

Head Movement Based Assist System For Physically Challenged

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ABSTRACT

An automated system was developed to control the motor rotation of a wheelchair based on the head movement of a person affected by Quadriplegia. People who are affected by this disease cannot move any of their body parts except their head. In order to facilitate these people for their independent movement, an accelerometer device is fixed on the forehead. Based on the head movement the accelerometer drives the motor connected to the wheel chair in any of the four directions. The automated wheelchair is based on simple electronic control system and the mechanical arrangement that is controlled by a Programmable Interface Controller. The vehicle can be driven at a normal speed. This device also helps people who have various other disabilities to sit on the chair and just hold the accelerometer and move it over to control the vehicle movements.

EXISTING SYSTEM

- In existing system, a human machine interface of controlling wheelchair using an infra-red non contact sensor. It used ultrasound transducers in the place of infra-red sensors for severe quadriplegics.
- In order to facilitate quadriplegic patients with reduced strength in hands and arms, in which the user gives noncontinuous touch to joystick to indicate displacement direction.
- To restore motor function in the paralysed body part, Functional electrical stimulation of muscles was used.

PROPOSED SYSTEM

- In proposed system, a head controlled assist system developed using an electronic and mechanical arrangement controlled by a Programmable Interface Controller.
- Sensor accelerometer placed on the patient's head sensed the tilt made by the head.
- This tilt corresponded to the analog voltage. Using this voltage, control signals were generated for four directions of the wheelchair.

SYSTEM REQUIREMENTS

SOFTWARE REQUIREMENTS

- Keil/Arduino IDE

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REFERENCE

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