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## Headset that reads your mind

It's all getting a bit emotional

by Katie Scott published on 20 February 2008

A US/Australian company is claiming to have invented a gaming headset that can read minds.

The Epoc neuro-headset from Emotiv interprets the interaction of neurons in the brain.

"It picks up electrical activity from the brain and sends wireless signals to a computer", explains Tan Le, the company's president.

"It allows the user to manipulate a game or virtual environment naturally and intuitively", she added. The headset uses non-invasive electroencephalography (EEG) to read neural activity in the brain - picking up on the tiny electrical impulses the brain's 100 billion nerve cells emit when interacting.

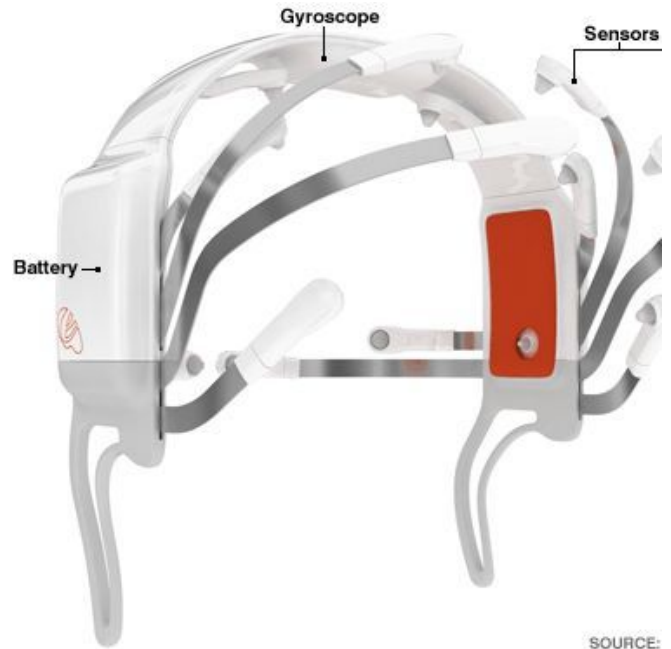
Emotiv claims that the headset can detect more than 30 different expressions, emotions and actions, including excitement, meditation, tension and frustration; facial expressions such as smile, laugh, wink, shock (eyebrows raised), anger (eyebrows furrowed); and cognitive actions such as push, pull, lift, drop and rotate (on six different axis).

Gamers are able to move objects in the world just by thinking of the action.

The BBC explains: "The Epoc technology can be used to give authentic facial expressions to avatars of gamers in virtual worlds. For example, if the player smiles, winks, grimaces the headset can detect the expression and translate it to the avatar in game".

"It can also read emotions of players and translate those to the virtual world."

This is not the first headset able to read neural activity but Emotiv claims that it is the first consumer device that will be suitable for gaming,



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when it comes on the market later this year.

"This is the first headset that doesn't require a large net of electrodes, or a technician to calibrate or operate it and does require gel on the scalp", Le told the BBC. "It also doesn't cost tens of thousands of dollars."

The \$299 headset has a gyroscope to detect movement and has wireless capabilities to communicate with a USB dongle plugged into a computer.

Emotiv is now working with IBM to develop the technology for uses in "strategic enterprise business markets and virtual worlds".

But it has also launched the Emotiv Development Kit (EDK), which allows game developers to attach dozens of thoughts and emotions to the actions in their virtual worlds.

Emotiv's EDK connects its headset to three pieces of software: an Expressiv application that identifies the user's facial expressions, an Affectiv application that measures players' emotional states and a Cognitiv application that detects players' conscious thoughts about lifting or rotating the objects they see.

The company has not announced pricing for the EDK as yet.