

A head orientated wheelchair for people with disabilities

陳適卿

Y. L. Chen;S. C. Chen;W. L. Chen J. F. Lin

摘要

Abstract

PURPOSE: Most electric wheelchairs available on the market are joystick-controlled making people with hand or arm disabilities unable to control the wheelchairs easily. This study proposes a new head-orientated wheelchair design for people with disabilities.

METHOD: This study involves a tilt sensor module fitted onto the operator's headgear that will sense head movements used to control the wheelchair's direction and speed. This system includes: the tilt sensor module, the signal processing circuit and a main controller.

RESULTS: The average times required for completing experiments by seven volunteers using joystick-controlled and the newly developed wheelchairs were recorded. It was revealed that the difference in average operating time for the two wheelchairs were statistically insignificant ($p>0.05$). **CONCLUSIONS:** The wheelchair developed in this study, although not absolutely superior to the joystick-controlled method, should still provide a better alternative for people with disabilities unsuited to traditional input devices.