

Information

IT-Support in Sports - Body Sensor System -

Background

Both in the field of telemedicine and in the field of sports gathering physiological data is important. For this reason there is a need for sensor technology that is capable of acquiring data and, at the same time, does not handicap the patient or athlete in terms of his acting through its frame size. To fulfill these demands a body sensor system was designed at the research group Cognitronics and Sensor Systems, which is able to gather the demanded data. The frame size of the used sensor module is comparable to those commercially obtainable in the sports sector.

System structure

The sensor system consists of sensor modules, which are attached to the patient's or athlete's upper body using a chest strap, and receivers, which can be connected to a standard PC via USB.

The communication between both devices works wireless. For this a ANT-compatible transceiver is used, which operates in the ISM band at 2.4 GHz. At this band no license is needed.

Sensor module

The pictures below show the front and back side of the sensor module. Values, which can be captured by the module, are the electrocardiogram (ECG), the skin temperature and the acceleration to all three axes. The latter can be determined with a strength up to ± 24 g. A microcontroller preprocesses the sensor data if needed and either forwards it to the communication module or stores the values in the 64 MBit Flash-memory.

Receiver

With the receiver it is possible to receive the data, which the sensor modules transmit. Furthermore the reception of data from sport sensor modules of other manufactures is feasible. The received data will be forwarded via USB to a PC, which is able to further evaluate the data and visualize it if necessary. The configuration parameters for the wireless connection as well as for the USB connection to the PC can be easily adjusted with the joystick and the LCD.

Contact

Dipl.-Ing. Bernd Neuwinger

Office: M6-115

Tel.: +49 521 106-67368

E-Mail: bneuwing@cit-ec.uni-bielefeld.de

