Mouse Control System for People Who Have Lost Their Privileges of Using Both Hands and Voice

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The "NOHV Mouse" system has been developed to provide a technique of mouse control as an alternative input device with personal computers for people with hand and speech disability. The standard mouse can be difficult for people with some disabilities to use and has to face lot of challenges when using the computer, we have to know what capabilities such a person has to apply universal design to computer interfaces. The user can control the cursor with small head movements and performing clicks with default facial gestures in front of a webcam. The system tracked the computer user's head movements with a video camera and translates them into the movements of the mouse pointer on the screen and detect eye open/close for performing click events. NOHV Mouse provided a real time tracking system using image processing, face/eye detection techniques. The system used basics of face detection using Haar Feature-based Cascade Classifiers and extend the same for eye detection. It was tested with some users and according to their feedback, it took average 15 minutes to get the best usage of the system and understood functions well and interact with the system. According to the results, showed that this system (NOHV Mouse) successfully provided computer access for people lost their both hands and voice with some limitations.The primary goal of this project is to provide a low-cost approach and increase the human computer interactivity than existing solution in the same problematic situation.

Keywords: Real-time tracking, Face detection, Eye Detection, Haar Feature-based Cascade Classifiers, Image Processing.