

WHEELCHAIR CONTROL BY EYES MOVEMENT AND VOICE RECOGNITION

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Abstract : Statistics suggests that there are 11,000 new cases of quadriplegia every year in United States of America. Great people like Stephen Hawking and Max Brito have been suffering from this crippling phenomenon. It is an attempt to make lives of the people suffering from this phenomenon simple and by simpler we mean self-reliant, which will thereby reinstate their confidence and their happiness. The idea is to create an Eye Monitored System and voice recognition system which allows movement of the patient's wheelchair depending on the eye movements and voice recognition. We have created a device where a patient sitting on the Wheel Chair assembly looking directly at the camera, is able to move in a direction just by looking in that direction. The camera signals are monitored by a MATLAB script and for voice recognition used HM2007, which will then guide the motors wired to the AtMega16P Microcontroller over the Serial Interface to move in a particular direction. This work basically depend on two systems1). By Eye control: This is a method to guide and control the wheelchair for disabled people based on movement of eye. This concept can be used for people with loco-motor disabilities. The proposed system involves three stages: image detection, image processing and sending of control signals to wheelchair. The eye movement is detected using a head mounted camera. The corresponding output signals are then send to the motor driving circuit which will control the motor actions. 2). By Voice control: Electronic system configuration, a sensor system, a dependent-user recognition voice system has been planned in this wheelchair. In this way we have obtained a wheelchair which can be driven with using voice commands and with the possibility of avoiding obstacles and downstairs or whole detection. The wheelchair has also been developed to allow autonomous driving, voice recognition and autonomous control are considered.

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IndexTerms – Wheel Chair, eyes and voice control, AtMega16, Bluetooth, and Camera.