ECG Signal Analysis and Feature Extraction

Background

Cardiovascular disease is one of the major causes of death in Germany.

With the analysis of the ECG signal it may be possible to predict heart problems or monitor patient recovery after a heart intervention. This requires signal processing that is capable to eliminate possible noise or artefacts and extract the important parameters.

Description

The main task of this project is to investigate existing methods of ECG analysis. Afterwards relevant methods will be selected and implemented. A graphical user interface is to be designed (wxWidgets) controlling different operation parameters. Several test signals will then be used to show the correct extraction of the parameters.

This method should be capable to run at real-time and will be tested using an existing ECG board with electrodes.

This project is to be developed at the Experimental Heart Surgery Lab of the German Heart Center. (Lazarettstr. 62)

Tasks

This student project consists of the following tasks:

- Research in the field of ECG signal analysis and parameter extraction.
- Induction into the used tools and technologies – wxWidgets, existing User Interfaces and Software Library.
- Documentation of the developed software.

References

- Official Lifebridge project homepage: http://www6.in.tum.de/Main/ResearchLifebridge
- Homepage of the cross-platform UI-framework wxWidgets: http://www.wxwidgets.org/
- German Heart Center: http://www.dhm.mhn.de/

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