EYE TRACKING SYSTEM FOR ASSESSING LANGUAGE COMPREHENSION IN PEOPLE WITH BRAIN INJURY

TECHNOLOGY OVERVIEW

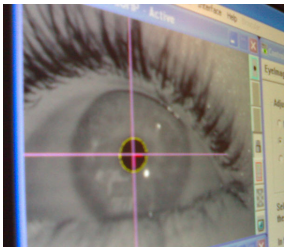
The method is a novel procedure to assess the language comprehension of people with neurological disorders using an eye tracking technology. It can be used as an effective tool to diagnose the level of comprehension in people who are severely inexpressive and minimize the disparity in the measure of comprehension in normal people during any kind of assessment. Auditory or written stimuli are presented to people and their eye movements are tracked using a remote corneal reflection system. Customized software analyzes the response of the subject and indicates his level of comprehension. Eye movements are usually preserved even in cases of severe motor and cognitive defects corroborating the suitability of the technique.

POTENTIAL FIELDS OF USE

The technology is extremely beneficial to people who are suffering from neurological disorders such as stroke, traumatic brain injury, blast injury (TBI), Alzheimer's disease, multiple sclerosis, amyotrophic lateral sclerosis. It would also be useful in diagnosing language comprehension in children suffering from Fetal Alcohol Syndrome. 2% of the U.S. population i.e. 5.3 million Americans are disabled due to TBI with 1.5 million sustaining brain injuries every year. 320,000 US troops in Afghanistan are believed to suffer from disabilities due to brain injury. In addition to these figures, millions suffer from other forms of neurological disorders. The medical support for a single patient usually exceeds $325,000 with medical expenses and loss of productivity affecting the economy by $37- $159 billion annually.

BENEFIT ANALYSIS

The technology is an important advent in the healthcare industry as no comparable clinical method exists that can perform a similar diagnosis and overcomes the disadvantages of those currently in use:



- Permits a real-time measure of comprehension and allows testing of a broad range of verbal and non-verbal stimulus.
- Facilitates the simultaneous detection of perceptual, attentional and motor defects in the comprehension capacity of the patients.
- Reduces the reliance on the patient's understanding and memory of instructions prior to testing and eliminates any direct contact with him.
- Constitutes a billable service qualifying for insurance reimbursement which makes it financially attractive to the buyers in addition to being technologically adept.

STAGE OF DEVELOPMENT

The proposed invention is at an advanced stage, having developed an eye tracking assessment and data analysis protocols that were previously untested in any population.

FUTURE DEVELOPMENT

An advanced software will be developed that will include a real-time display system, which will show the eye movements superimposed on visual displays. This will aid the determination of an optimal scoring criterion for the patients and provide a means of data interpretation. The existing software will be upgraded to this advanced level as additional research in the area is being pursued

LICENSING OPPORTUNITIES

The patent application for this technology has been filed. Licensing opportunities are available.

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