

Master 2014

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Online Framework for the Signal Separation of Ballistocardiography Data.

ABSTRACT - Masterthesis

Heart failure is the most common problem among elderly people aged 65 and older. A lot of research has taken place for developing systems that can cure people with heart failures. Till today, there is no cure for treating people with heart failures. Thus, the researchers at RWTH Aachen University in a project called Biomon-HF aims in the prevention of heart failures. The main goal is to develop a completely automatic home monitoring system.

The in.nrw is an innovative medical technology department at RWTH Aachen which aims in developing patient customized products, mainly related to cardiovascular problems. The Biomon-HF is one of the ongoing sub-projects being developed under this project. The Biomon-HF project is a joint project by the Philips Research Center and the in.nrw medical technology department at RWTH Aachen University. The other partners that work in this project are Forschungszentrum Jülich, Universitätsklinikum Aachen, I.E.M.GmbH, and Takeda Pharma GmbH. The European Regional Development Fund (ERDF) and the state of North Rhine-Westphalia, Germany finance this project.

In the recent past years, a lot of research has taken place in developing methods for the home monitoring of the heart in the most pleasant and easy way possible during sleep. This monitoring of the heart is taken during the night which affords to 30 % of the day in a person's life. The stable and peaceful environment during the sleep amounts to a more qualitative signal monitoring and recording. The main reason for this monitoring is for the prevention of chronic heart diseases affecting the cardiovascular system and also for observing some sleep disorders like sleep apnea and insomnia. A pressure mounted mechanical sensor is placed under the patient's bed. It can be used for long term monitoring.