**Automatic Camera Based Eye Controlled Wheelchair System Using Raspberry Pi**

The purpose of this project is to build an eye controlled electronic wheelchair for the disabled person. The purpose of this eye controlled wheelchair is to eliminate the assistance required for the disabled person. In this system controlling of wheelchair is depend on eye movements. Camera is mounted on wheelchair in front of the person, for capture the image of eye and tracks the position of eye pupil by using some image processing techniques. According to eye pupil position of user, motor will be move in required direction such as left, right and forward. Obstacle sensor is mounted in front of wheelchair for safety to detect static or mobile barriers and stop the wheelchair movement automatically. A central switch is also mounted on wheelchair for emergency purpose and stop to move in require direction if any one call to stop and someone require attention on themselves. This is independent and cost effective wheelchair system. A raspberry pi board is used to control whole system.

This project is very useful for the people who are completely paralyzed as well as elderly to make their life more accessible. Person who are unable to walk and are using wheelchair exert great amount of energy using physical strength to turn the wheels. Disabled would save energy and could use their hand and arm for other activities.

The modules in the project are: USB camera based eye recognition system which is capable of recognizing the eye movement based commands by the user. DC motors which are connected to Raspberry Pi and wheel chair helps in chair movement. Motor driver is used to interface PMDC motors with raspberry pi processor.

**Major Building Blocks of this project are:**

1. Raspberry Pi 2 Board
2. PMDC Motors with Motor Driver
3. IR Obstacle Sensor
4. Power supply
5. Push Button (emergency switch)

**Block Diagram:**

