is the group of mobility impaired or frail, elderly, who need a better safety link to carers. The problems could be overcome by a technology based upon existing systems and components. There is a need for agreement upon and standardizations of methods and signals in order to build up as efficient and versatile a system as possible, a work that must be supported and promoted by relevant international bodies.

Ref:

1. Roe, Patrick R.W. Telecommunications for all. CEC, COST 219, CD-90-95-712-EN-C, 1995