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Customized Early Warning System Based on HTN for Home Healthcare Model

Seung-Jin Jang[a], Jip-Min Jung[a], Sung-Oh Hwang[b], Young-Ro Yoon[a]

[a] Department of Biomedical Engineering, Health Science College, Yonsei University, Wonju, South Korea[b]Department of Emergency Medicine, Wonju College of Medicine, Yonsei University, Wonju, South Korea

Abstract and objective

We adopted hierarchical task network (HTN) planning in a customized early warning system for home healthcare model. It is necessary to design a customized early warning system for the patients who were in various health states, because regular or irregular report format and alarm delivery systems were diversified according to severity of health state. HTN planning is suitable for use of constraint programming so as to effectively prune the search space during the search for solution. An efficient and scalable information control is presented by use of HTN. The paper also briefly deals with a process strategy for the early warning system.

Keywords:

Hierarchical Task Network, Emergency Response, Home Healthcare Model

Introduction

As the elderly population and the demand of well-being life increasingly grow, IT-based technology allowing bio-signal measurement and assessment at home have been focused nowadays. The elderly or citizen can be efficiently controlled with respect to health status parameters which act as input features in the early warning system for health status.

Methods and results

The early warning system developed by Home Healthcare Management System Research Center (H2MSRC) in Yonsei University adopted HTN planning in order to efficiently design the planning of emergency response because of extendible, intelligible, and easily communicated properties. Events derived from 7 objective status parameters measured from 4 types of sensor devices and 3 subjective parameters results in customized emergency response according to the formalized I-planning domain model. (Ref. figure 1)

Conclusion

HTN planning was practically adopted in our early warning system for Home healthcare model and revealed the intelligent and collaborative planning ability.

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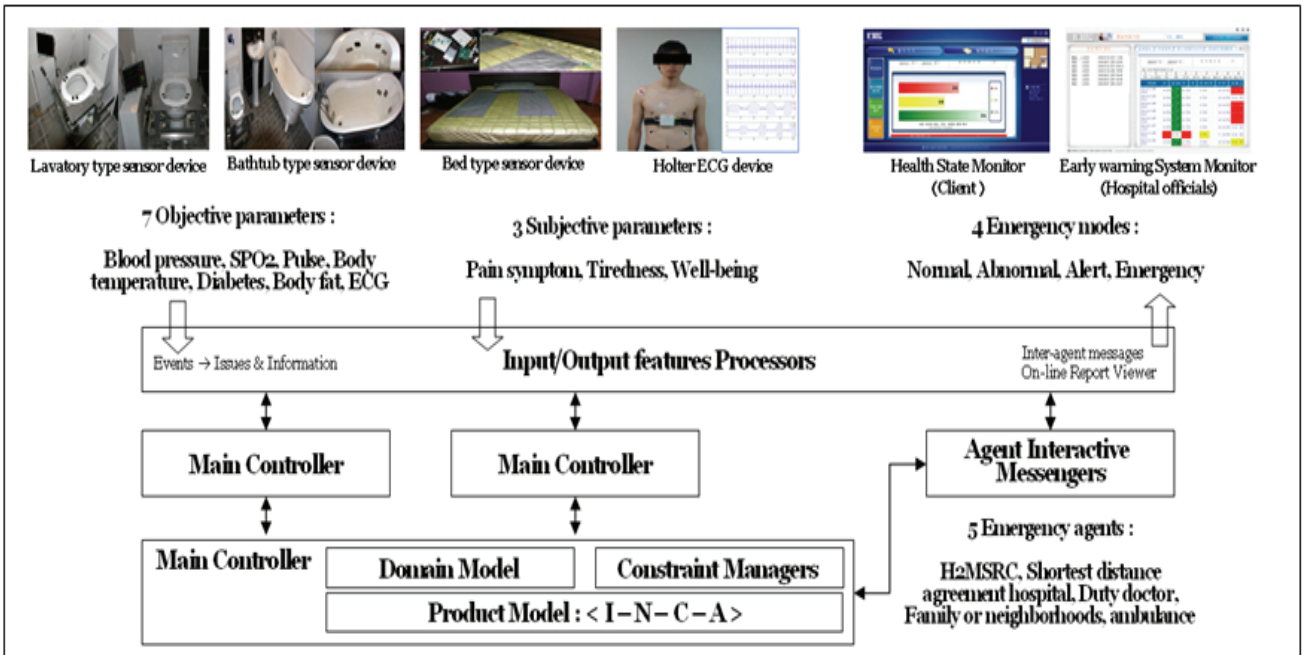

Figure 1 - Events diagram of the customized early warning system based on HTN Planning