



Licensing opportunity

Telecare and fall detection system on a smart watch for the elderly

Field of use

01003006 Computer Software
01004001 Applications for Health
01004004 ASP Application Service Providing
11001 Socio-economic models, economic aspects
11005 Infrastructures for social sciences and humanities

Current state of technology

Stage of Development:
Field tested/evaluated

Patent status

TBA

Publication

TBA

Developed by

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Reference

TBA

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Background

A Slovenian research institute is offering licencing of software for telecare and fall detection applications on the elderly care and wellbeing market. The software is running on a smart watch, which is adapted for the elderly who are still active, however occasionally they need some support from a caretaker. The institute is looking for companies that develop wellbeing devices. Companies with special focus on elderly applications and services are of special interest.

Description of the Invention

The number of elderly living with cognitive impairment is growing rapidly due to increasing life expectancy. The percentage of those who live alone depends upon the condition (i.e. roughly 30% of those diagnosed with dementia) but the majority would like to live in their own home or with a family, provided that it is safe, comfortable, and cost effective. The proposed software application is helping elderly to prolong and support their independent living. The product is a software application that is running on a smart watch that works indoors and outdoors, is practical, intuitive and simple to use. The user interface and all functions of the application were developed for the elderly, however, they can be adopted to other groups of people (e.g. kids). The main objective of the smart watch application is to give the elderly extra confidence and support with their everyday tasks in a house and outside of the house. The main function of the application is automatic detection of falls and other dangerous situations. If such situation occurs, the smart watch informs relatives or other caregivers by automatically calling them via established mobile phone connection and sending them SMS with the event description and a location of the person. The only limitation for communication of the smart watch is the coverage of the mobile phone network. The use of mobile phone network and possibility of establishment of phone call differentiates this solution from other fall detection systems on the market, which mainly work in the range of their in-house communication signal (e.g. Bluetooth or Wi-Fi). The system includes proprietary state-of-the-art technologies and award-winning algorithms for activity recognition. The system is currently under the evaluation of a group of beta users (elderly persons and caregiver institution) who are giving user feedbacks for developers to final modify the user interface and functional properties of the smart watch.

Authors of the algorithm are computer science experts employed at the Slovenian institution for research in sciences and technology. They are specialized in the development of proprietary methods and algorithms for analysing wearable sensor data used mainly in health domain, but applicable to other domains. The team has been among finalists of the global competition for medical diagnostic devices. They have won the international competition for activity recognition. They are active in several projects for development smart watch and other wearable



monitors for independent living of seniors with dementia; detection of falls and abnormal behaviours for elderly; support older workers in reducing physical and mental stress using wristband and personalized advices and decision support to help patients with heart problems.

The research institute is offering a software licence to companies active in the wellness and elderly care sectors. The most suitable partners are companies, which develop and produce wearable wireless wellbeing devices with special focus on elderly applications and companies, which offer solutions for elderly care institutions, nursing homes, residential care institutions and adult day service centres.

Main Advantages

Many commercial applications and research prototypes for automatic fall detection are available on the elderly care market for last couple of years. There is, however, a lack of fully mobile application without the need of external base station or other device to establish a communication with a caregiver. Mainly, the fall detection sensors (e.g. smart wristbands or necklaces) work within a limited range of a home base station or only in pair with an external communication device (e.g. smart-phone). The main conceptual advantage as opposed to many available solutions on the market is that the proposed solution runs on a commercially available and affordable wristwatch, which enables full mobility and communication, which is limited by the phone signal coverage of the mobile network operator.

Other advantages of the proposed solution are:

- Novel fall detection system, winning international competition for activity recognition
- Modular and interoperable solution
- Simple integration with carer support portal
- Works indoors and outdoors
- Practical, intuitive, simple to use
- No internet or Bluetooth connection required.