

Getting the best out of our brains

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Credit: University of Western Australia

Student innovators and graduates from The University of Western Australia are developing a headset that can monitor human brain waves and stimulate the brain to improve concentration and boost the brain's performance.

The headset uses Electroencephalography (EEG) technology to detect the state of the [brain](#) in real-time and determine metrics such as concentration and fatigue, and then applies a small electrical current, known as a transcranial alternating current (tACS), to stimulate better mental performance. UWA Law student and CEO of HUMM Technologies, Iain McIntyre said the start-up focused on expanding the potential of the [human brain](#) and making people's lives better by giving them more control of their cognitive function.

"The device provides EEG data just like you would see in a hospital, and determines which of those frequencies should be encouraged to assist in concentration and memory," Mr McIntyre said.

"It then stimulates the brain by providing a light electric current when a person loses focus to help them refocus and improve their concentration."

The device will initially target professional computer game players who need to concentrate for many hours at a time. "We're building this headset for eSports players so they're able to win more games, more often, and this will allow us to grow really quickly as a company," Mr McIntyre said. "From there we can develop our understanding of how the technology works in real life situations, as well as build our understanding of neuroscience, so that we can develop products for broader purposes in the future."

Industries such as industrial safety, motor vehicle safety, aviation and accelerated learning have been identified as potential markets for the future. "Ultimately we're looking to increase the power of the human brain, increase the ability of people to understand how their brain works and to make it better so we can solve the big problems in the future," Mr McIntyre said. HUMM brings together innovators from a variety of different backgrounds including a NASA intern, a trans-cranial direct current stimulation researcher and a medical doctor. "It's really important to have people who think in an innovative way and are passionate about achieving their goals but more importantly help others achieve their goals too," Mr McIntyre said. "There are a number of underlying technical and scientific challenges which we're taking head on. Some are fairly established science and some we're pushing the boundaries on, particularly in neuro stimulation."

Provided by University of Western Australia

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