

UBIQUITOUS CARE SYSTEM TO SUPPORT INDEPENDENT LIVING

Fields of use

Artificial Intelligence (AI), Data Processing/Data Interchange, Middleware, Smart Appliances, Environmental and Biometrics Sensors, Actuators, Applications for Health, Monitoring equipment, Computer aided diagnosis and therapy, Safety for the elderly, Conglomerates and holding companies

Current state of technology

The prototype of the system is ready for field testing and for finalization of the commercial product.

Type of cooperation

License agreement, Research cooperation agreement, Technical cooperation agreement

Intellectual property

Secret Know-how

Developed by

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Summary

Slovenian researchers have developed a care system for the detection of abnormal short-term events (such as falls), mid- and long-term events, such as unexpected behaviour that may be related to a health problem in elderly. Researchers are looking for companies interested in licencing in the invention and technical cooperation.

Description of the invention

The main function of a care system is the detection of short-term abnormal events (such as falls), mid- and long-term events such as unexpected behaviour that may be related to a health problem in the elderly. Nowadays, most of the care systems in the market are limited to detecting falls.

The innovation of the system developed is that it will not only detect falls, but also identify mid- and long-term unexpected behaviour that could indicate health problems.

Thanks to these features, the elderly people can gain the confidence and independence. Confidence is a cost effective, non-intrusive and reliable system that increases the quality of life and security of the elderly and, thus, prolongs their personal autonomy and participation in society. Not only could the elderly profit from the system, but also their families and caregivers, since the burden on them could be substantially reduced. The system aims to decrease the need of institutionalisation of the elderly.

The proposed system works indoors. Information about the user's location and acceleration are analysed to decide whether to trigger an alarm. The system is easy to use and does not constrain the user's daily life. The user keeps control of the system and can customise the alarm protocol. In case of an abnormal situation such as a fall or an accident, the system permits a rapid actuation of the health services, which decreases the negative consequences of the accident (worsening of injuries, psychological impact of being alone and injured, etc.).

In case a mid- or long-term abnormal situation is detected an alert is triggered which informs the user that visit to the medical specialist might be needed. The system is a result of multidisciplinary research with the involvement of the end-users who co-defined the specifications. The involvement of users in an early stage of the project contributed to meet their requirements and increased the acceptability of the system to the target group.

The target group have the following characteristics:

- Elderly over 65 years.
- Cared or not by some kind of home assistance provided by Public Administration (Municipality or National Health Service).
- Mobility independent and with no particular difficulty with ADL (activities of daily living).
- With fear of falls.
- At risk of social exclusion.

The authors of the system are internationally recognized experts in the fields of ambient intelligence, machine learning and data mining, language and speech technologies, computational intelligence and agent and multiagent systems.

Main Advantages

The main advantages and innovations of the proposed solution are:

- **Reliability.** This aspect is essential to increase the quality of life of the elderly. The system has low false alarm rates compared to other similar systems.
- **Self-learning;** that is, the system "learns" from previous situations.
- **Non-intrusive,** in order to preserve the user's privacy. Moreover, the user keeps control of the alarm protocol and the collected location data is only processed with the users consent and for the necessary duration for the provision of a value-added service. Thus, CONFIDENCE follows the Directive 95/46/EC about the protection of personal data and the Directive 2002/58/EC about the protection of personal data in the electronic communication sector.
- **Ease of use.** The system is easy to use. Since it is a portable system it is easy to wear, so that it does not constrain the user's daily life at home.

Partner Sought

Partners for licencing the invention and further joint development, field testing and commercialization of the system under the research and technical cooperation agreements are sought.

Most suitable partners are those connected with elderly care institutions, hospitals and rehabilitation centres and / or companies active in the RTLS (real time location systems) technology sector.