Dentally-Based Concussion Sensing System for Enhanced Detection of Brain Injuries

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Technology description

Concussions cause damage to neurological functioning due to rapid cranial acceleration, typically caused by trauma or injury. Researchers at The University of Virginia have developed system providing continuous and real-time monitoring and detection of rapid cranial acceleration and the resulting head trauma. The system may include a passive sensor mounted to a subject's tooth using dental hardware or adhesive so as to harness the firm coupling between the subject's tooth and cranium. With such firm coupling established, the impact data measured by the tooth-mounted sensor can be manipulated, through the use of a transfer function, by external processors to determine and communicate the impact experienced by the subject's head. The system is configured for use with an external power source whereby the passive tooth-mounted sensor is activated by means of a wireless transfer circuit such as an inductive power transfer circuit or an ultrasound power transfer circuit. The wireless activation of the powerless interior sensor system provides compatibility with multiple external power configurations, thereby enabling efficacious and continuous monitoring of the subject.

Institution

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