Comparing the Communication Mechanisms of Health State Monitoring BGM Devices[*]

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Abstract

Monitoring the human's health state by continuous or high density parameter measurement is a widely used technology in the medical world. The continuous health state tracking is important not only in the everyday human's life, but also in the professional sport world: The monitoring (e.g. continuous heart beat rate measurement and logging) could help to prevent tragedies occurring on the playfield. The tragedy of the famous soccer player Miklós Fehér (the professional soccer player of the team Benfica, who suddenly collapsed and died on the playfield in 2004), calls our attention that we have to consider and investigate the possibilities of high density health parameter measurement and monitoring in the sport's world too.

The idea of health state monitoring is a standard treatment technology in the diabetes control. The "Self Monitoring of Blood Glucose" (SMBG) technology forces the patient to measure the blood glucose value many times in a day, and precisely log the results into the "diabetes diary" (see [1]). The currently used blood glucose meters (BGMs) are able to store and transmit the measurement data to a computer, so opening the ability of the automation of the monitoring. The different BGM devices usually use their own protocol in the data transmission process. In this paper we study the communication mechanisms of three popular BGM devices: The "Personal Optimum" (produced by the 77 Electronics Ltd; the most popular BGM device in Hungary); the "AccuCheck Active" (Roche's BGM device, widely used in Europe); the "OneTouch Select mini" (produced by LifeScan, and it is a popular BGM device in the USA). We discuss the hardware requirements and introduce a software tool "WinDcont", which can be used to automate the diabetes diary logging for the studied BGMs.

Keywords: SMBG, diabetes monitoring, blood glucose meter, communication.

MSC: 91A28, 91E45

References

[1]   Robyn Graham, Self-Monitoring of Blood Glucose (SMBG): Considerations for Intensive Diabetes Management, Pharmacy and Therapeutics, Vol. 20 Supplement, (2005).