Abstract

The progress in the field of electronics and technology as well as the processing of signals coupled with advance in the use of computer technology has given the opportunity to record and analyze the bio-electric signals from the human body in real time that requires dealing with many challenges according to the nature of the signal and its frequency. This could be up to 1 kHz, in addition to the need to transfer data from more than one channel at the same time. Moreover, another challenge is a high sensitivity and low noise measurements of the acquired bio-electric signals which may be tens of micro volts in amplitude. For these reasons, a low power wireless Electromyography (EMG) data transfer system is designed in order to meet these challenging demands. In this work, we are able to develop an EMG analogue signal processing hardware, along with computer based supporting software. In the development of the EMG analogue signal processing hardware, many important issues have been addressed. Some of these issues include noise and artifact problems, as well as the bias DC current. The computer based software enables the user to analyze the collected EMG data and plot them on graphs for visual decision making. The work accomplished in this study enables users to use the surface EMG device for recording EMG signals for various purposes in movement analysis in medical diagnosis, rehabilitation sports medicine and ergonomics. Results revealed that the proposed system transmit and receive the signal without any losing in the information of signals.
Surface Multi-Purposes Low Power Wireless Electromyography (EMG) system Design

References

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Index Terms

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Keywords

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