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Powered wheelchair controlled by eye-tracking system

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Keywords

eye tracking system, powered wheelchair, new calibration algorithm

Abstract

In this paper, we use the optical-type eye tracking system to control powered wheelchair. The user's eye movements are translated to screen position using the optical-type eye tracking system. The pupil-tracking goggles with a video CCD camera and a frame grabber analyzes a series of human pupil images when the user is gazing at the screen. A new calibration algorithm is then used to determine the direction of the eye gaze in real time. We design an interface with nine command zones to control powered wheelchair. The command at the calculated position of the gazed screen is then sent to move the powered wheelchair.



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