

I'm not robot!

What is due directive wheel chair?

The Eye Directive wheelchair is a mobility-aided device for persons with moderate/severe physical disabilities or chronic diseases as well as for the elderly. There are various interfaces for wheelchair available in the market, still they remain under-utilized, the reason being the ability, power and mind presence required to operate them. The proposed model is a possible alternative. In this model, we use the optical-type eye tracking system to control powered wheel chair. User's eye movements are translated to screen position using the optical-type eye tracking system, without any direct contact.



Working

The series of images taken by the camera is transmitted to the base station (computer/ laptop). The images are processed using Open Source Computer Vision Library (OpenCV), where they are converted into .xml file. OpenCV processing yields the length and width of the detected object(pupil). The length and width of each quadrant is prescribed in the OpenCV algorithm. The position helps to calibrate the quadrant in which the pupil lies, which helps us to find the direction in which the eye is pointing. The processing basically divides the image in three quadrants (left, right and center). If position of the pupil lies in the right quadrant then the wheelchair moves left. If it lies in the left quadrant, wheelchair moves right. If the object lies in the centre the wheelchair moves straight.

Determine the Height of Drop-Offs

For some students, it is difficult to visually determine the height of drop-offs. Below is one strategy for using a cane to measure a drop-off.

1. Locate the drop-off with the cane.
2. Pull up to the edge of the drop-off (just like finding the top of the stairs).
3. With the cane tip at the bottom of the drop-off, lean the cane against a solid object, for example, handlebars, joystick box, lap desk, or knee.
4. Place one hand flat on the object with the cane between the thumb and index finger.
5. Place the other hand flat on top of the first hand with the cane between the thumb and index finger.
6. Keeping the first hand on the object, lift the cane with the second hand until the tip clears the top of the drop-off.
7. Rotate the top hand down until the palm is against the cane.
8. If the two hands touch, the drop-off is probably small enough to be navigated. If the hands do not touch, the drop-off is probably too high to navigate.

Watch video CS5r: Cane Techniques: Determine the height of drop-offs.



