

Non-Contact Biopotential Sensor

Tech ID: 20578 / UC Case 2008-143-0

TECHNOLOGY DESCRIPTION

This invention teaches a low-noise sensor and electronic circuit to measure electrical voltage signals generated by the body without direct contact with the body. The currently available technologies for similar sensors require electrical contact to the skin either with a conductive gel or abrasive skin preparation. This is a non-contact sensor which operates by capacitive coupling and is capable of measuring EEG signals through hair or ECG signals through clothing. In this invention, the circuit senses, amplifies, and acquires the signal from the body. This invention uses a switching device (a transistor or relay) to briefly close a shunting path from the sensing node to the ground potential. The switching mechanism of the circuit offers the advantage of injecting less circuit noise into the critical sensing mode. The target applications are for EEG signals for use in brain-computer interface, ECG for heart monitoring, and EMG for recording muscle activity.

STATE OF DEVELOPMENT

A prototype device has been made and tested.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,694,084	04/08/2014	2008-143

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
 - Devices
- **Sensors & Instrumentation**
 - Medical
 - Other

RELATED CASES

2008-143-0

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