New interaction – eye tracking essay

What is Eye Tracking? Eye tracking is a technique whereby an individual's eye movements are measured in order to know both where a person is looking at any given time and the sequence in which their eyes are shifting from one location to another. It is a process of measuring either the point of gaze or the motion of an eye relative to the head. How does Eye Tracking work? Most of the eye-tracking systems use ' corneal-reflection/pupil-centre' method to measure the movements of the eyes. These kinds of trackers usually consist of a standard desktop computer with an infrared camera mounted beneath (or next to) a display monitor, with an image processing software to locate and identify the features of the eye used for tracking . The light enters the retina and a large proportion of it is reflected back, making the pupil appear as a bright, well defined disc. The corneal reflection is also generated by the infrared light, appearing as a small, but sharp . Image processing software can identify the center of the pupil and the location of the corneal reflection.

After doing the calculations the point at which the person is gazing can be found. Features of Eye-tracking Eye-tracking can be used for input, by directly controlling a pointer on the screen, or even for communicating the gaze direction. The device follows the movement of the eyes and allows the person to navigate through the web with only eye movements. Special software allows the person to type, and may include word-completion technology to speed up the process. Also eye-tracking can be used to measure the usability of the system.

Advantages • • • • • Eye movement is faster than other current input media. No training or particular coordination is required of normal users. Can

determine where the user's interest is focused automatically. Helpful for usability studies to understand users interact with their environments. Helpful for disabled people to interact with computer systems. Disadvantages • • • • The equipment is expensive. Some users can't work with the equipment (for example if they wear contact lenses or have long eye lashes).

Difficult to control eye position consciously and precisely at all times. Natural eye movements should be avoided. They must be interpreted carefully to avoid unwanted responses to user actions.