

Abstract: Development of the Control Algorithm Using Driving-will Force Estimation for a Power-assisted Wheelchair

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Abstract

In this paper, the driving-will force estimation and control algorithm for a power-assisted wheelchair are suggested. According to recent number of increases in the elderly and people with disabilities, social interests of mobile devices for the elderly have been increased. Wheelchair as one of the aids can be divided into two classes, an electric wheelchair and manual one and it has the pros and cons of properties, so it is one of the important issues to put together the advantages. The power-assisted electric wheelchair includes advantage of two kinds of wheelchairs. However, in case of power-assisted wheelchair, it is required to accurately measure the user's willingness using a variety of sensors, and it is known that these sensors are quite difficult to implement. In this paper, in order to control the power-assisted electric wheelchair, the user's willpower was estimated by the existing input voltage and the rotational speed of the vehicle. Based on this method, proper the control algorithm was suggested to perform a power-assisted wheelchair. Through this process, the vehicle can be controlled only using user-driven estimation willpower, without the power-assisted sensors.

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