An Intelligent Homecare Emergency Service System for Elder Falling

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Abstract

As aging people is growing quickly in many countries, the fall problem is formed a curial public health and clinical problem among elderly persons because fall is the prime cause for traumatic death and physical sequela of them. However, as many of the elders choose solitary life alone and because of the isolation, the emergency service model has faced two main challenges: first, how to discover the fall accident; and next, how to communicate the emergency service center. In this research, we propose an intelligent homecare emergency service system based on two intelligent technologies: artificial neural network and intelligent software agent. The fall detector that based on tri-axes accelerometer and back-propagation neural network classifier is implemented to detect the fall events automatically. On the other hand, an intelligent agent-based homecare emergency service system is developed to communicate the emergency service center and hospitals for requesting help. In the meantime, the basic and important health information related to the elder will be sent together with that request. Thus, the emergency service center can base on the elder's information to dispatch an available ambulance that takes the necessary medicines and equipment to the elder's house.

Key words: Homecare; Elder falling; Back-propagation neural network; Fall detector; Multi-agent system; Emergency service system