

Neuro-Dot Sensors for Electric Field Encephalography

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Description

Conventionally, none of the available technologies/systems for brain monitoring involve the use of multiple electrodes to measure both electric potentials and fields. Moreover, such technologies/systems are associated with various limitations such as the inability for miniaturization, high setup time, low signal-to-noise ratio, limited temporal resolution, and lack of direct measurement mechanisms. In addition, traditional devices require long connecting wires that make their usage cumbersome. **This invention relates to the development and use of a novel, neuro-dot sensor capable of measuring electric-field as well as electric potential on the human scalp, overcoming prior-art limitations and unmet needs.**

Value Proposition

The sensor:

- Is wireless and self-contained
- Allows for a real-time, non-invasive monitoring of brain activity
- Is associated with a higher performance and sensitivity as compared to conventional sensors
- Is associated with an improved signal to noise ratio to detect electric fields with high noise reduction
- Is capable of integrating with smart-phones or computers for constant monitoring/signal analysis
- Comprises the use of multiple, micro-electrodes to concurrently measure EEG, EFEG, and higher potential derivatives
- Would be commercially useful for the following applications:
 - Functional brain imaging at high temporal and spatial resolution, pattern recognition, and cognition
 - Insights into neural correlates of vision and speech
 - Aging, sleep, epilepsy, and mental health research and applications
 - Military applications such as traumatic brain injury
 - Human-machine and brain-computer interfaces

Intellectual Property Status

Provisional Application 61/837,692

License Status

Available for license