



# BRAINBIT

USE YOUR BRAIN LIKE NEVER BEFORE



## WHAT IT IS

BrainBit is a device in the form of a flexible extension band with dry electrodes, an integrated electronic module and removable battery.

## HOW IT WORKS

BrainBit is designed for daily comfortable use. It enables precise and reliable real-time monitoring (measuring and recording) of brain electrical activity through the head hair (the temples and the head) as well as bioelectrical activity of the forehead, face, head and eye muscles.

## TECHNICAL PARAMETERS

- ★ 4 EEG channels with a differentiation of myographic (EMG) and oculographic (EOG) components
- ★ Channel sampling rate — 250 Hz
- ★ Connection interface — Bluetooth LE
- ★ Minimum continuous usage — 12 hours
- ★ Measurable voltage range —  $\pm 0,4$  V
- ★ Battery current — 100 mA  $\pm$  10%
- ★ Battery charging time — up to 4 hours

## UNIQUE FEATURES

BrainBit uses dry electrodes in form of spring-loaded gilded sensors that ensure EEG recording through hair of any thickness without any gel.

Two electrodes are placed on the temporal lobe regions, two on the occipital lobe regions (T3, T4, O1, O2 according to the international 10-20 electrode system). The gilded flat reference sensor is positioned on the forehead.

Such positioning helps recording raw EEG data both in a bipolar and monopolar mode (minimising forehead biopotential artifacts).

## AREAS OF USE

Large variety of areas where BrainBit can be effectively used



### BRAIN COMPUTER INTERFACE (BCI)

BrainBit is used for neural-control in various hardware and software environments. A brain-machine interface is easy to integrate for control over drones and robots, wheelchairs and smart home systems.



### TRANSPORTATION SAFETY

Real-time neurofeedback can be used in understanding how the environmental factors such as time of day, road conditions and task at hand affect driving abilities.



### MEDITATION

Neurofeedback triggers are provided in real-time to strengthen individuals' meditation sessions.



### ESPORTS

Neurofeedback enables professional and amateur gamers to make incremental improvements in high performance training and competitive sessions.



### HEALTH AND WELLNESS

Users monitor neurofeedback across various activities and contexts while proactively regulating healthy mental and behavioral patterns.



### VIRTUAL / AUGMENTED REALITY

EEG technologies create a more immersive experience for users of VR, extending capabilities for mind-controlling interactions within VR and AR environments.



### SLEEP PATTERNS

Neurofeedback is used to analyze sleep patterns and explore optimal sleeping conditions.

## INTEGRATION OPTIONS

The device environment includes free Software Development Kit (SDK).

The software development kit is an easy-to-handle tool for developing individual applications based on BrainBit.



## THE DEVICE PROVIDES THREE SDK-LEVELS

The first level provides:

- raw EEG data (filters to separate any frequency rhythms can be applied);
- algorithms to identify areas of artifacts;
- signal spectrum composition.

The second level helps identify a person's condition by analysing her frequency rhythms:

- relaxation;
- deep relaxation;
- normal activity;
- agitation;
- strong agitation.

The third level provides a more in-depth assessment of various states during specific activities:

- meditation depth;
- relaxation level;
- emotions detection.