Siti Fauziah Toha
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MECHATRONICS ENGINEERING PROJECTS

Theory and Applications

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Editors

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6. EOG MEASUREMENT, CONDITIONING AND MOTION CONTROL OF WHEEL CHAIR SYSTEM

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ABSTRACT

This project is about the development of Electrooculograghy (EOG)-controlled wheelchair. The specialized wheelchair is intended for people whose upper part of the body paralyzed and they want to move around by using wheelchair that is controlled through their eyeball movement. In order to achieve the objective of this project, project is divided into four parts; 1) instrumentation to measure biopotential signal, 2) analog electronics circuit for biopotential signal conditioning, 3) wireless module for data transmission, and 4) wheeled-chair mechanism with control system. Two EOG signals from each eye namely the horizontal EOG (HEOG) and the vertical EOG (VEOG) are measured using five surface electrodes placed around the eye of the user of the system. These signals are later processed and used to control the motion of the wheelchair. It is anticipated that the wheelchair could provides mobility that is more flexible to the user and hence could improve the quality of life.

Keywords: EOG controlled wheelchair, wireless control, assistive technology