

Promwad starts electronics and software design based on EEG biosensors

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Promwad Electronics Design House (<http://www.promwad.com>) has begun the exploration and implementation of EEG sensors for consumer electronic devices. This technology allows reading electrical activity of the human brain and designing new products with brain-machine interfaces for games and virtual reality, toys and education, smart homes and medicine.

Electroencephalographic (EEG) has long been used in medicine and other research areas. About ten years ago, the first low-cost EEG sensors opened the doors for new electronic products in the consumer market. During the last few years, EEG devices became smaller and easier to use for the general public.

Following this trend, Promwad has launched the first project to design a prototype of a device (<http://www.promwad.com/services/electronics-prototyping>) based on the EEG sensors. It will monitor human brain waves in homes and offices with a large number of other electrical devices that create low-frequency interference. The company also develops research software for training and controlling other devices using brain-machine interfaces.

Promwad's engineers use a wearable EEG device with dry sensors to explore the possibilities of this technology. The device was designed as a headset; its software processes the measurement data and sends it to a PC via Bluetooth, where it can be used by various applications via API.

Nowadays product development companies worldwide have access to readymade hardware and development boards to measure the human brain activity and visualize it in real time. This opportunity enables them to create devices and software to interpret the measured data as "Yes" or "No" binary values. Having a response to a yes-no question, engineers can design algorithms to control electronic devices such as smart home appliances, prostheses and wheelchairs, game and virtual reality stations, communication devices, and many others.

The application scope for EEG sensors is growing:

- Toys, computer or mobile games responding to a human brain activity
- Interactive cinema, where the movie plot depends on the viewer's mood
- Contextual advertising and market research testing potential customers' responses to different price ranges
- Communicational devices and robotic limbs for disabled people
- Devices and simulators for education and professional training

"Applying EEG technology to the consumer market is a natural result of the progress in wearables and digitization of human body," says Ivan Kuten, the BizDev of Promwad. "This is a very promising area of research and development, so we are open to cooperation with startups and mature companies that want to create new electronic devices or software based on EEG sensors."

Tags: electronics design, biosensors, EEG, neuroengineering, development of mobile interfaces, brain-computer interface, BCI.

Promwad Innovation Company (www.promwad.com) is an independent electronics design house, creates new devices and software for the global electronics market, taking a customer's product from idea to mass production in Europe or Asia. Since 2004, the company's engineers and designers have implemented over 275 projects in consumer electronics, telecommunications, automotive electronics, home and industrial automation, media and entertainment — these are over 1 million manufactured devices.

Promwad development center is located in Minsk (Belarus); there are offices in Moscow (Russia) and Vilnius (Lithuania), while there are also the company's agents and representatives all over the world.

Sales department:

UK: +44 (20) 3322 24 95

EU: +370 (5) 214 12 44

USA: +1 (347) 229 06 06