

AbstractID: 2864 Title: The Use of Bluetooth Technology in Multiple Monitoring of Vital Signs – ECG and Pulse

Purpose: The aim of this work is to evaluate the strengths and demonstrate the benefit of using Bluetooth wireless technology in medical equipment, for close monitoring of multiple patients with heart problems (ECG and vital signs) in recuperatory stage. The main issue discussed and tested is whether Bluetooth technology is ready to be implemented and used to realize an environment where computers would assist the medical staff in offering solutions and real time response, based on the data received from patients, in critical situations.

Method and Materials: Our preliminary work consists in a simulation soft (VC++) for monitoring two patients (ECG and pulse), with two Bluetooth equipped devices. Bluetooth is a rather new low-cost radio technology which operates in the free, unlicensed 2.4 – 2.4835 GHz ISM (Industrial, Scientific, Medical) band, and is designed to unite or connect all different types of devices to effectively work as one. The soft created is a server-client based program that interact through information messages interpreted as graphs and action instructions.

Results: The server receives instantaneously the data sent by the patients and after a process of comparing, in which if the data for Pulse or ECG is higher or lower than some user-specified values, it builds dynamic charts for the two patients. We assumed the following limits both for ECG and Pulse: lower=50 and upper=130. A counter holds the number of times these values were crossed (under/over), and at 5 or more the application is stopped, and pre-defined messages will appear on the server and patient interfaces.

Conclusion: The tests performed presented a very good response of the system – real time – thus giving us a very good reason to think that this technology could be used to perform hard tasks and intervene much more accurate than human personnel can.