

Head-Mounted Display EEG Device

Tech ID: 30371 / UC Case 2017-145-0

BACKGROUND

Diagnosis and detection of progression of neurological disorders remain challenging tasks. For example, a validated portable objective method for assessment of degenerative diseases would have numerous advantages compared to currently existing methods to assess functional loss in the disease. An objective EEG-based test would remove the subjectivity and decision-making involved when performing perimetry, potentially improving reliability of the test. A portable and objective test could be done quickly at home under unconstrained situations, decreasing the required number of office visits and the economic burden of the disease. In addition, a much larger number of tests could be obtained over time. This would greatly enhance the ability of separating true deterioration from measurement variability, potentially allowing more accurate and earlier detection of progression. In addition, more precise estimates of rates of progression could be obtained.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego and nGoggle Inc. co-developed a head-mounted neuro-monitoring system and device that is worn on a user's head for visual-field examination by using high-density EEG to associate the dynamics of visual-event-related potentials (VERPs).

Specifically, this system is designed to monitor the electrical brain activity associated with visual field of a user. This system is comprised of a sensor unit to acquire electroencephalogram (EEG) signals from EEG sensors circumnavigating the head of a user, and a head-mounted frame for docking a personal electronic device over the user's eyes to present visual stimuli, in which the visual stimuli is configured to evoke EEG signals exhibited by the user, in which the assessment indicates if there is a presence of visual field defects in the user's visual field

APPLICATIONS

This invention provides an improved apparatus for screening for many optic neuropathy and neuro-degenerative diseases , including Alzheimer's , non-Alzheimer's dementia such as functional dementia , Parkinson ' s , Schizophrenia multiple sclerosis , macular degeneration , etc.

This technology may also be used for business and marketing applications, based on a person's psychological traits, cognitive skill levels, and associated psychological profile for a selected individual or group of individuals.

ADVANTAGES

Currently there is no portable head-mounted EEG display system, particularly a system that temporarily integrates or merges both mechanically and electronically a head-mounted EEG device with a portable electronic device.

STATE OF DEVELOPMENT

Working prototype

INTELLECTUAL PROPERTY INFO

Patent Pending

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OTHER INFORMATION

KEYWORDS

Brain-computer interface, BCI, EEG, electroencephalogram, visual-event-related potentials

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