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Department of Electronics & Communication Engineering

A PROJECT REPORT
ON

EYEBALL TRACKING & CONTROLLING APPLICATIONS

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ABSTRACT

One of mankind's most major senses is its eyesight. The eye is different from the other body parts that make up the human's sensor array. It is different, as through the eyes, a lot can be read with regards to a human's expressions. For example, it can be assumed that a person's attention is generally focused on where they are looking and because of this, tracking the eyes movement can be useful. Fiction has had people operating things using sight rather than hands a long time ago, yet the technology hasn't developed into the mainstream as of yet. The major reason seems to be the cost of systems, with most applications of gaze tracking being for specialist fields.

The main objective of this project is to make a paralyzed person (having good eye functioning) to do certain day to day activities like turning on/off the light, fan etc and moving from one room to other by wheelchair, on his own without the help of other people.

This objective is accomplished by using his eyeball as the controlling part. We take continuous live video of the person's eyeball movement. The video is stored in the memory of the computer as frames. These frames are processed using image processing algorithm with the help of MATLAB software to find the center of the eyeball. Based on the position of the eyeball control signals are sent from computer to the devices via wireless transmission technique.

The result of this is that using this project the paralyzed person is able to control certain devices without any physical contact with them. Another important feature of this project is that infrared light is not used to generate red eye effect which in long term use may damage the person's eye sight. In short this is a effective device for paralyzed people to become independent in doing certain activities on their own.