

Car makers testing driver wake-up from sensors in headrest

August 19 2011, by Nancy Owano

(PhysOrg.com) -- Car manufacturers are looking at a technology that sets off an alarm for drivers if they are falling asleep at the wheel. Sensors embedded in the driver's headrest would read the brain's electrical activity patterns. The sensors would sound an alarm if detecting the driver might nod off. The company with the technology is San Jose-based NeuroSky. The company makes electroencephalography (EEG) headsets and has other technologies that translate brain-signal readings into practical use. The company promotes itself as on a mission to make BCI (brain computer interface) technologies available to any industry, and the auto solution is reported to be in the works.

[Technology Review](#) says the company has had talks with three large automakers. What's more, NeuroSky has given the auto makers seats and headrests for testing.

In theory, developing hardware and software that can understand brain signals and delivering products that translate the information for practical use promise limitless applications. In theory. The traditional use of the EEG (electroencephalogram) in lab and clinical settings has involved reading brain signals by hooking the user up to electrodes applied on the scalp with a thick medical gel to raise the brainwave signal. For widespread use, companies like NeuroSky want to be the ones to deliver brain-signal-reading devices outside the labs into real-life settings.

NeuroSky's auto application involves gel-free sensors. In the scenario, no

headset used for scalp-touching to pick up the brain's signals is involved. The [sensors](#) instead work through the headrest's fabric.

The fabric method, if successful, would not only help automakers sell their 'smart' cars as even smarter, but would help protect drivers against death and injury associated with road accidents caused by drivers too weary or falling asleep.

In a recent study from Allstate, almost half (45 percent) those polled said they have driven while excessively tired. The National Highway Traffic Safety Administration blames fatigue as the reason for 1,550 deaths, over 100,000 crashes, and 40,000 injuries per year.

The company spokesperson did not name manufacturers involved in the research but *Technology Review* said General Motors representatives have had recent meetings with NeuroSky.

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