

Ambulatory Examination and Management of CVD Patients

Motivation

About 20% of population suffers from Cardiovascular disease (CVD). Usually those CVD patients do not stay at hospital due to cost concern, they perform their daily life as normal people do when something happen. This project aims to develop a wearable system for CVD patients when they are out of hospital based on the body area network platform. It continuously collects vital physiological signals, activity and gait signals, identifies activity and health status and alerts on critical cardiac abnormalities. It has potential to detect high risk cardiac problems, which is not possible so far, and significantly reduces the hospitalization rate and mortality rate.

Objective

To develop a wearable system for the homecare of cardiovascular disease (CVD) patients based on the body area network platform.

Scope

The project focuses on continuously collecting and processing vital signs like ECG, blood pressure, oxygen saturation, and signals about activity and environment such as acceleration, temperature, and lighting, through wearable micro-sensors and handheld devices on patients. By context-based multi-sensor data fusion, and incorporation of medical knowledge the system will be able to create personalized health profile and detect and warn for abnormalities.

Innovative Ideas

To develop a body area network system which has the potential to be the next generation medical equipment for CVD patient examination and management. The system not only captures and processes ECG and other vital signals, but also activity and gait signals to provide context information. It is referred to as “dynamic examination”, the most effective examination method for CVD patients.

Demonstrable Activities

The goal of this project is to provide a solution for ambulatory examination and management of CVD patients. It can real-time capture vital signs and accelerometer signals, those data will be further processed to furnish useful information for physician's diagnosis.

Principal Investigator

Dr Wu Jian Kang
Principal Scientist
Institute for Infocomm Research
21 Heng Mui Keng Terrace, Singapore 119613
E-mail: jiankang@i2r.a-star.edu.sg
Tel: +65 6874 8290 Fax: 65 6775 5014



Co-Principal Investigator

Mr. Chen Xiang
Research Manager
Institute for Infocomm Research
21 Heng Mui Keng Terrace, Singapore 119613
E-mail: xchen@i2r.a-star.edu.sg
Tel: +65 6874 1947 Fax: 65 6775 5014



Co-Principal Investigator

Dr Dong Liang

Research Fellow

Institute for Infocomm Research

21 Heng Mui Keng Terrace, Singapore 119613

E-mail: ldong@i2r.a-star.edu.sg

Tel: +65 6874 3694 Fax: 65 6775 5014



Co-Principal Investigator

Dr. Bao Xiaoming, Simon

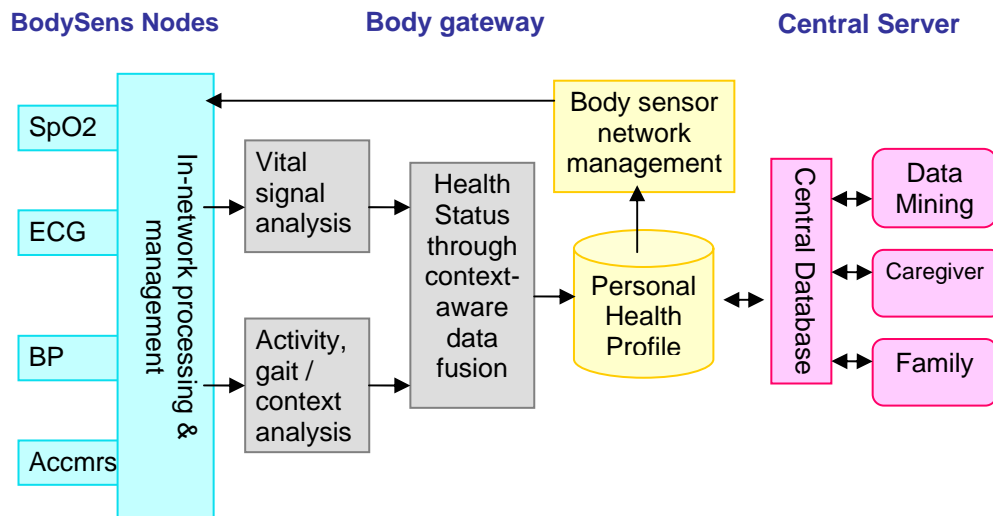
Senior Research Fellow

Institute for Infocomm Research

21 Heng Mui Keng Terrace, Singapore 119613

E-mail: baoxm@i2r.a-star.edu.sg

Tel: +65 6874 2544 Fax: 65 6775 5014



System Block Diagram for Ambulatory Examination and Management of CVD Patients