

MATLAB BASED EYE CONTROLLED WHEELCHAIR USING ARDUINO

ABSTRACT

Statistics suggests that there are around 40 cases per million of quadriplegia every year. Great people like Stephen Hawking have been suffering from this phenomenon. Our project attempts to make lives of the people suffering from this phenomenon simple by helping them move around on their own and not being a burden on others. The idea is to create an Eye Controlled System which enables the movement of the patient's wheelchair depending on the movements of eyeball. A person suffering from quadriplegia can move his eyes and partially tilt his head, thus giving is an opportunity for detecting these movements. There are various kinds of interfaces developed for powered wheelchair and also there are various new techniques invented but these are costly and not affordable to the poor and needy people. In this paper, we have proposed the simpler and cost effective method of developing wheelchair. We have created a system wherein a person sitting on this automated Wheel Chair with a camera mounted on it, is able to move in a direction just by looking in that direction by making eye movements. The captured camera signals are then send to PC and controlled MATLAB, which will then be send to the Arduino circuit over the Serial Interface which in turn will control motors and allow the wheelchair to move in a particular direction. We also created a Fall Detection wherein a Person sitting on this automated wheel chair falls Buzzer will be generated using Accelerometer and warning message will be automatically send to concern Person .The system is affordable and hence can be used by patients spread over a large economy range.

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