Wireless Transmission of Medical Signals

Background

The Lifebridge project aims to create control mechanisms for a heart-lung machine allowing the transportation of patients suffering from a heart attack to the nearest hospital. This requires constant patient monitoring with the use of different sensors. This sensors need wires connected to a monitor making it difficult for the system to be completely transportable. The purpose of this project is to eliminate these wires with the use of wireless sensors. This requires reliable transmission of data and no interference with other devices.

Description

This project consists of investigating existing wireless sensor platforms and selecting one of them to integrate it with the different sensors used within the Lifebridge Project. The sensors should be capable of capturing the sensor data and transmitting it to a central monitor. Wireless transmission such as Bluetooth or Zigbee may be used.

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:

- Investigate existing wireless sensor platforms and select the most convenient one for the project.
- Develop the interfaces needed to connect the different transducers (ECG, pressure, SpO2).
- Develop the software from the monitor side and the sensor for data transmission.
- 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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