

NeU Corporation

Marketing the world's smallest and lightest wearable device able to measure real-time brain activity via optical topography

<http://neu-brains.site>

NeU Corporation
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Founded in: August 2017
CEO: HASEGAWA, Kiyoshi
No. of employees: 20
Type of Ownership: private
Primary stock exchange: N/A

March 2020: As an industry-university joint venture of Hitachi High Technology Division and Tohoku University Institute of Development, Aging and Cancer, NeU is introducing a unique brain activity measuring device for individual use.

Venture Valuation (VV) interviewed, Kiyoshi Hasegawa, CEO.

NeU

VV: How would one use the wearable brain activity device, XB-01, in our daily life?

Hasegawa: The XB-01 device is the integration of Hitachi's optical topography technology and Tohoku University's brain science expertise.

The palm-sized device (4 cm by 8 cm) weighs 30 g including battery and Bluetooth 4.1LE. Its maximum thickness is 1.3 cm.



Attached on the back side of a hair band, the device measures and visualizes brain activity while the user is doing a quiz or game-like exercise on smartphone/iPad. The exercise program is customized for each user. The results are shown in real time on the smartphone/iPad. This enables the user to understand his/her own brain activity status and so provides an aid to improve daily life style.

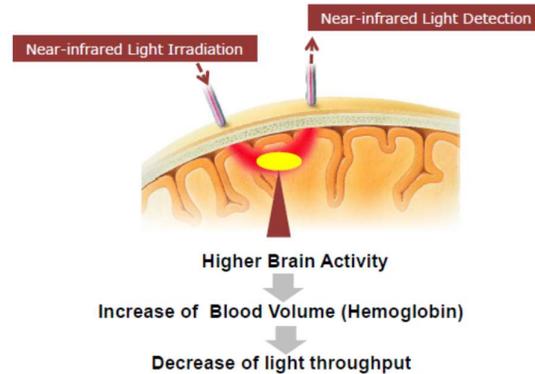


Like a fitness watch tracking steps, heart rate and other physical activities, or a portable home use blood pressure device monitoring your daily

high and low blood pressures, the device XB-01 records your brain activity.

VV: **Optical topography, conceived and named by Hitachi's Central Research Laboratory, is an imaging technique for brain functions.**

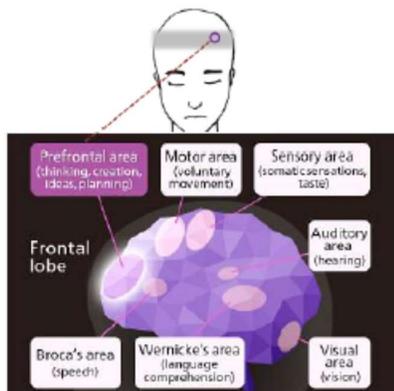
Hasegawa: Development of optical topography by means of functional near-infrared spectroscopy has more than a 20-year research history. Optical topography, a non-invasive medical and scientific technology, examines brain activity to measure and visualize the pattern of hemodynamic changes in the cerebral cortex at the brain surface.



The innovative features of optical topography were globally acknowledged in 2003 when it was used for a joint research with a European cognitive psychologist. The research team succeeded in demonstrating that a newborn can recognize its mother tongue¹.

VV: **The device seems helpful for us all, particularly for those who would like to understand their brain activity when they perceive memory loss or lack of attention.**

Hasegawa: Our CTO, Prof. Ryuta Kawashima, Director of Tohoku University Institute of Development, Aging and Cancer, is an internationally well-known neuroscientist and an expert in brain imaging. One of his research fields is mapping brain regions to functions.



The device XB-01 is designed for and focuses on the prefrontal area of the brain that is implicated mainly in short term memory, attention, thought, decision making, behavior control, etc.

¹ <https://www.hitachi.com/sustainability/highlight/2007/act0702/index.html>



VV: In addition to the device XB-01, which is your B to C business model, you are also developing B to B business as well as collaborating with research institutions on basic research.

Hasegawa: Our B to B business is supporting companies and organizations looking to improve the efficiency and performance of their workforce. We check employees' stress level in a work environment, identify stress factors, and suggest strategic improvement programs.

The other B to B business area is marketing research and analysis for product and service development. Different from conventional methods such as questionnaires and interviews, we examine intuitive reaction from brain activity.

Collaboration with research institutions is vital for further advancing our technology and business opportunities. We welcome collaboration proposals in neuroscience and other related fields.

VV Comments after the interview:

NeU makes the brain activity measurement device available for anyone who wants to check their brain status. Especially for people concerned about a decline in memory such as dementia, the handy device might be a great help.

According to the WHO (World Health Organization), as of September 2019, around 50 million people have dementia globally². The number of people with dementia is estimated to reach 82 million in 2030 and 152 million in 2050.

There is skepticism among dementia research professionals of the usefulness of brain game/training, which the brain activity measurement device XB-01 is also based on³. Nevertheless, the WHO reports that cognitive inactivity is one of the risk factors of having dementia in conjunction with lack of regular exercise, smoking, high blood pressure, high cholesterol and blood sugar, depression, social isolation, etc.

One hopes that the more popular the brain activity measurement device becomes, more data will support scientific evidence. And no one objects that preventive measures for any illness and disease may be beneficial.

² <https://www.who.int/news-room/fact-sheets/detail/dementia>

³ <https://www.ft.com/content/a0166eea-1e41-11e9-a46f-08f9738d6b2b>

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