عنوان مقاله:

Developing Portable audio-visual BiofeedbackSystem based on Electromyography forRehabilitation and Muscle Tension Control

محل انتشار:

کنفرانس بین المللی پژوهش ها و فناوری های نوین در مهندسی برق (سال: 1401)

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نویسندگان:

Navid Irandoost - *Department of Biomedical EngineeringMashhad Branch, Islamic Azad UniversityMashhad, Iran*

Ehsan Tahami - *Department of Biomedical EngineeringMashhad Branch, Islamic Azad UniversityMashhad, Iran*

خلاصه مقاله:

Available rehabilitation systems require highlyexperienced staff to interpret a patient's muscle activity in aspecialized laboratory, and have limitations such as theinability to conduct biofeedback at home. This study designedan interactive indoor electromyography (EMG) biofeedbackdevice for facilitating patients' rehabilitation. In sensingsection, we used an EMG sensor to recording patients' dataand in a processing section, this biofeedback device filteringrecorded signals and recovering misted data. At the end, itsends feedback to patient by playing a beep sound torepresent muscle tension and help you to controlling them.Also, using the built-in OLED screen, it is possible to readEMG data and sensor information or analog voltage on theOLED screen, and the OLED screen starts displaying theamount of analog EMG signal as well as the voltage. Thisdevice allows a person to consciously control a part of thebody that they cannot normally feel as well-known sense, likekinesthesia. EMG signals were obtained from ۱۰ healthy malesubjects, and the results were compared with the approveddata. According to the correlation coefficient parameters, theoverall similarity between the two systems was ۹۷.۴۸%. Theproposed device has some advantage, .such as small size,portable and rechargeable, low cost and user-friendlyinterface

کلمات کلیدی:

Audio-visual Biofeedback, EMG, Home usage,Low-cost, Rehabilitation

لینک ثابت مقاله در پایگاه سیویلیکا: