Bitbrain

Advanced EEG and biosignal technologies for real-world monitoring

Bitbrain catalogue

About our hardware

Practical EEG and biosignals monitoring for real-world research.

We have developed **innovative** human behaviour monitoring technologies **practical** for real-world applications:

- **Comfortable**: mobile, wireless and ergonomically designed for the user to capture natural behaviour.
- **Fast and simple**: easy to set up anywhere by non-technical personnel in just a few minutes.
- **Reliable**: outstanding signal quality thanks to electronic and mechanical designs that strongly reduce artifacts, even under movement or difficult recording circumstances.

Wearable and mobile devices for real-time monitoring of: **EEG**, **biosignals** (ExG, GSR, RESP, TEMP, etc.), **movement activity** (EMG, IMUs, etc.), **eye tracking** (screen-based and mobile), and people **location and tracking** (indoor/outdoor positioning system). Bitbrain technologies can be seamlessly integrated with VR devices.

Wide range of **software compatibility** with many third party scientific tools, development tools and Bitbrain platforms.

Bitbrain Software Kit (included)

· Real-time SDK: C/C++ Windows and Linux and Python.
· Data acquisition and visualization suite.
· Third parties real-time I/O (LabSreamLayer LSL).
· Third parties data analysis (Matlab , EEGLAB, BCILAB and more).

Bitbrain software platforms (optional)

· Bitbrain Human Behaviour Research Lab.
· Bitbrain Cognitive Training Lab.
· Bitbrain Programming Platform.

Product overview

EEG

Minimal dry-EEG family The world's most innovative family of wearable dry-EEG systems for real-world applications.	• Diadem • Hero • Immersive • Air	**P.5**
Versatile semi-dry EEG family Versatile and flexible family of mobile and semi-dry EEG systems for real-world research.	• Versatile EEG 8 / 16 / 32ch • Versatile EEG 64ch	**P.17**

Biosignals and movement

Minimal biosignal device Wearable and wireless device for real-world monitoring of GSR and BVP.	• Ring	**P.23**
Versatile biosignal amplifier Versatile and flexible amplifier for mobile physiological monitoring in human-behaviour research.	• Versatile Bio • Biosignals sensor kit • Movement sensor kit • Customized sensor kit	**P.29**

Indoor localization

Indoor positioning system (IPS) Wearable and accurate indoor positioning and tracking system for real-world research.	• InTrack • Coverage extension kit	**P.35**

Eye Tracker

Wearable or screen-based Family of wearable or screen-based eye tracking systems for real-world research.	• Tobii Pro Glasses 2 • Tobii Pro X2-30, X2-60, X3-120, Tobii Pro Nano, and Tobii Pro Spectrum	**P.41**

Software

Software tools and labs Wide range of practical software tools compatible with third parties and Bitbrain software platforms.	• Bitbrain Software Kit • Human Behaviour Research Lab • Cognitive Training Lab • Bitbrain Programming Platform	**P.49**

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Minimal EEG family

The world's most innovative family of wearable dry-EEG systems for real-world applications.

More info: www.bitbrain.com   info@bitbrain.com

Minimal EEG family

The world's most innovative family of wearable and dry-EEG systems for real-world monitoring

Family of wearable **dry-EEG** devices with optimized designs to capture the user's natural behaviour in real-world environments. The designs are very **comfortable**, **fast** and **easy to set up** by non-technical personnel anywhere in just a few minutes. The high-performance active shielding and mechanical design provides **outstanding robustness and signal quality,** even under movement or during long recording periods.

The EEG devices can be easily combined with other biometric devices and scientific research software platforms for even deeper insights into human behaviour.
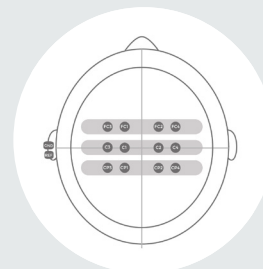
Dry-EEG products
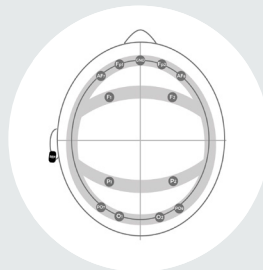
Diadem
Wearable EEG optimized for the estimation of emotional and cognitive states. With 12 dry-EEG sensors over pre-frontal, frontal, parietal and occipital brain areas.
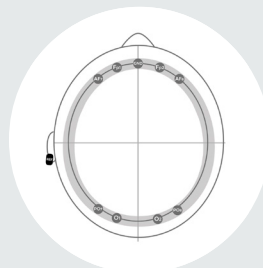
P.8

Hero
Wearable EEG optimized for the estimation of cognitive and sensorimotor states. With 12 dry-EEG sensors over fronto-central, central and centro-parietal brain areas.
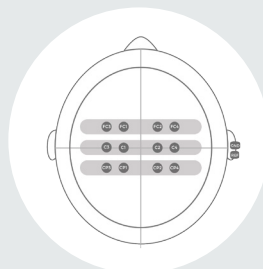
P.10

Air
Wearable EEG optimized for the estimation of basic emotional and cognitive states. With 8 dry-EEG sensors over pre-frontal and occipital brain areas.

P.12

Immersive
Wearable dry-EEG that can be seamlessly integrated with Oculus Rift and HTC Vive Pro, and optimized for cognitive and sensorimotor state estimation. With 12 dry-EEG sensors over fronto-central, central and centro-parietal brain areas.
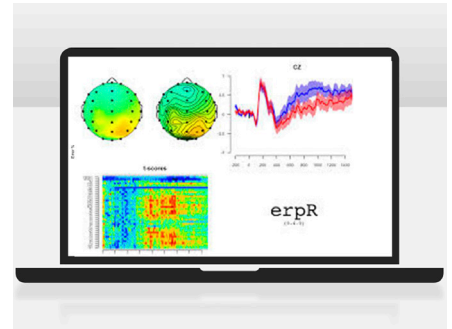
P.14

Key features

Independence and freedom
Wearable dry-EEG devices that provide maximum freedom of movement, virtually anywhere and under any circumstances.

Minimalistic headset designs
EEG headsets with a minimal number of sensors over specific brain areas, to facilitate the estimation of emotional, cognitive or sensory/motor states.

Highest standards of data quality
Innovative active shielding for dry-EEG sensors with a patented mechanical design, which ensures stable contacts and strongly reduces artifacts and interference even under movement or electromagnetic noise.

Fast and very simple set-up
The setup time is around 2 minutes on average for all devices. They all have an intuitive operation, and can be easily placed without previous experience assisted by the software.

High acceptance by the user
Design with advanced ergonomics for maximum comfort. No need to apply electrolytic substances, which eliminates user reluctance to gels and the need to wash hair and devices after each use.

Clean and with zero maintenance
The devices are easily stored, transported and cleaned with wipes. No expenses on consumables (jars of gels, syringes, shampoo, etc.), and no additional maintenance costs.

Data streaming and recording
Real-time streaming of raw data via Bluetooth and on-board SD card recording. Develop applications on Windows and Linux using the SDK, and export data to CSV.

Sync with other biometrics
Seamless integration with more than 30 complementary technologies as eye trackers, biosignals such as GSR, EMG, etc, indoor/outdoor positioning systems, microphones and cameras, and many more.

Third party compatibility
Compatible with Matlab (EEGLAB, BCILAB, etc), Python (MNE), LabStreaming Layer (BCI2000, OpenVibe, NeuroPype, etc), and with Bitbrain Human Behaviour Lab and Cognitive Training Lab.

Minimal EEG Diadem

Wearable dry-EEG device with sensors over frontal and posterior brain areas, and optimized for cognitive and emotional state estimation.

- **Wearable and comfortable**
  Fast and simple to set up. Participants forget that they are wearing it in few minutes.

- **Dry EEG sensors**
  No need to apply electrolytic substances or saline solutions.

- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Mechanical support**
  Flexible arcs and sensor adjustments that ensure comfort, and can adapt to head morphology and hair volume.

- **Connectivity and storage**
  Bluetooth real time EEG streaming and local SD storage.

- **Battery**
  8+ hours in streaming and in local SD storage.

Some applications

Develop new therapies based on brain-computer interfaces for cognitive or emotional neurorehabilitation.

Evaluate the natural human behaviour of customers when interacting with **marketing and communication materials**, or new experiences.
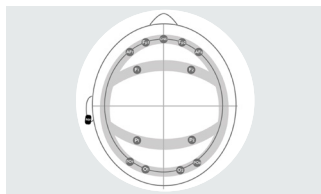
Evaluate and improve real-life workspaces by measuring workload, attention or stress levels in natural conditions.
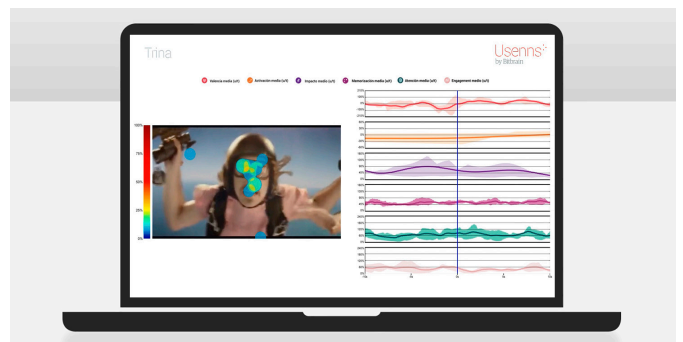
Learn about neural correlates of human behaviour **in combination with** other biosensors, eye trackers, indoor positioning system (IPS), and more.

Bitbrain

Technical overview

Layout optimized for frontal alpha asymmetry, occipital alpha -ERD/ERS, P300, N400 and CVN, among others.

Wearable and ultralight (185g) EEG headset. Quick and easy set up anywhere, and under any circumstances.

Reliable dry-EEG monitoring with 24 bits at 256Hz for 8+ hours. Bluetooth streaming and/or on-board SD storage.

Clean technology that is easy to transport and store without maintenance.

Hardware specifications

Sensors and headset	
EEG channels	12 x EEG (Fp1, Fp2, AF7, AF8, F3, F4, P3, P4, PO7, PO8, O1, O2), REF (A1) and DRL (Fpz)
Type of sensors/ electronics	EEG dry sensors with active shielding and optimized DRL
Head perimeter	53cm - 61cm

Wireless Amplifier	
Sampling rate/resolution	256 SPS at 24 bits
Bandwidth	DC − 40Hz (3º order LPF)
Online/real-time impedance check	Yes (relative contact impedance)
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer
Other inputs	1 x Digital input (1 bit), 1 x optical trigger
Input range and noise	± 100 mV, < 1 µVRMS (0.5 − 30Hz) @256Hz
CMRR / Input impedance	> 100 dB @50Hz, > 50 GΩ

Data streaming and store	
Data transmission and range	Bluetooth 2.1 + EDR, 10 meters in direct sight.
Data backup / files	Yes (removable micro SD card) / CSV (max 8GB. Class ≥ 10)

Power	
Battery	Rechargeable lipo battery. Charging time <3h
Autonomy	> 8 h

General	
Weight	Headset: 185g. Amplifier: 122g
Maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Bitbrain software kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc) and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Cognitive Training Lab	Software platform for QEEG and cognitive training for health and wellness.
Bitbrain programming framework	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- EEG headset and amplifier
- Power supply
- Storage base
- Instructions
- Suitcase
- Bitbrain Software Kit

Additional services

Onsite Installation and Initial Training
Our team provides a one-day training course that includes the onsite installation of your EEG headset and software. You and your team will gain a basic understanding of how to operate the system.

Hardware and Software Customization
Aesthetics (color, logos, etc), functionality (number of sensors, location, etc) or software customization. You will receive a tailored technology for your research or business.

More info: www.bitbrain.com

info@bitbrain.com

![Bitbrain logo]

Minimal EEG Hero

Wearable dry-EEG device with sensors over central brain areas, optimized for cognitive and sensory-motor states estimation.

- **Wearable and comfortable**
  Fast and simple to set up. Participants forget that they are wearing it in few minutes.

- **Dry EEG sensors**
  No need to apply electrolytic substances or saline solutions.

- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Mechanical support**
  Flexible arcs and sensor adjustments that adapt to head morphology and hair volume.
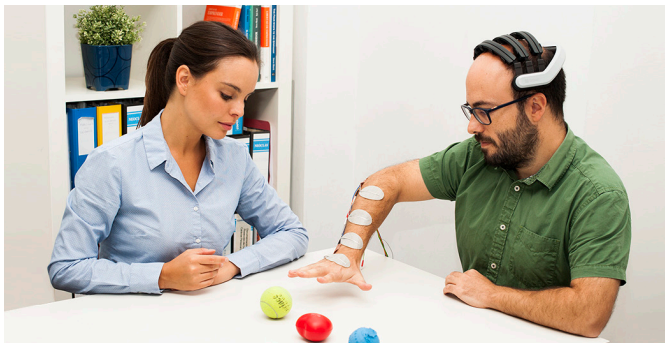
- **Connectivity and storage**
  Bluetooth real time EEG streaming and local SD storage.

- **Battery**
  Swappable batteries for 3+ hours in streaming and local SD storage.
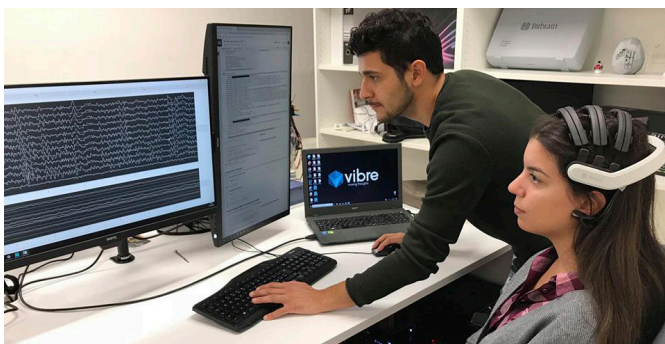
**Available in 2020**

Some applications

New health interventions based on brain-computer interfaces for cognitive or motor neurorehabilitation.

Capture natural human behaviour to **evaluate interfaces or physical products** to build optimal user experiences.
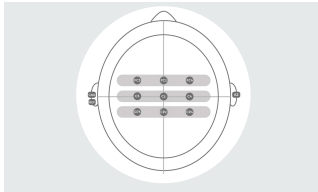

Improve educational workspaces by measuring cognitive or emotional performance, individually or in groups.
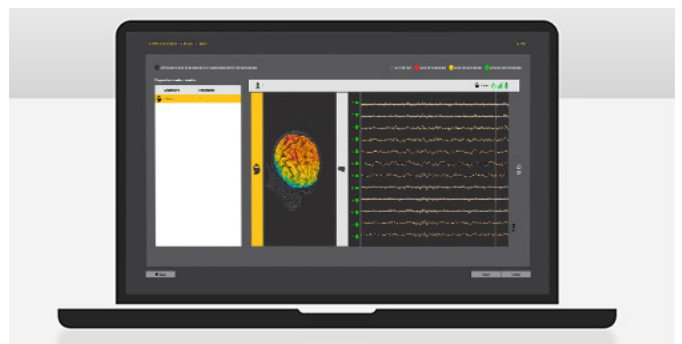
Learn about the **brain patterns of human behaviour** during the exposition of stimuli, combined with other monitoring technologies.

More info: www.bitbrain.com

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Technical overview

Layout optimized for mu/alpha ERD/ERS, ERPs (P300, N400), MRCPs, and CVN, among others.

Wearable and ultralight (250g) EEG headset. Quick and easy set up anywhere, and under any circumstances.

Reliable dry-EEG monitoring with 24 bits at 256Hz for 3+ hours. Bluetooth streaming and/or on-board SD storage.

Clean technology that is easy to transport and store without maintenance.

Hardware specifications

Sensors and headset	
EEG channels	10 x EEG (FC3, FCz, FC4, C3, Cz, C4, CP3, CPz, CP4, A2), REF (A1) and DRL (A1)
Type of sensors/ electronics	EEG dry sensors, active shielding and optimized DRL
Head breadth	13,5 - 16,5cm

Wireless Amplifier	
Sampling rate/resolution	256 SPS at 24 bits
Bandwidth	DC − 40Hz (3º order LPF)
Online/real-time impedance check	Yes (relative contact impedance)
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer
Other inputs	1 x Digital input (1 bit), 1 x optical trigger
Input range and noise	± 100 mV, < 1 µVRMS (0.5 − 30Hz) @256Hz
CMRR / Input impedance	> 100 dB @50Hz, > 50 GΩ

Data streaming and store	
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight.
Data backup / files	Yes (removable micro SD card) / CSV (max 8GB. Class ≥ 10)

Power	
Battery	Swappable lipo battery. Charging time <3h
Autonomy	> 3 h

General	
Weight	250g
Maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Bitbrain software kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB, etc), Python (MNE, etc) and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Cognitive Training Lab	Software platform for QEEG and cognitive training for health and wellness.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- EEG headset
- Power supply
- Cable USB-micro USB
- 2 rechargeable batteries 700mAh
- 3 sizes lateral extensions
- Instructions
- Suitcase
- Bitbrain Software Kit

Additional services

Onsite Installation and Initial Training
Our team provides a one-day training course that includes the onsite installation of your EEG headset and software. You and your team will gain a basic understanding of how to operate the system.

Hardware and Software Customization
Aesthetics (color, logos, etc), functionality (number of sensors, location, etc) or software customization. You will receive a fully made to order technology for your research or business.

Minimal EEG Air

Wearable dry-EEG device with sensors located over frontal and occipital brain areas, optimized for basic cognitive and emotional states estimation.

- **Wearable and comfortable**
  Fast and simple to set up. Participants forget that they are wearing it in few minutes.

- **Dry EEG sensors**
  No need to apply electrolytic substances or saline solutions.

- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Mechanical support**
  Flexible arcs and sensor adjustments that adapt to the head morphology and hair volume.
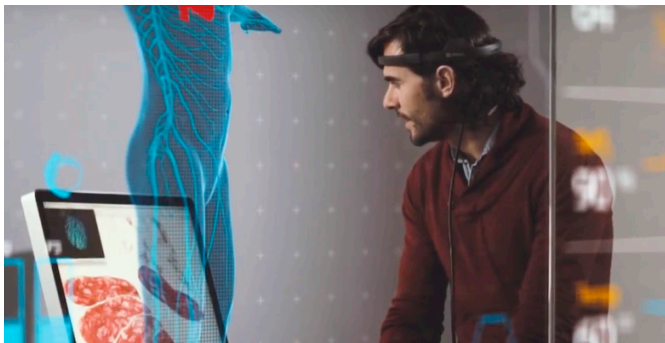
- **Connectivity and storage**
  Bluetooth real time EEG streaming and local SD storage.

- **Battery**
  8+ hours in streaming and in local SD storage.
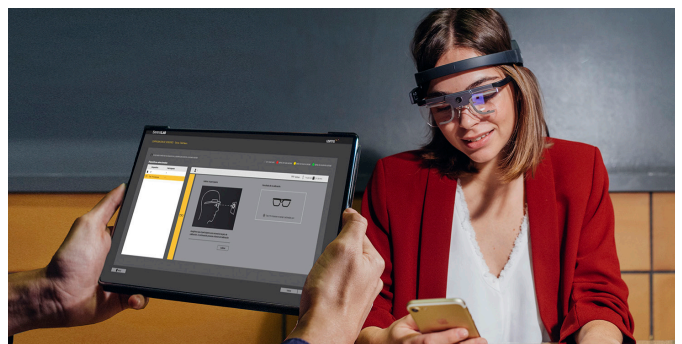
Some applications

Develop new ways to monitor EEG brain signals in natural and ecological real-world scenarios.

Discover new forms of interaction with digital and physical products, environments or new experiences.
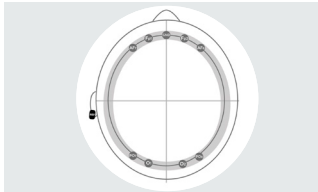

Create new interventions based on brain-computer interfaces for health and wellness.

Learn about the brain correlates of human behaviour **in combination with other biosignal technologies, eye trackers, IPS, and more.**

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Layout optimized for pre-frontal alpha asymmetry, occipital alpha, visual P300 and others.

Wearable and ultralight (130g) EEG headset. Quick and easy set up anywhere, and under any circumstance.

Reliable dry-EEG monitoring with 24 bits at 256Hz for 8+ hours. Bluetooth streaming and/or on-board SD storage.

Clean technology that is easy to transport and store without maintenance.

Hardware specifications

Sensors and headset	
EEG channels	8 x EEG (Fp1, Fp2, AF7, AF8, PO7, PO8, O1, O2), REF (A1) and DRL (Fpz)
Type of sensors/ electronics	EEG dry sensors with active shielding and optimized DRL
Head perimeter	53cm - 61cm

Wireless Amplifier	
Sampling rate/resolution	256 SPS at 24 bits
Bandwidth	DC – 40Hz (3º order LPF)
Online/real-time impedance check	Yes (relative contact impedance)
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer.
Other inputs	1 x Digital input (1 bit), 1 x optical trigger
Input range and noise	±100 mV, < 1 µVRMS (0.5 − 30Hz) @256Hz
CMRR / Input impedance	>100 dB @50Hz, > 50 GΩ
Data backup	Yes (removable µSD card) (max 8GB. Class ≥ 10)

Data streaming and store	
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight
Data files	CSV

Power	
Battery	Rechargeable lipo battery. Charging time <3h
Autonomy	> 8 h

General	
Weight	Headset: 130g, Amplifier: 82g
Maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Bitbrain software kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux.
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties and real-timeI/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc) and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Cognitive Training Lab	Software platform for QEEG and cognitive training for health and wellness.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- EEG headset and amplifier
- Power supply
- Storage base
- Instructions
- Suitcase
- Bitbrain Software Kit

Additional services

Onsite Installation and Initial Training
Our team provides a one-day training course that includes the onsite installation of your EEG headset and software. You and your team will gain a basic understanding of how to operate the system.

Hardware and Software Customization
Aesthetics (color, logos, etc), functionality (number of sensors, location, etc) or software customization. You will receive a fully made to order technology for your research or business.

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Minimal EEG Immersive

Wearable dry-EEG device seamless integrated with VR, and with sensors located in central brain areas for cognitive and sensory-motor states estimation.

- **Wearable and comfortable**
  Fast and simple to set up. Participants forget that they are wearing it in few minutes.

- **Dry EEG sensors**
  No need to apply electrolytic substances or saline solutions.

- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Mechanical support**
  Flexible arcs and sensor adjustments that adapt to head morphology and hair volume.

- **Connectivity and storage**
  Bluetooth real time EEG streaming and local SD storage.

- **Battery**
  8+ hours in streaming and 10+ in local SD storage.

Available in 2020

Some applications

Capture natural human behaviour for **optimal user experience in entertainment VR,** such as video games, cinema or online TV.

Develop new therapies in healthcare based on VR and brain-computer interfaces for cognitive or motor neurorehabilitation.
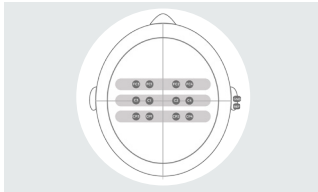
Evaluate and train professional skills in defence, health, space or automation, combining VR and brain data, individually or in groups.

Learn about the neurophysiological correlates of human behaviour **combining the VR stimulation with other monitoring devices.**

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Layout optimized for mu-ERD/ ERS, MRCPs, alfa ERD/ERS, N400 and CVN, among others.

Wearable and ultralight (262g) EEG headset. Quick and easy set up anywhere, and under any circumstances.

Reliable dry-EEG monitoring with 24 bits at 256Hz for 3+ hours. Bluetooth streaming and/or on-board SD storage.

Clean technology that is easy to transport and store without maintenance.

Hardware specifications

Sensors and headset	
EEG channels	12 x EEG (FC3, FC1,FC2, FC4, C3, C1, C2, C4, CP3, CP1, CP2, CP4), REF (A2) and DRL (A2)
Type of sensors/ electronics	EEG dry sensors, active shielding and optimized DRL
Fits heads	According to VR device

Wireless Amplifier	
Sampling rate/resolution	256 SPS at 24 bits
Bandwidth	DC − 40Hz (3º order LPF)
Online/real-time impedance check	Yes (relative contact impedance)
Integrated sensors	Integrated IMU (9 axis)): 3-axis accelerometer, 3-axis gyroscope and 3-axis magnetometer
Other inputs	1x Digital input (1 bit), 1x optical trigger
Input range and noise	±100 mV, < 1 µVRMS (0.5 − 30Hz) @256Hz
CMRR / Input impedance	>100 dB @50Hz, > 50 GΩ
Data backup	Yes (removable µSD card) (max 8GB. Class ≥ 10)

Data streaming and store	
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight
Data files	CSV

Power	
Battery	Swappable lipo battery. Charging time <3h
Autonomy	> 3 h

General	
Weight	Headset: 262g
Maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Bitbrain software kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux .
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc) and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Cognitive Training Lab	Software platform for QEEG and cognitive training for health and wellness.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- EEG headset and amplifier
- Power supply
- Storage base
- Charger USB-microUSB
- 2 rechargeable batteries 700mAh
- Instructions
- Suitcase
- Bitbrain Software Kit

Additional services

Onsite installation and initial training
Our team provides a one-day training course that includes the onsite installation of your EEG headset and software. You and your team will gain a basic understanding of how to operate the system.

Hardware and software customization
Aesthetics (color, logos, etc), functionality (number of sensors, location, etc) or software customization. You will receive a tailored technology for your research or business.

More info: www.bitbrain.com

info@bitbrain.com

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Versatile EEG family

Versatile and flexible family of mobile and semi-dry EEG systems for real-world research.

Versatile EEG family

Versatile and reliable family of mobile and semi-dry EEG systems for real-world research.

Family of versatile **semi-dry EEG** with 8/16/32/64ch for mobile and wireless EEG monitoring. With a very **quick and easy set up** for the researcher and comfort and freedom of movement for the user. Following the international 10-10 and 10-20 system, the semi-dry sensors (tap water humidity) can perform 6+ hours of continuous recording with **outstanding signal quality,** even under the most demanding recording circumstances.

The semi-dry EEG family combines all the advantages of the gel-EEG and dry-EEG worlds: the highest EEG quality in the most adverse circumstances as gel-based systems, while retaining the comfort, speed and cleanliness of dry-EEG systems.
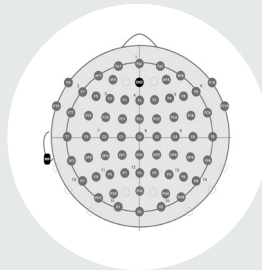
Semi-dry EEG products
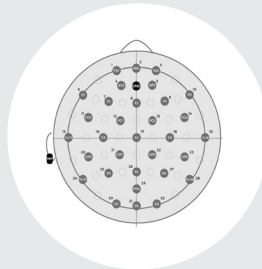
Versatile 8 / 16 / 32
Mobile semi-dry EEG system with 8/16/32ch for high-quality real-time EEG monitoring. International 10-20 and 10-10 system.
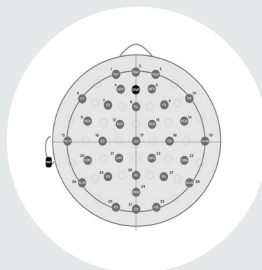
P.20

Versatile 64
Link together two EEG 32ch systems to record 64ch synchronized, or use them independently.

*The figure displays 32ch amplifier.

Compatible with

VR compatibility
Compatible with Oculus Rift and with HTC Vive Pro.

Bitbrain

Key features

Freedom in real-world research

Semi-dry EEG family of headsets that can be integrated with Oculus and HTC Vive Pro. Mobile and wireless systems that provide maximum freedom of movement.

From low to high density EEG

Systems range from 8 to 64 channels, and can be placed in any position of the international 10-10 and 10-20 system. They cover from the most basic to the most sophisticated neurophysiological recordings.
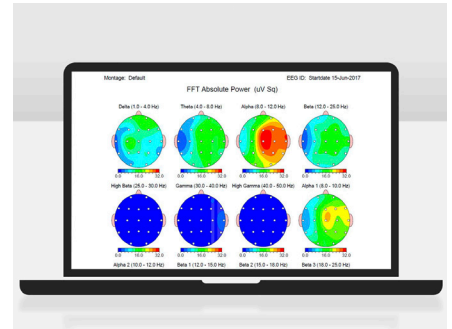
Highest standards of EEG quality

Innovative system of semi-dry EEG sensors with a mechanical design that ensures stable contacts. DRL and active shielding to eliminate artifacts even under high movement conditions.

Very easy and fast set-up

The setup time is 2 minutes on average for the 16ch system. They all have an intuitive operation, and can be easily placed by following the procedures displayed by the system.


Comfort and cleanliness

Design with advanced ergonomics. Does not require the application of gel-based electrolytic substances, which eliminates user reluctance to gels and the need to wash hair.


Hygienic with little maintenance

Uses absorbent materials moistened with tap water for 6+ hours of continuous recording before evaporation. No gel or syringes are needed, simplifying the maintenance of the equipment and lab.
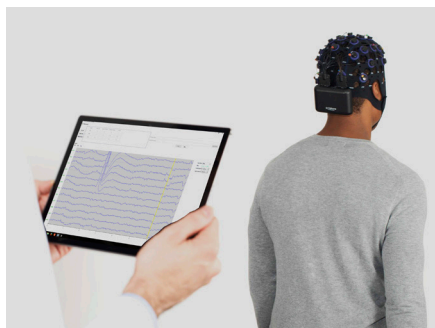
Data stream and recording

Real-time streaming of raw data via Bluetooth and on-board SD card recording. Develop applications on Windows and Linux using the SDK, and export data to CSV or EDF.
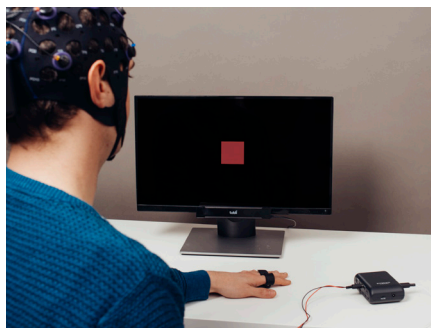
Sync with other biometrics

Seamless integration with more than 30 complementary technologies as eye trackers, biosignals such as GSR, EMG, etc, indoor/outdoor positioning systems, microphones and cameras, and many more.

Third party compatibility

Compatible with Matlab (EEGLAB, BCILAB, etc), Python (MNE), LabStreamingLayer (BCI2000, OpenVibe, NeuroPype, etc), and with Bitbrain Human Behaviour Lab and Cognitive Training Lab.

Bitbrain

Versatile EEG
8 / 16 / 32 / 64ch

The most outstanding reliability and signal quality in out-of-lab scenarios with these wireless semi-dry EEG devices.

- **Mobile and wireless**
  Very comfortable technology that is easy to set up and wear. Can be integrated with VR.

- **Semi-dry EEG sensors**
  Sensors moistened with tap water. Up to 6+ hours of continuous recording.

- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Mechanical support**
  International 10-10 system with transpirable caps in different sizes.

- **Connectivity and storage**
  Bluetooth real time EEG streaming and local SD storage.

- **Battery**
  8+ hours in streaming and 10+ in local SD storage.

Some applications

Expand your research scenarios in **psychology** and **neuroscience** by monitoring brain activity out of the lab.

Explore new EEG correlates in real world applications such as **sports science, education, UX** or in **professional workspaces**.
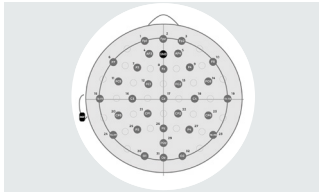
Perform clinical research, new neurorehabilitation therapies or assessment of interventions based on EEG patterns.

Combine EEG correlates with **other biosignals** (GSR, EMG, HR, etc.) and **Virtual Reality** to explore and learn about human behaviour.

20

More info: www.bitbrain.com

Bitbrain

Technical overview

Flexible or predefined layout within the international 10-20 and 10-10 system.

Wireless, mobile and ultralight (amplifier from 83g - the 8ch). Fast and easy to use.

Reliable semi-dry EEG up to 256Hz and 24 bits during 8+ hours. Bluetooth streaming and/or on-board SD storage.

Clean technology that works with absorbent materials moistened with tap water. Easy to transport and with minimal maintenance.

Hardware specifications

Sensors and headtset	8ch	16ch	32ch
EEG channels	8 x EEG, REF	16 x EEG, REF	32 x EEG, REF
Type of sensors	Semi-dry sensors, active shielding and optimized DRL		
Head perimeter	24cm - 66cm (Cap sizes S, M, L, XL)		
Wireless Amplifier			
Sampling rate / Resolution	256Hz at 24 bits		
Bandwidth	DC − 40Hz (3ºLPF)		DC − 70Hz (3ºLPF)
Real-time check impedance	Yes (relative contact impedance)		
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer		
Other inputs	1 x Digital input (1 bit), 1 x optical trigger (photodiode)		1x optical trigger 1x digital input 2x Bipolar ExG
Input range and noise	± 100 mV, < 1 µVRMS (0.5 − 30Hz) @256Hz ± 400 mV, < 4 µVRMS (0.5 − 30Hz) @256Hz (bipolar ExG)		
CMRR / Input impedance	> 100 dB @50Hz, > 50 GΩ		
Data backup	Yes (removable µSD card) (max 8GB. Class ≥ 10)		
Data streaming and store			
Transm. / range	Bluetooth 2.1 + EDR with 10 meters in direct sight		
Data files	CSV		
Power			
Battery	Rechargeable lipo battery. Charging time <3h		
Autonomy	> 8 h		
General			
Weight (complete)	192g	290g	450g
Maintenance	Gentle soap and disinfectants.		
Warranty	2 years		
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024		

Software specifications

Bitbrain software kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB, etc), Python (MNE, etc), Neuroguide and more

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Cognitive Training Lab	Software platform for QEEG and cognitive training for health and wellness.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.
Bitbrain health platform	Platform for QEEG and cognitive training

Bundle includes

- EEG amplifier
- 1 sensor set (8/16/32 respectively)
- Sensor bases (17/33/65 units)
- Table to store and organize sensors
- Power supply
- 2 caps (M and L size)
- Sponges (200 units)
- Cable fixation tape
- Metric tape
- Instructions
- Suitcase
- Bitbrain Software Kit

Additional services

Onsite installation and initial training
Our team provides a one-day training course that includes the onsite installation of your EEG headset and software. You and your team will gain a basic understanding of how to operate the system.

Hardware and software customization
Aesthetics (color, logos, etc), functionality (number of sensors, location, etc) or software customization. You will receive a tailored technology for your research or business.

Minimal biosignal device

Wearable and wireless device for real-world monitoring of GSR and BVP.

More info: www.bitbrain.com

info@bitbrain.com

Minimal biosignal device

Wearable and wireless device for real-time monitoring of GSR and BVP in real-world applications.

Ring is a wearable and wireless monitoring device for real-life scenarios. This device has an ultralight and comfortable design with two key biosensors for a basic estimation of emotions (**galvanic skin response - GSR**, and **blood volume pressure - BVP**), and a 3-axis solidary **accelerometer** to estimate the noise generated by finger movements. Its ergonomics, reliability and ability to self-positioning open an infinite range of possibilities. For example, it can be used in or out of the lab scenarios, such as workplaces, shopping centers, etc.

In addition to this, it is possible to combine (seamlessly sync) with biometric devices and scientific research software platforms for even deeper insights into human behaviour.

Products

Ring

Wearable and wireless device for real-world monitoring of GSR, BVP and movement (accelerometer).
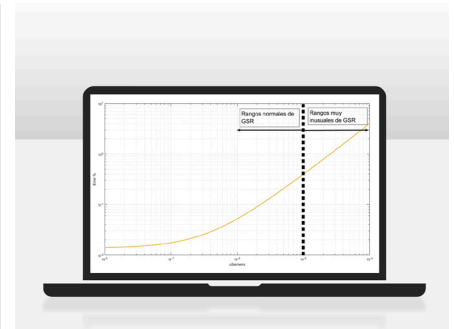
Key features

Real-world applications

Wearable GSR and BVP that provide great comfort and freedom of movement to the user, in order to capture natural behaviour in real-world applications.

Optimized to track emotions

Wearable device with the most widely accepted sensors used by the research community to estimate emotions (GSR and BVP).

Highest standards of data quality

Sensors located over the optimal measurement points as agreed by the research community (2nd finger phalanges), and with an accelerometer to filter artifacts caused by finger movements.

Very easy and intuitive set-up

The set up time is less than 10 seconds on average. With an intuitive operation, it can be easily self-placed without previous experience.


High acceptance by the user

Designed with advanced ergonomics for maximum comfort. No need to apply electrolytic substances, which increases user acceptance and eliminates the need to wash skin or the device after each use.

Clean and with zero maintenance

The device is easily stored, transported and cleaned with wipes. No expenses on consumables (jars of gels, syringes, shampoo, etc.), and no additional maintenance costs.
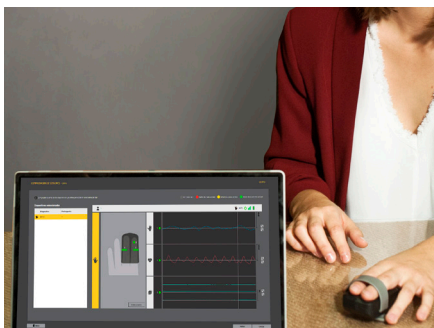
Data stream and recording

Real-time streaming of raw data via Bluetooth and on-board SD card recording. Develop applications on Windows and Linux using the SDK, and export data to CSV.

Sync with other biometrics

Seamless integration with more than 30 complementary technologies such as EEG, eye trackers, indoor/outdoor positioning systems, microphones and cameras, and many more.

Compatibility with scientific platforms

Compatible with Matlab (EEGLAB, BCILAB, etc), Python (MNE), LabStreamingLayer (BCI2000, OpenVibe, NeuroPype, etc), and with Bitbrain Human Behaviour Lab and Cognitive Training Lab.

Ring

Wearable and wireless device for real-time monitoring of GSR and BVP in real-world applications.

- **Adaptable and adjustable**
  Very comfortable technology that can be set up easily in less than 10 seconds.

- **GSR, BVP and ACC sensors**
  Dry-sensors located on the fingers´ first and second phalanges (optimal measurement points).

- **Advanced electronics**
  Signal acquisition layer optimized to improve SNR, while reducing external artifacts.

- **Mechanical support**
  The technology mitigates artifacts produced by finger movements (anyway are measured by the solidary accelerometer).

- **Connectivity and storage**
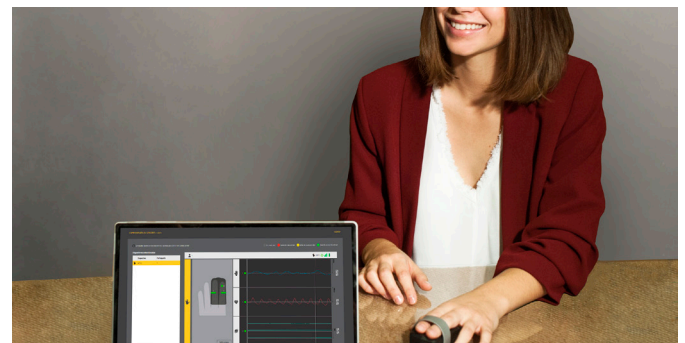 Bluetooth real time data streaming and local SD storage.

- **Battery**
  10+ hours in streaming and in SD storage.

Some applications

Explore new research scenarios in **psychology and neuroscience** with fast and easy monitoring in and out-of-the lab.

Understand physiological correlates in real world applications, such as **education, UX** or in **professional workspaces**.

In **clinical research**, perform biofeedback applications for stress, or assessments based on physiological responses.

Learn about the physiological patterns of human behaviour i**n combination with EEG, biometrics, VR technologies, etc**.

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Layout optimized to measure GSR and BVP (cardiac activity), in order to estimate emotional states.

Wireless, mobile, compact and ultralight (60g). Very easy to use, even allowing self-placement.

Reliable biosignal monitoring at 32Hz and 16 bits during 10+ hours on Bluetooth streaming.

No maintenance and easy to transport.

Hardware specifications

Sensors	
Biosignal channels	1 x EDA (µS), 1 x BVP (bpm), 1 x ACC (3-axis)
Wireless amplifier	
Sampling rate	32 SPS (samples per second)
Resolution	16 bits
Bandwidth	DC − 16Hz (2º order LPF)
Integrated sensors	Integrated Accelerometer (3 axis)
Input range and noise	0.1 - 100 µS, (GSR) 0 - 250 bpm (BVP) ± 4G (Accelerometer)
Data backup	Yes (removable micro SD card) (max 8GB. Class ≥ 10)
Indicators	On/off/connection state LED battery sate LED micro SD card state LED
Data streaming and store	
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight.
Data files	CSV
Power	
Battery	Rechargeable lipo battery. Charging time <3.5h
Autonomy	> 10 h
General	
Weight	60g
Cleaning and maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Bitbrain Software Kit (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB, etc), Python (MNE, etc) and more

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- Wearable device
- Cable USB-microUSB
- Instructions
- Packaging box
- Bitbrain Software Kit

Additional services

Onsite installation and initial training
Our team provides a one-day training course that includes the onsite installation of your Ring and software. You and your team will gain a basic understanding of operating the system.

Hardware and software adaptation
Aesthetics (color, logos, etc), funcionatility (type of sensors, location, etc) or software customization. You will receive a tailored technology for your research or business.

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Versatile biosignal amplifier

Versatile and flexible amplifier for mobile physiological monitoring in human-behaviour research.

Versatile biosignal amplifier

Mobile and versatile biosignal amplifier to monitor up to 35 physiological variables simultaneously with milli-second synchronization.

Versatile Bio is a mobile and practical real-time biosignal acquisition amplifier, which provides great **flexibility** to monitor a large number of simultaneous physiological variables together **allowing freedom of movement**. It can record for **8+ hours up to 35 simultaneous channels** of analog biosignals (GSR, ExG, RESP, TEMP, etc.), movement activity and location (EMG, IMUs, GPS, etc.), behavior inputs (pedals and push buttons), and communication inputs/outputs (LPT, digital, etc.).

Combine it **seamlessly synchronized** with biometric devices and scientific research software platforms for even deeper insights into human behaviour.

Products

Vers...

Mobil... ...fier
with u... ...ed to
35ch)... ...vioural
signa...

Amplifier inputs/outputs

- 9 bipolar analog inputs
- 7 unipolar analog inputs
- 2 digital COM inputs (extensible to 16)
- 1 digital Input
- 1 digital Output
- 1 internal IMU

Biosignals sensor kit

- 9x ExG bipolar lead + GND lead
- 16x ECG/EMG electrodes
- 1x respiratory effort band
- 1x air flow sensor
- 1x GSR sensor

- 1x BVP sensor
- 1x temperature sensor
- 1x snore sensor
- 1x (1- 3 - 7) buttons box
- 1x pedal
- 1x optical trigger (photodiode)

Movement sensor kit

- 2x IMUs multiplexed
- 16x IMUs 9 d.o.f.
- 1x GPS
- 9x ExG bipolar lead + GND lead

- 16x ECG/EMG electrodes
- 1x (1- 3- 7) buttons box
- 1x pedal

Customized sensor kit
Any combination of all the biosignals, movement, localization and behavioural sensors.

Key features

Flexible for all types of research
Mobile amplifier that provides maximum freedom of movement with remote/ local monitoring. Maximum flexibility and multiple combinations of sensor modalities.


35 biosignals simultaneously
Acquire simultaneously bipolar electrical biosignals (ExG), analog biosignals (GSR, RESP, TEMP, etc.), movement and location (IMUs, GPS), behaviour inputs (push buttons), digital inputs / outputs (LPT, etc.).

Millisecond sync of all sensors
All the biosignals and inputs are digitaled at 256 Hz sampling rate, so all the signals are synchronized with a precision under <4 milliseconds. Hardware sync also with other equipments thanks to the digital I/O.
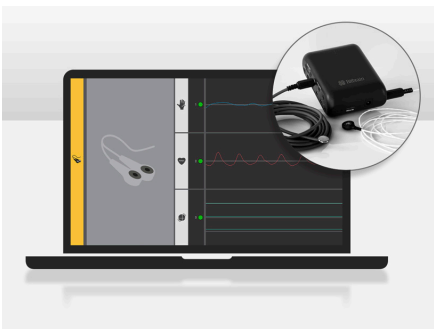
Highest standard of data quality
High sensor quality in an innovative system with stable contacts to mitigate mechanical artifacts. Active shielded ExG to mitigate electromagnetic interferences and artifacts caused by movement.

Fast and intuitive set-up
The amplifier can be placed on the arm, waist or leg. The sensor setup follows standard procedures with an intuitive operation and minimal learning time.


Easy maintenance and storage
All sensors require low maintenance using off-the-shelf consumables, and are packed with the amplifier in a suitcase for easy storage and transportation.

Data stream and recording
Real-time streaming of raw data via Bluetooth and on-board SD card recording. Develop applications on Windows and Linux using the SDK, and export data to CSV.
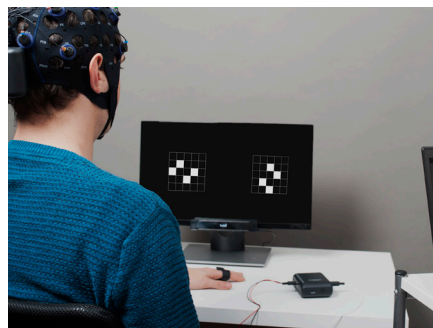
Sync with other biometrics
Seamless integration with more than 30 complementary technologies as EEG, eye trackers, indoor positioning systems, microphones and cameras, and many more.

Compatibility with scientific platforms
Compatible with Matlab (EEGLAB, BCILAB, etc), Python (MNE), LabStreamingLayer (BCI2000, OpenVibe, NeuroPype, etc), and with Bitbrain Human Behaviour Lab and Cognitive Training Lab.

![Bitbrain]

Versatile Bio

Compact and mobile equipment to simultaneously monitor 21ch (extensible to 35ch) of physiological variables with outstanding signal quality and millisecond synchronization.

- **Mobile and compact**
  Multi-purpose technology that is easy to set up and wear.

- **21+ channels**
  That can monitor up to 35 physiological variables with millisecond sync.
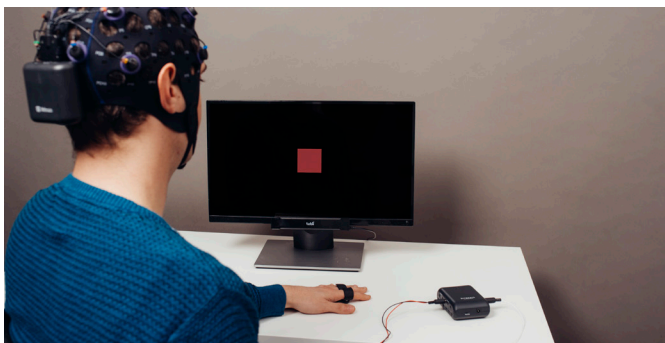
- **Advanced electronics**
  Active shielding with optimized DRL to improve SNR and reduce artifacts.

- **Flexible position**
  The amplifier can be placed on the arm, waist or leg.

- **Connectivity and storage**
  Bluetooth real time data streaming and local SD storage.

- **Battery**
  8+ hours in streaming and in local SD storage.


Some applications

Explore new research scenarios in **psychology and neuroscience** with a complete physiological human monitoring in or out-of-the lab.

Understand physiological correlates in real world applications such **sports science, education, UX or in professional workspaces.**

Perform **clinical research**, new neurorehabilitation therapies, or assessment/interventions based on physiological responses.
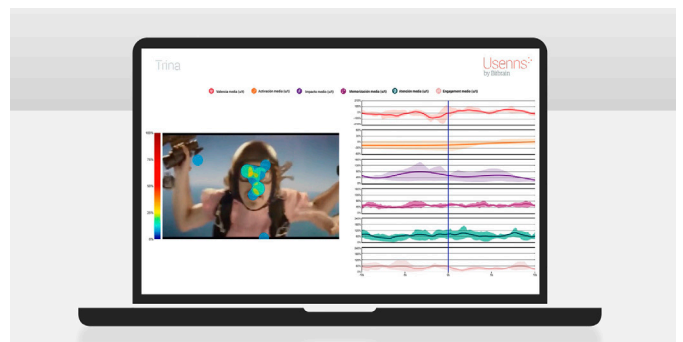
Learn about the physiological correlates of human behaviour in combination **with EEG, biometrics, VR technologies, etc.**

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Versatile technology to monitor up to 35 physiological variables simultaneously.

Wireless, mobile, compact and ultralight (172g). Very easy to use.

Reliable biosensing monitoring up to 256Hz and 24 bits during 8+ hours. Bluetooth streaming and/or on-board SD storage.

Minimal maintenance and easy to transport (everything fits in a suitcase).

Hardware specifications

Sensors	
Biosignal channels	9x bipolar ExG + GND 6x Auxiliary analog inputs (analog sensors like GSR, RESP, TEMP, BVP...) 2x Auxiliary digital inputs (sensors like IMU, GPS). • Streaming mode: Up to 2 HUB (1 on each input to multiplex up to 8 IMU on each input. • Backup mode: Only 1 HUB to multiplex up to 8 IMU in the selected input. 1x Digital input (3 bits) 1x Digital output (1 bit)

Wireless Amplifier	
Sampling rate	256 SPS at 24 bits
Bandwidth	DC − 100Hz (3º order LPF)
Integrated sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer
Input range and noise	± 420 mV, < 4 µVRMS (0.5 − 30Hz) @256Hz (Bipolar ExG) ± 2.5 V, < 10 µVRMS (0.5 − 30Hz) @256Hz (Analog AUX)
CMRR / Input impedance	> 100 dB @50Hz, > 50 GΩ

Data streaming and storage	
Data transmission and range	Bluetooth 2.1 + EDR with 10 meters in direct sight.
Data backup / files	Yes (removable micro SD card) / CSV (max 8GB. Class ≥ 10)

Power	
Battery	Rechargeable lipo battery. Charging time <3h
Autonomy	> 8 h

General	
Weight	172gr.
Amplifier maintenance	Not required
Sensor maintenance	Off-the-shelf consumables
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Software compatibility (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux.
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc) and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- Amplifier
- Power supply
- Instructions
- Suitcase
- Arm and waist adjustable band
- (Biosignal kit) see sensors in pg. 30
- (Movement kit) see sensors in pg. 30
- Bitbrain Software Kit

Services

Onsite installation and initial training
Our team will provides a one-day training course that includes the onsite installation of your amplifier and software. You and your team will gain a basic understanding of operating the system.

Hardware and software adaptation
Aesthetics (color, logos, etc), funcionatility (number of sensors, location, etc) or software customization. You will receive a tailored technology for your research or business.
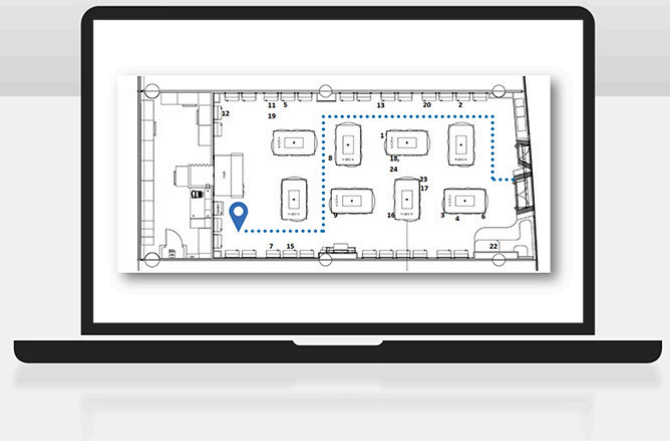
Indoor positioning system

Wearable and accurate indoor positioning and tracking system for real world research.

More info: www.bitbrain.com

info@bitbrain.com

Indoor positioning system

Wearable, fast and very accurate indoor positioning and tracking system for real world applications.

A **wearable and ultralight** positioning system for real-world applications. The system is composed of 5 anchors that can be easily placed on walls, and a pendant for the participant that can be placed **in seconds**. This practical technology autocalibrates the position of the anchors without manual processes, and has **outstanding precision** under 30cm on average within areas of 200m^2 (expandable to 800m^2 or more). Autonomy of 8 hours in data streaming and local storage.

In addition to this, the device is seamlessly synchronized with other biometric devices and scientific research software platforms for even deeper insights into human behaviour.

Products

InTrack

Wearable indoor positioning system with one mobile tag (pendant) and five stationary anchors. Total of 200m^2 coverage.

Coverage extension kit

Each package of five additional anchors increases coverage by 600m^2.

More info: www.bitbrain.com

info@bitbrain.com
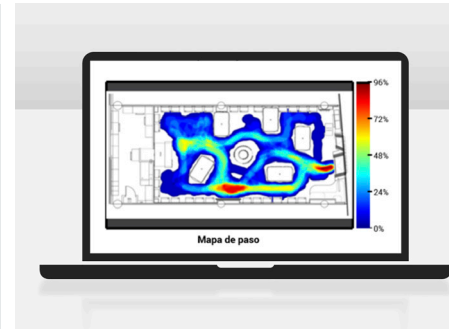
Bitbrain

Key features

Independence and freedom
Wearable and unobstructive positioning system that provides maximum freedom of movement to the participant.
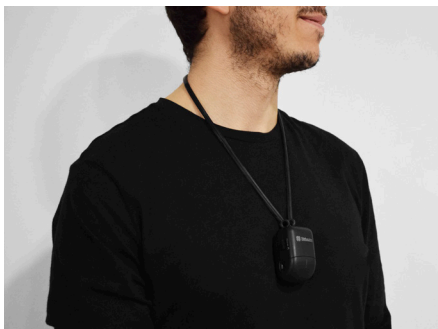

Outstanding accuracy indoors
Fusion of time of flight (ToF), signal strength (RSSI) and inertial data to track the location every 125 milliseconds with an accuracy of 30cm of error on average.

Great coverage for hours
Coverage of 200 m² with 5 anchors (expandable by adding extra anchors) for 8 hours. Anchors have rechargeable and exchangeable batteries.

Comfortable and natural
The pendant is lightweight and comfortable, and facilitates natural and spontaneous behaviour in real-world research.

Quick and easy set up
The set up of the tag only consists of putting the pendant on the user's neck. The placement of the anchors is also simple thanks to their magnetic bases, and its automated auto-calibration.

Easy transportation and without maintenance
The whole system fits in a suitcase for an easy storage and transportation. No consumables or maintenance required.

Data stream and recording
Real-time streaming of raw data via BLE and on-board SD card recording. Develop applications on Windows and Linux using the SDK, and export data to CSV.

Sync with other biometrics
Seamlessly integrated with more than 30 complementary monitoring technologies, such as mobile EEG, eye trackers, microphone and cameras, and many more.

Third party compatibility
Compatible with Matlab (EEGLAB, BCILAB, etc), Python (MNE), LabStreamingLayer (BCI2000, OpenVibe, NeuroPype, etc), and with Bitbrain Human Behaviour Lab.

Bitbrain

InTrack

Wearable and very easy to set up indoor positioning system with outstanding precision and high coverage.

- **Wearable and mobile**
  Very comfortable pendant device easy to set up in less than 2 seconds.

- **Advanced technology**
  Fusion of time of flight (ToF), signal strength (RSSI) and inertial data to improve the accuracy of real time positioning.

- **Automatic calibration**
  Easy and fast process to calibrate anchors' position, without manual procedures.

- **Mechanical support**
  Ultralight and unobstructive tag to allow maximum freedom of movement, and compact anchors easily to place thanks to magnetics bases

- **Connectivity and storage**
  Bluetooth Low Energy technology positioning streaming and local SD storage.

- **Battery**
  Swappable and rechargeable batteries with 8+ hours in streaming and local SD storage.

Available in 2020

Some applications

Get objective and powerful insights into how **consumers behave in real stores** or during customer experiences.

Evaluate and improve **professional workspaces** and optimize processes by understanding movement behaviour.

Optimize **stores, hotels or other experiences** by understanding how people explore the scenarios.

Understand human movement **in combination with other biometric techniques** such EEG, eye tracking or biosensors.

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Tag: Wireless, comfortable and ultralight (72g) device that is fast and easy to use.

Anchors: 5 anchors to cover 200m² for 8+ hours in streaming or local storage. Rechargable batteries.
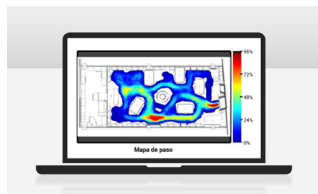
Real-time location tracking with less than 30cm location error on average at 8Hz.

Easy to transport (everything fits in a suitcase) and without maintenance.

Hardware specifications

Tag	
Sampling rate	8 SPS
Localization accuracy	30 cm
Other sensors	Integrated IMU (9 axis): accelerometer, gyroscope and magnetometer
Indicators	On/Off/ Recording state LED Battery state LED
Battery	No-removable rechargeable lithium battery Charging time: <2 h
Autonomy	> 8 h

Anchor	
Coverage	200 m2 using 5 Anchors
Indicators	On/Off/ Recording State LED Battery State LED
Battery	Swappable and rechargeable lithium battery Charging time: <2 h
Autonomy	> 8 h

Connectivity and storage	
Data transmission	Bluetooth Low Energy 4.2 (online)
Data backup	Tag: Yes (removable µSD card) Anchor: No

General	
Weight	Tag: 72g. Anchor: 114g
Cleaning and maintenance	Wipes moistened in tap water.
Warranty	2 years
Certifications	CE and CB, with EN 60950, EN 55032, EN 55024

Software specifications

Software Compatibility (included with equipment)	
Bitbrain real-time SDK	In C/C++ for Windows and Linux.
Bitbrain data acquisition and visualization suite	Live visualization, streaming or SD recording, data export in CSV and raw data visualization.
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python, BCI2000, OpenVibe, NeuroPype, etc).
Third parties data processing	Matlab (EEGLAB, FieldTrip, BCILAB,etc), Python (MNE, etc), Neuroguide and more.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- Pendant wearable (Tag)
- Dongle BLE 4.2
- 5 Anchors
- 6 cables USB-microUSB
- 5 lithium batteries
- Instructions
- Bitbrain Software Kit
- **Note**: the additional kit includes all items except the Tag and the dongle.

Services

Onsite installation and initial training
Our team provides a one-day training course that includes the onsite installation of your InTrack and software. You and your team will gain a basic understanding of operating the system.

Hardware and software adaptation
Aesthetics (color, logos, etc), functionality or software customization. You will receive a tailored technology for your research or business.

Eye Tracker family

Family of wearable or screen-based eye tracking systems for real-world research.

More info: www.bitbrain.com   info@bitbrain.com

Eye Tracker family

Family of wearable and screen-based eye tracking systems for real-world research.

This family includes Tobii Pro eye tracking devices for all types of applications, these range from mobile scenarios with the Tobii Pro Glasses 2, to all screen-based systems such as the Tobii Pro X2-30, X2-60 or X3-120, Tobii Pro Nano or the Tobii Pro Spectrum.

The Tobii Pro Glasses 2 are a **wearable and ultralight eye tracking system** to obtain an objective vision of human behavior by showing exactly what the user is looking at, while moving freely in any real-world environment. The family of **screen-based eye trackers** measure the gaze exploration patterns of stimuli that are displayed on the screen. Both can be operated with a PC, a laptop or on mobile devices.

Bitbrain allows to combine all eye tracking devices seamless sync with other EEG and biometric devices and scientific research software platforms, for even deeper insights into human behaviour.
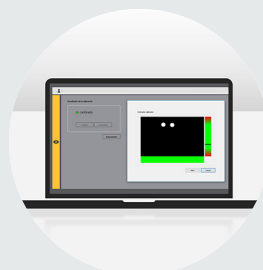
Products

Tobii Pro Glasses 2
Wearable eye tracker technology to analyze visual behavior in mobile real-world applications.

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Screen-based
Tobii Pro X2-30, X2-60, X3-120, Tobii Pro Nano or Tobii Pro Spectrum

Portable, remote eye tracker technology to analyze visual behaviour in screen-based real-world applications.
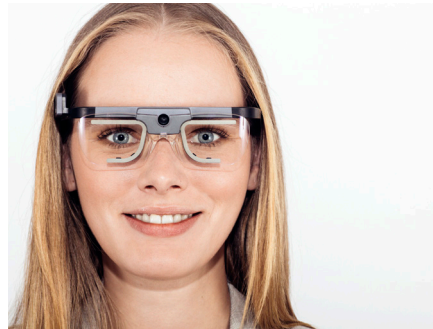
P.46

Bitbrain

Key features

Real-world research applications
Wearable and screen-based eye trackers to capture natural behaviour of participants, by providing minimum intrusion and large freedom of movement.
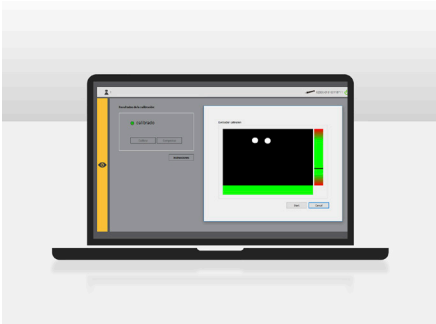

Wearable Tobii Pro Glasses 2 eye tracker
Wearable eye tracking system that captures what a person is looking, by merging the gaze tracker within the video recorded by the integrated camera.

Screen-based eye trackers
This family of screen-based eye trackers, can be used to track natural gaze in any format, such as PC, laptop or mobile devices.

Precision and reliability
All eye trackers use a proprietary 3D eye model created by Tobii Pro, which provides maximum accuracy and reliability while allowing free head movement.

Very easy and intuitive set up
The set up time for all devices is on average less than 2 minutes including calibration. They all have an intuitive operation, and can be easily placed without previous experience with the help of a step-by-step guide.

Easy transportation and maintenance
All eye tracking devices are easily transported in a small suitcase. Very little time is required for cleaning and maintenance.

Data stream and recording
The Tobii Pro Glasses 2 (on-board SD card storage or/and Wifi data stream) and the screen-based (USB) have full access to raw data under Windows or Linux SDK. Alternatively, build your own applications with Bitbrain development platform.

Sync with other biometrics
Bitbrain has seamlessly integrated these eye trackers with more than 30 complementary technologies as EEG and biosensors such as GSR, EMG, BVP, etc, indoor/outdoor positioning systems and many more.

Compatibility with scientific platforms
Compatible with Tobii Pro Glasses 2 Lab, NeuroPye, EEGLAB, BCILAB, MATLAB, Python, BCI2000, OpenVibe, among others. Also compatible with Bitbrain platforms.

Bitbrain

Tobii Pro Glasses 2

Wearable, comfortable and ultralight eye tracking technology to capture and analyze visual human behaviour in real-world applications.

- **Wearable and light**
  Non-intrusive device for real environments for real-world research.

- **Easy to use**
  Intuitive recording and calibration methods to help you with field work.

- **Comfortable**
  Participants forget they are wearing them in few minutes.

- **Unobtrusive**
  To ensure ecological data collection with the highest data quality.

- **Sample rate**
  You can choose between 50 and 100Hz depending on your research needs.

- **Reliable**
  Slippage compensation and 3D eye model that ensures stability and data capture.

Some applications

Get objective and powerful insights about what **captures the attention of consumers** in real stores or during real-world customer experiences.

Improve professional workspaces, and optimize processes and factors that influence training.

Capture natural human behaviour to **evaluate interfaces, physical products or environments** for optimal user experience.
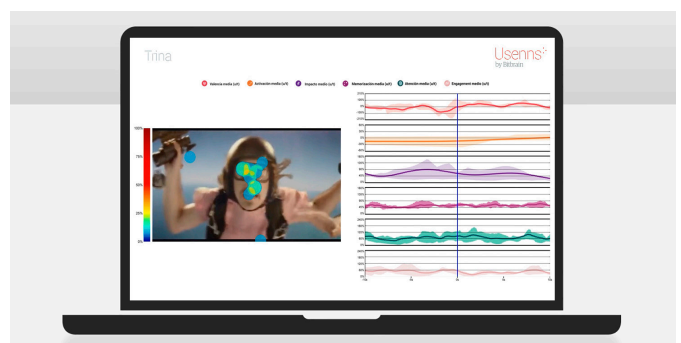
Understand human gaze **in combination with other biometric techniques** such EEG, biosensors or indoor positioning systems.

More info: www.bitbrain.com

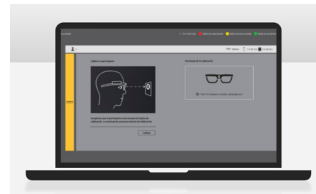info@bitbrain.com

Bitbrain

Technical overview

Wireless, comfortable and ultralight (45gr) device. Very easy and intuitive to use.

Pocket-sized recording unit that records (SD) and streams data via Wifi or ethernet.

Software for calibration, recording and live viewing.

Easy to transport (everything fits in a suitcase), and without maintenance.

Hardware specifications

Eye tracker	
Sampling rate	50Hz or 100Hz
Calibration procedure	1 point
Calibration validation	Yes
Parallax Compensation tool	Automatic
Binocular eye tracking	Yes
Slippage compensation	Yes, 3D eye model
Eye tracker technique	Corneal reflection, dark pupil
Pupil measure	Yes, total measure

Head Unit	
Number of eye tracking cameras	4 eye cameras
Sensors	Gyroscope and accelerometer
Scene camera format and resolucion	H.264 1920 x 1080 pixels @25 fps
Scene camera field of view	90º 16:9
Scene camera recording angle/visual angle	82º horizontal 52º vertical
Sound recording / microphone	Yes
Frame dimensions and weight	179 x 159 x 57mm (7.0 x 6.3 x 2.2"). 45g (1.6 oz) including protective lens

Recording Unit	
Battery recording time	120 min
Storage media	SD card (SDXC)
Connectors	HDMI, Micro USB, 3.5mm jack, ethernet
Wireless	2.4 GHz and 5 GHz band
Dimensions	130 x 85 x 27mm (5.1 x 3.3 x 0,9")
Weight	312g (11 oz) including battery

Software specifications

Tobii Pro software kit (included with equipment)	
Tobii Pro real-time SDK and Tobii Pro Glasses 2 API	In C/C++ for Windows and Linux
Tobii Pro Glasses Controller data acquisition and visualization	Live visualization, streaming or SD recording, data export in *.json and raw data visualization.
Third parties data processing	Matlab y Python.

Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- Eye tracker & recording unit
- Nose Pads in different sizes (6 pcs)
- Rechargeable Li-ion batteries type 18650 (3 pcs)
- SD memory cards (3 pcs) + sleeves + SD/USB adapter
- Calibration cards (3 pcs)
- Carry case for Tobii Pro Glasses 2
- USB memory stick with documentation and software
- Ethernet cable (3 meters)
- SD Card Reader

Services

Onsite Installation and Initial Training
Our team provides a one-day training course that includes the onsite installation of your eye tracker and software. You and your team will gain a basic understanding of operating the system.

More info: www.bitbrain.com info@bitbrain.com

Screen-based eye trackers

Portable screen-based eye tracking technology to capture and analyze visual human behaviour in real-world applications.

- **Top-of-the line**
  The most advanced screen-based eye tracking family.

- **Fast to set up**
  Plug and play via USB or ethernet connection.

- **Accurate and precise**
  All Tobii Pro's eye tracking family has world leading acuracy and precision.

- **Remote**
  The participant does not need to wear anything.

- **Freedom of movement**
  With a big tracking box it allows free head movement without losing tracking.

- **Sample rate**
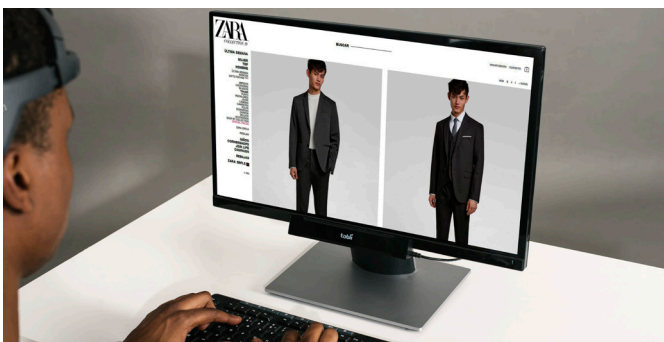 Adapts to your needs, from 30Hz up to 1200Hz.
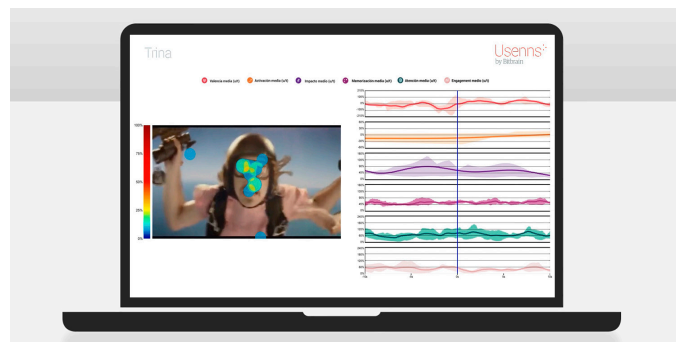
Some applications

Get objective and powerful insights about **what captures the attention of consumers** in branding, packaging or advertising.

Improve professional workspaces, and optimize processes and factors that influence training.

Capture natural human behaviour to **evaluate digital interfaces, websites and products** for optimal user experience.

Understand gaze attention and its patterns, **in combination with other biometric techniques** such EEG, biosignals, movement and many others.
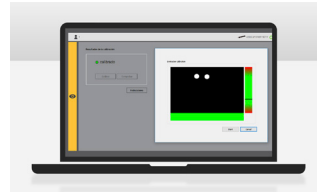
Bitbrain

Technical overview

USB, portable and ultralight (200gr) device that is very easy and intuitive to use.

Can be used with the majority of screen-based devices.

Software for calibration and video/gaze recording.

Easy to transport (everything fits in a small box) and without maintenance.

Hardware specifications

Eye Tracking Specifications	X2-30	X2-60	X3-120	Spectrum
Gaze sampling frequency	30Hz	60Hz	120Hz	150 up to 1200Hz
Accuracy	0.4º			0.3º
Precision (RMS)	0.34º		0.24º	0.06º
Freedom of head movement width x height operating distance	50 x 36 cm 40-90 cm		50 x 40 cm @80cm 50-90 cm	34x26 @ 55 to 75cm
System latency	50-70ms	<35ms	<11ms	Less than 3 frames
Gaze recovery time	For Blinks immediate After lost tracking <100ms			1 frame (immediate)
Recommended screen size	Up to 25"			23.8"
Tracking technique	The system automatically selects bright or dark pupil.		Binocular	Binocular bright and dark pupil with two cameras that record stereos images.

Eye tracking unit				
Dimensions	184 x 28 x 23 mm		324 x 20 x 17mm	55x18x6cm
Weight	200g		118g	5.1Kg
Processing	On local PC	On EPU	On local PC or EPU	On the tracker
Connection	USB 2.0		USB 3.0 (battery charging 1.2) Ethernet with EPU	Ethernet

Software specifications

Tobii Pro software kit (included with equipment)	
Tobii Pro real-time SDK	In C/C++ for Windows and Linux
Third parties data processing	Matlab and Python.

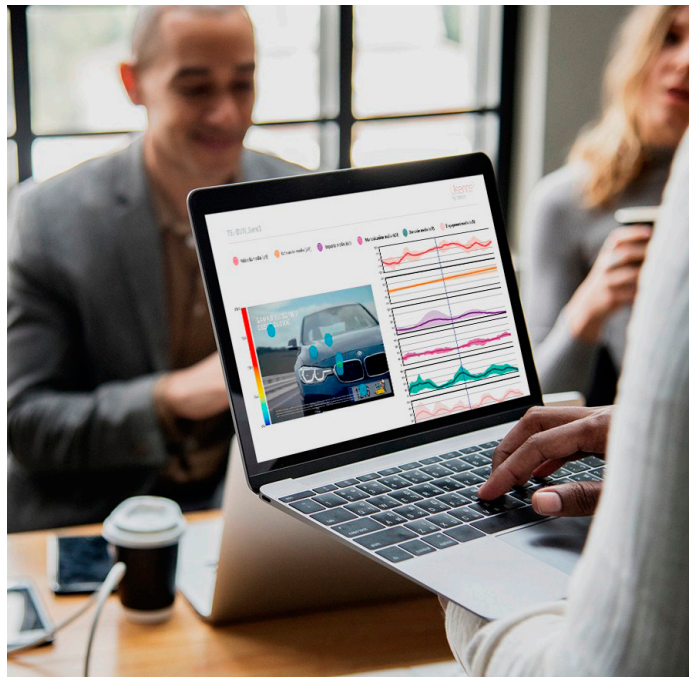| Bitbrain software platforms (optional)	
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized, and analysis with a wide range of emotional and cognitive biometrics available.
Bitbrain Programming Platform	Multimodal real-time neuroscience or brain-computer interface development.

Bundle includes

- Eye tracking unit
- Magnetic mount
- Carrying case
- USB with software and user manual

Services

Onsite Installation and Initial Training
Our team provides a one-day training course that includes the onsite installation of your eye tracker and software. You and your team will gain a basic understanding of operating the system.

Software tools

Wide range of practical software tools with high compatibility with third parties and with Bitbrain software platforms.
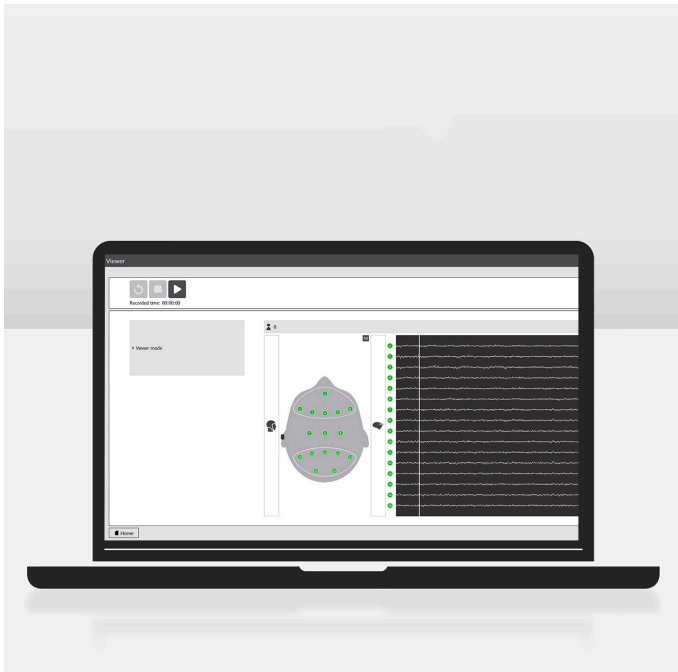
More info: www.bitbrain.com   info@bitbrain.com

Bitbrain

Software tools

Wide range of practical software tools with high compatibility with third parties and Bitbrain platforms.

All Bitbrain's equipment include a software kit with programming and data acquisition tools, which are compatible with third parties and Bitbrain software solutions.

The **Bitbrain Software Kit** gives versatility to the researcher to work at a programming level (development of applications), or at a user level (acquire, visualize and export data). It provides straightforward connectivity with real-time third parties based on LabStreamingLayer (LSL), or off-line data analysis tools based on Matlab or Python,.

The **Bitbrain software platforms** for: 1) Human behaviour research simplifying the synchronized data collection and biometrics analysis; 2) Cognitive enhancement in health and wellness; and 3) Development Platform, to speed up the development and programming of real-time neuroscience or brain-computer interface applications.
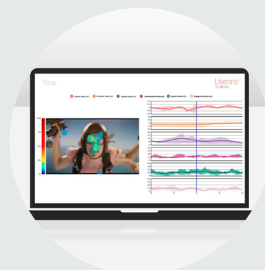
Products

Bitbrain Software Kit and compatbility
(included with all devices)

Data acquisition suite, SDK for programming, and compatibility with real-time I/O and third parties data processing.
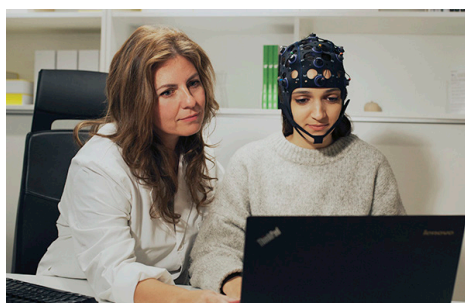
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Human Behaviour Research Lab

Experimental design and data collection with 30+ sensor modalities seamless synchronized, and data analysis including a wide range of emotional and cognitive biometrics.

P.54

Cognitive Training Lab

Technology for cognitive rehabilitation in mental disorders, cognitive maintenance in active aging, and cognitive enhancement in high performance.

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Programming Platform

Programming platform to boost the development of neurotech applications, supporting a wide variety of hardware and software plugins for acquisition, processing and interaction.

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More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Key features

Advanced software easy to use
Adaptation of the software for different users' profiles as the key to building innovative and advanced technology, but simplified for each context of use.

State of the art
All the hardware and software technologies have been developed under R&D projects that follow the most strict European standards (FP6/FP7 and H2020), and implemented by a R&D team that has produced 300+ research papers.
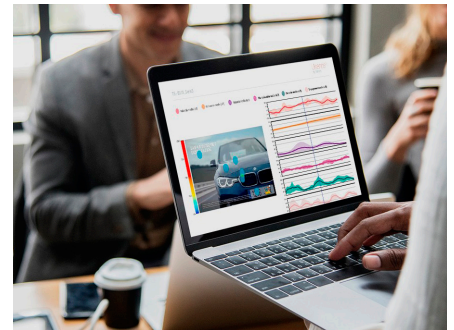
Practical neurotechnology
Innovative and practical Hw and Sw for real-world applications: 1) Comfortable, mobile, wireless and ergonomically designed for the user; 2) Fast and simple - easy to set up almost everywhere in few minutes; 3) Reliable - with outstanding signal quality.


Software adapted for different use cases
Complete software solutions adapted for each user and research context, simplifying the experimental design, synchronized data collection and analysis. For human behaviour research, cognitive training and programming.


One provider with expert support
Bitbrain is the manufacturer of all the hardware technologies (except Tobii Pro products) and all the software technologies. This ensures you have the most advanced partner interlocutor for your support.
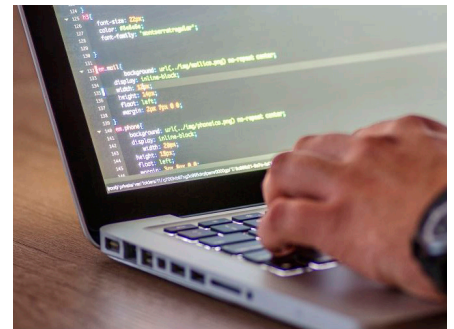

Software multimodal programming
Development software tools to boost neurotech applications, supporting a wide variety of hardware and software plugins for acquisition, processing and interaction.
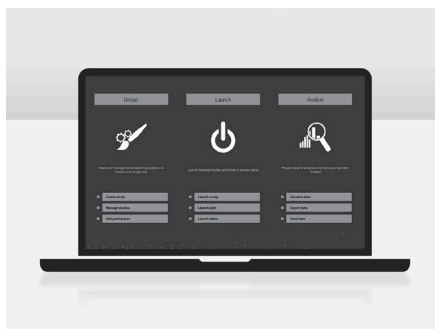

Software for scientific research
Advanced labs for experimental design and data collection with 30+ sensor modalities seamlessly synchronized, with hardware and software technology that is practical and simplified to enable real-world research.
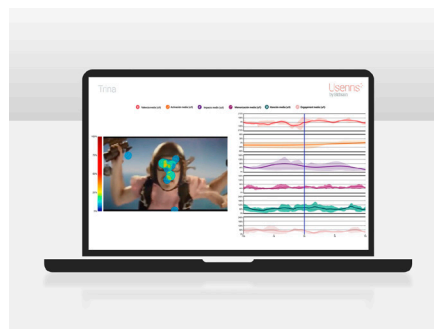
Software for biometrics analysis
Complete research labs adapted for consumer behaviour and UX research, which provides a wide range of experimental protocols already designed and advanced data analysis including behavioural, emotional and cognitive biometrics.
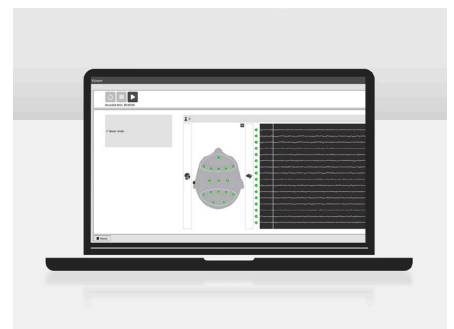

Software for cognitive enhancement
Elevvo is an effective technology for cognitive rehabilitation, maintenance and enhancement using the most advanced brain sensing technologies and procedures to generate neuroplasticity.

Bitbrain Software Kit

Software for data acquisition and programming, with large compatibility with real-time I/O and data processing third parties.

- **Simplified data acquisition and setup**
  Collect data with the help of visual cues to assure a proper setup and high quality monitoring.

- **Flexible programming**
  Easy to use and versatile SDK to address a wide variety of applications.
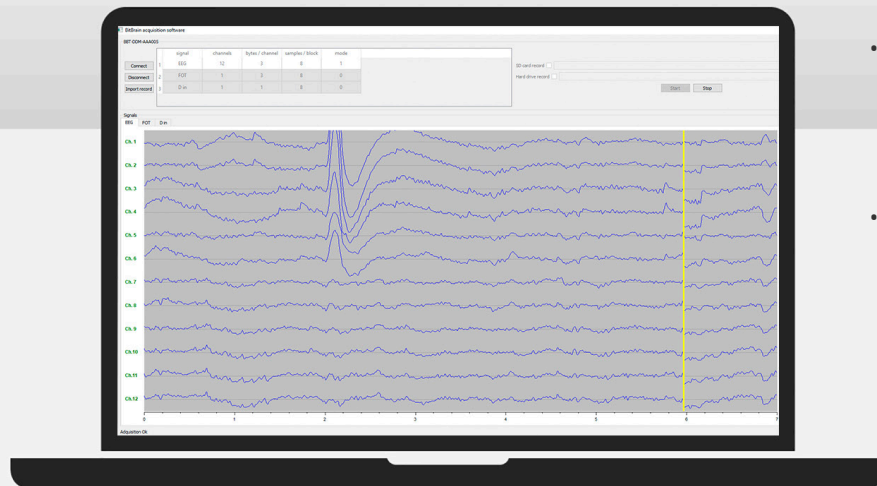
- **Powerful real-time applications**
  LSL compatibility ensures real-time data recording from any platform.

- **In depth data analysis**
  Compatible with advanced platforms such as Matlab, EEGLab, Python, or MNE among others. VR compatibility with Unreal and Unity.

Some applications

Practical data collection. Easy to use visualization software with stationary and mobile devices.
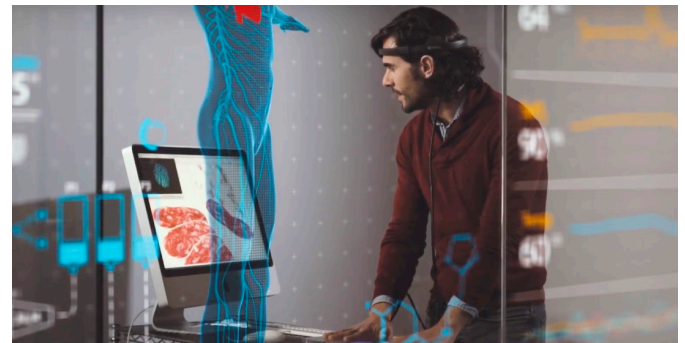
Develop your own applications on different platforms thanks to our versatile SDK, which includes examples for a shorter learning time.
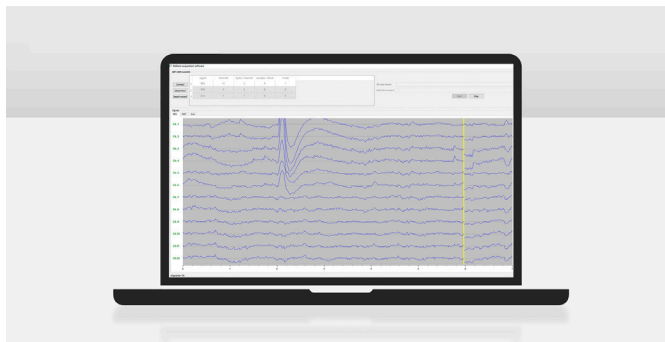
Connect your device with real-time third party scientific platforms based on LabStreamLayer (LSL) such as BCI2000, OpenVibe, etc.
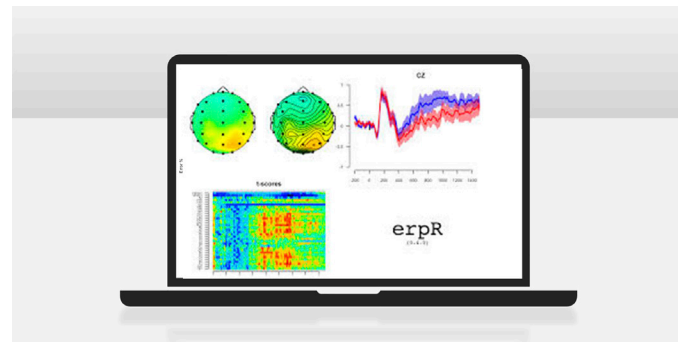
Analyze your data with standard data analysis scientific platforms based on Matlab and Python, among others.

More info: www.bitbrain.com

info@bitbrain.com

Technical overview

Live data acquisition, on/off line data visualization and export in CSV and EDF formats.

Real-time C/C++ SDK for Windows and Linux including Python bindings.

Compatible with real-time third parties based on LSL (BCI2000, OpenVibe, NeuroPype, and more).

Import data into analysis tools based on Matlab (EEGLAB, BCILAB,etc), Python (MNE, etc), Neuroguide and more.

Bitbrain data acquisition suite

Compatible equipments	
Bitbrain devices	All Bitbrain devices (EEG, Biosignals, IPS).

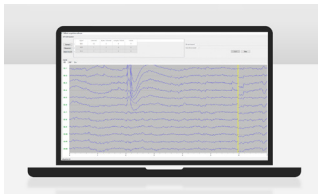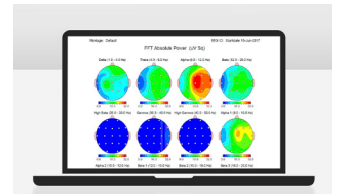| Data acquisition	
Simultaneous streaming / local recording	Local and remote recording in the computer.
Local data integrity	Data can be stored in a SD card with no losses. Sequence and flag fields available to check integrity.
Remote data integrity	Sequence and flag fields and checksum to verify the data integrity during recording and transmission.
Online data connectivity	Discontinuous connectivity allowed with smart reconnection for live visualization and remote recording. Local data recorded in SD card without losses.

Data stream and storage	
Data files	Timestamped CSV files for remote recording.
Importable SD card data	Optimized SD card recordings can be imported into CSV files.

Data visualization/record of EEG and Biosignals	
Raw data	Online and offline visualization.
EEG impedance level	Online and offline visualization with a color code to facilitate montage and re-montage. Record of values.
Available data with filters	Customizable frequency filters, data scale, time scale, channel selection

Data visualization/record Indoor positioning system	
Raw data	Online and offline visualization.
Calibration of device	Autocalibration of the system (with maps and anchors). Easy calibration with procedures guided by the system, including tests to facilitate and check the setup.
Visualization of processed data	Online and offline 2D location of the participant within the map.

Programing SDK

SDK	
Supported SO	Linux (any with bluetooth and Qt supported) and Windows (7 and newer).
Programming language	Real-time C/C++ SDK for Windows and Linux including Python bindings.
Main functionalities	Programming interface common for all devices, with full control of device configuration, real-time data acquisition and record, and RTT estimation.

Third Party compatibility

Third parties real-time I/O	
LabStreamLayer (LSL)	BCI2000, OpenVibe, NeuroPype, etc.

Third parties data processing	
Matlab	EEGLAB, FieldTrip, BCILAB and more.
Python	MNE, numpy, pandas, ...
Neuroguide	QEEG Versatile family (fully integrated).

Software kit includes

- Installer of data acquisition suite
- Data acquisition suite documentation
- SDK libraries, with compatibility examples and documentation.

Note: Minimum hardware requirements -- Intel Celeron/AMD Athlon processor, Bluetooth 2.1 (Cysmart 4.0 bluetooth dongle for indoor localization). Software requirements -- Linux (any with bluetooth and Qt supported) and Windows (7 and newer). InTrack is only available for Windows.

Additional services

Onsite Installation and Initial Training
Our team provides a half-day training course that includes the online installation and basic software training. You and your team will gain a basic understanding of how to operate the system.

Software Customization
Customization of the software in terms of SDK for specific Linux distributions, aesthetics (color, logos, etc) or functionality (visual display, communications, etc). You will receive a tailored technology for your research or business.

Bitbrain

Human Behaviour Research Lab

Software for experimental design and data collection with 35+ sensor modalities seamlessly synchronized, and data analysis including a wide range of emotional and cognitive biometrics.

- **35+ sensor modalities**
  Synchronizes EEG, GSR, ExG, eye trackers and more in one software and one computer.

- **Variety of stimuli presentation**
  Images, videos, websites, surveys and much more.

- **Sophisticated study design**
  Flexibility to create specific presentations, randomizations, block designs, and more.
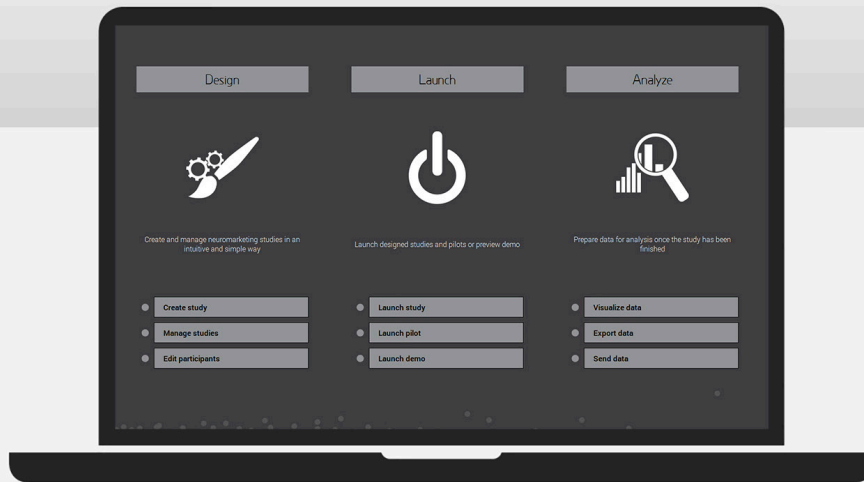
- **Wide range of biometrics**
  Emotional valence, impact and activation, memorization, attention, engagement and more.

- **Powerful visualizations**
  In depth data analysis with all technologies individually or aggregated in groups.

- **Predesigned studies**
  Built-in stimuli presentations to speed up the project design by standard and validated experimental protocols.

Design	Launch	Analyze
Create and manage neuromarketing studies in an intuitive and simple way	Launch designed studies and pilots or preview demo	Prepare data for analysis once the study has been finished
Create study	Launch study	Visualize data
Manage studies	Launch pilot	Export data
Edit participants	Launch demo	Send data

Some applications

Enhance your research in **psychology, neuroscience and sociology** in real-world contexts with a technology that integrates +30 practical sensor modalities.

Get in depth biometric insights in **neuromarketing, UX, and gaming** through participants' visual, behavioural, emotional and cognitive states.

Perform complex data experiments with many types of stimuli such as **videos, images, webs, or free tasks** among many others.
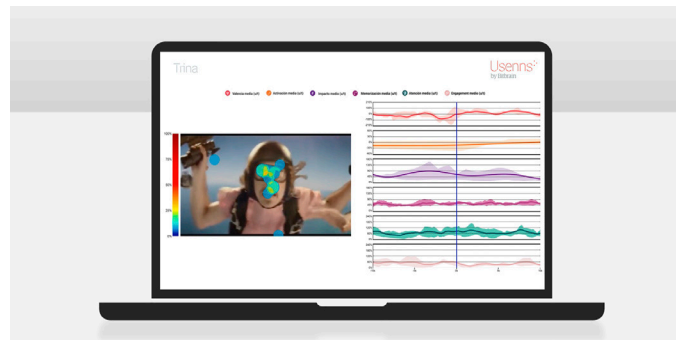
Data analysis with research tools that allows you to work on **raw data or biometrics**, at individual or group levels.

More info: www.bitbrain.com

info@bitbrain.com

Bitbrain

Technical overview

Data collection with more than 30 sensor modalities seamlessly sync and integrated (EEG, biosignals, etc).

Experimental design with presentations of videos, images, and many other stimuli.

Simplified data collection with visual guides to facilitate the set up and online visualization of the data.

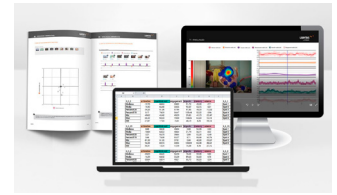Export data to third parties or use the biometrics plugin to obtain emotional and cognitive biometrics for further analysis.

Human Behaviour Research Lab

Sync Data collection (Hardware)	
EEG	Dry-EEG and Semi-dry EEG Bitbrain families.
Biosignals	GSR, ECG, EMG, EOG, Respiratory effort band, Air flow, Temperature, BVP/SPO2, Snore sensor, Optical trigger.
Movement	Inertial motion units (9 d.o.f.).
Behaviour	1/3/7 buttons box, 1 pedal button.
Localization	Indoor positioning system and outdoor GPS.
Eye tracking	All screen-based and mobile (Tobii Pro Glasses 2).
Immersive (VR)	Oculus Rift and HTC Vive Pro.
Cameras + micros	USB camera and micro, screen capture (PC/mobile devices).
Tests	Questionnaires, implicit association/response tests.
Management	
Database	Participants and studies
Experimental protocols	
Basic stimuli	Images, videos, audio, free tasks.
Advanced stimuli	Webpages, apps, focus groups, interviews, surveys, experiences.
Protocol settings	Randomizations, rotations, events, TCP/IP event recording.
Compatibility with stimulation platforms	E-Prime, Tobii Pro Lab
Data analysis and export	
Supported files	CSV.
Compatibility with data analysis platforms	Compatible with data analysis tools based on Matlab (EEGLAB, BCILAB,etc), Python (MNE, etc), Tobii Pro Lab, Neuroguide QEEG and more.
Real time I/O connectivity	
Compatibility with real-time platforms	Compatible with real-time third parties based on LabStreamLayer LSL (BCI2000, OpenVibe, NeuroPype, and more).
Real-time API	Yes (bidirectional). Streams data and registers external events.

Biometrics plugin

Human behaviour metrics	
Emotional biometrics	Valence, emotional activation, emotional impact.
Cognitive biometrics	Attention, memorization, engagement.
Behavioral metrics	Mouse tracking, time.
Eye tracking metrics	Visual attention, fixations.
Implicit motivation and actitudes	Implicit association response tests (IAT and Priming).
IPS metrics	Position tracking.

Metrics representations	
Individual	For biometrics, time and implicit association: Bar charts & statistical differences tables. For eye tracking, mouse localization and indoor localization: heat maps, ratio maps, time maps, trajectory maps, areas of interest (Time to First Fixation, Time spent, Ratio, Revisits, Average Time of Fixations, Previous Fixations) & aggregated fixation video.
Combined	Emotional positioning maps, videos combining metrics, stimuli, cameras & microphones (aggregated, aggregated by segment or individual).

Output format	
Files	All biometrics (individual and aggregated) in CSV format, compatible with third party tools (Matlab, Excell, etc).
Visualization software	Bitbrain biometrics visualization software. Analysis of intervals and areas of interest.
Multimedia materials	Representations and videos included for reporting.

Services

Many services are available. These range from adaptation of the Human Behaviour Research Lab software and its biometrics up to several applied neuroscience services.

More info: www.bitbrain.com

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Cognitive Training Lab

Effective technology for cognitive rehabilitation in mental pathologies, maintenance in active aging, and enhancement in high performance.

- **Effectiveness**
  Cognitive rehabilitation and enhancement between 10% and 30% in analyzed populations.

- **Technical-scientific rigorousness**
  Patented, developed and validated following rigorous scientific and technological standards.

- **Simplicity and comfort**
  Comfortable equipment that is easy to use by professionals, with simple interventions for users, and with portable design to carry out sessions anywhere.
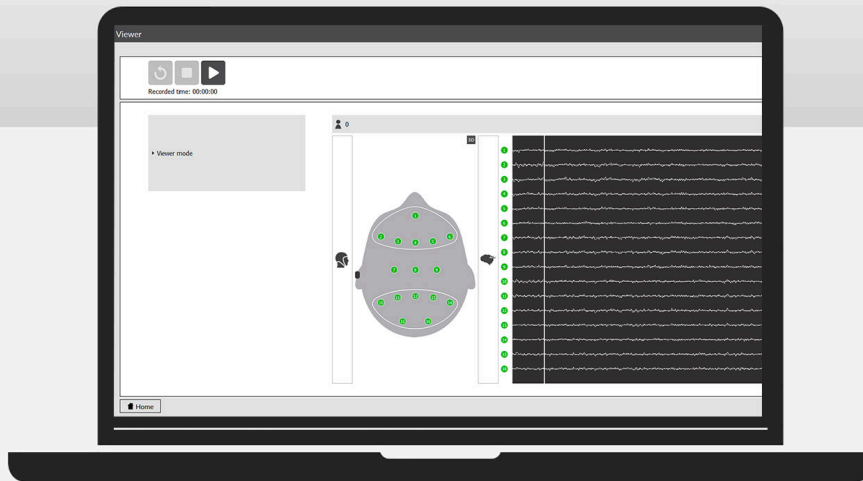
- **Individualization of interventions**
  Adapts the session individually to the user brain activity and evolution throughout training sessions.

- **Integral Programs (evaluation)**
  Pre/post neurophysiological and cognitive evaluations in an automatic report.

- **Integral Programs (training)**
  Cognitive exercises adapted for the user. Easy to apply by professionals and to use by participants.

Some applications

Help your patients with **mental disorders** to improve working memory, sustained attention, and processing speed.

Improve the cognitive capabilities of the **general population** who wish to maintain cognitive functions at high levels, or encourage **healthy aging.**

Practice with a technology oriented for professionals that require high cognitive performance such as **athletes, army or special corps.**
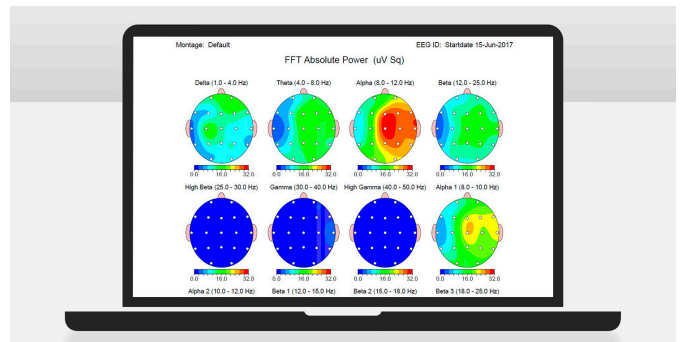
Perform QEEG or **normative quantitative EEG** with FDA approved technologies such as Neuroguide.

More info: www.bitbrain.com

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Technical overview

Practical EEG equipment with dry or semi-dry sensors, and with a placement time 2 minutes on average.

Software for management of users, execution of Interventions and Programs.

Effective interventions with cognitive improvement between 10% and 30% in the analyzed populations.

Results reports at neurocognitive and neurophysiological levels.

Cognitive Training Lab

Compatible Hardware	
Dry-EEG	Minimal EEG Diadem (see Pg. 5)
Semidry-EEG	Versatile EEG family 8/16/32/64ch (see Pg. 17)

Software Core	
Database	Participants and programs/studies.
Intervention modules	Select the intervention programs from the available modules.
Execution setup of the session	EEG placement guided by the system and visual guides to follow the tasks.
Execution of the program	Calibration and execution of the cognitive training automatically handled by the system.
Execution of the evaluation	Digitalized neurocognitive tests such as Pasat, Digit inverse, etc.
Data analysis and report	Automated report generated by the system with the result of the pre/post neurophysiological and neurocognitive improvements.

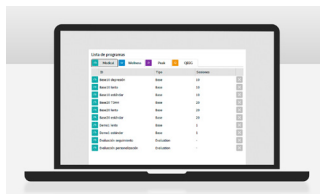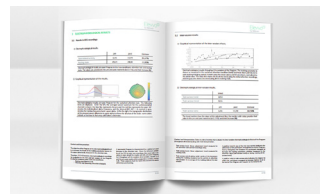| Report	
Neurocognitive results	Quantitative results of the pre/post cognitive tests.
Neurophysiological results	Quantitative results of the pre/post EEG tests.
Intrasessions EEG results	Quantitative results of the intrasessions EEG changes.
Program results advice	Automated proposal of program termination or continuation based on results obtained.
Format of the results	Document with self-explanatory tables and figures, which are provided separately to personalize the report.

Software intervention modules	
Medical	8 Programs to improve working memory, sustained attention, and processing speed in patients with mental disorders.
Wellness	9 Programs for cognitive improvement of the general population who wish to maintain cognitive functions at high levels, or encourage healthy aging.
Peak performance	9 Programs oriented for professionals that require high cognitive performance such as athletes, army or special corps.
QEEG	QEEG compatibility with Neuroguide

Bitbrain

Programming Platform

Platform to accelerate the development of brain-computer interface applications starting from a wide variety of hardware and software plugins for acquisition, processing and interaction.

- **Start from the state-of-the-art**
  From a wide variety of hardware and software plugins for acquisition, processing and interaction.

- **Mature technology**
  Ten years of platform development, which has been utilized in a high number of public and private neurotechnology projects, constantly evolving and updating.

- **Compatibility and scalability**
  Real-time integration of 30+ complementary technologies within Windows OS and Linux, and compatible with Matlab, Python, Unity and Unreal.

- **Professional support**
  Professionally maintained with efficient support, periodical updates, and services to minimize development time, such as training or development of customized units.

Some applications

Start your brain-computer interface project with a perfect integration of **30+ complementary technologies**. Compatibility with Matlab, Python and Unity, among others.

Speed up the development relying on the **real-time data processing** of scientific programming languages like Matlab and Python.

Use our tools to build **straightforward interaction** with immersive technologies or gaming (Unity and Unreal), or communication with other devices (cellphones, tablets) or cloud services.
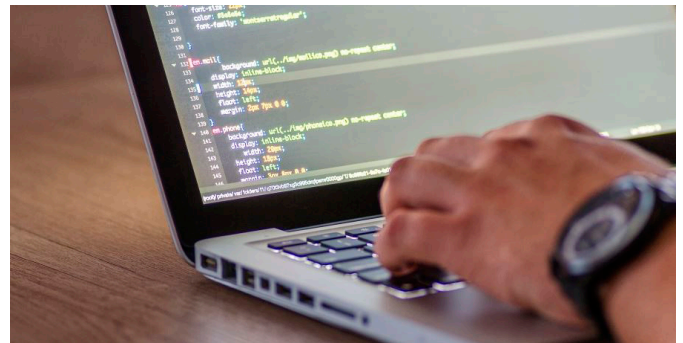

Professionally **maintained by efficient support, periodical updates and services** to minimize development time, such as training or development of customized units.

Technical overview

Parameterized set up and configurations of applications based on the acquisition, data processing and interaction.

Real-time acquisition and synchronization of more than 30 complementary multimodal technologies.

Near real-time distributed processing in C++, including Matlab and Python plugins.

Interaction with immersive technologies, streaming, and cloud services, and other devices (cellphones, tablets).

Bitbrain data acquisition suite

Compatible equipments	
Bitbrain devices	All Bitbrain devices (EEG, Biosignals, InTrack).
Eye tracking devices	Tobii Pro stationary or mobile (Tobii Pro Glasses 2) devices.

General features	
Closed-loop applications	Out-of-the-box support for multimodal closed-loop applications.
Configurable pipeline	Configurable pipeline of elements through scripts.
Support high processing demands	Platform can be distributed through various computers in a local area network.
Automatic file saving	Data is automatically saved to a proprietary format.
Offline data processing	Data saved can be loaded and offline analysed using scientific programming languages: Matlab, Python.
Modular design	Designed as a set of modules (OS processes) and programming units with a message-passing architecture.
Multiplatform, desktop solution	Windows and Linux.

Modules for data acquisition	
Simultaneous recording	Simultaneous recording of multiple data streams.
Real time sync	Timestamped recordings for synchronization.
Interoperability standard	Allows inter-operability from third parties devices using Lab Streaming Layer (LSL).

Modules for processing	
Serial / parallel processing	Allows for serial or parallel processing.
Sync. processing	Timestamped recordings are transferred for online synchronization.
Scientific programming prototyping	Processing algorithms can be easily integrated using state-of-the-art scientific programming languages such as Matlab and Python (or native C++).

Modules for interaction	
Interconnectivity	Available near real-time TCP/IP communication protocol with third party platforms, to send/receive data streams or messages.

Software bundle includes

- Software libraries for development
- Software examples
- Documentation

Note: the programming framework is usually adapted to the client needs to reduce the learning curve and speed up development.

Services

Onsite Installation and Initial Training
Our team provides a half-day training course that includes the online installation and Bitbrain platform programming training. You and your team will gain a basic understanding of how to operate the system.

Software Customization
Customization of the software in terms of specific requirements of the applications usually in terms functionality (pre-configuration of system dynamics, modules and communications). You will receive a made-to-order technology for your research or business.

About Bitbrain

We fusion neuroscience and engineering to develop the latest generation of practical neurotechnology integrated in solutions with high value for our society.

Bitbrain was founded in 2010 as a spin-off company of a research team from the University of Zaragoza (Spain), pioneer in approaching brain-computer interface applications outside research labs. Its DNA holds all knowledge in neurotechnology, biomedical engineering, artificial intelligence and data science accumulated at the university since 1998.

Today, the company is a reference with over 600 individual institutions in more than 35 countries relying on our products to advance the penetration of neurotech research and development in our society.

Equipment

Innovative and practical EEG, biosignals, eye trackers, indoor positioning systems and other complementary human monitoring technologies to approach real world research.

Human Behaviour Research Lab

Labs for experimental design and data collection with 30+ sensor modalities seamlessly synchronized, and data analysis including a wide range of emotional and cognitive biometrics.

Cognitive Training Lab

Neurotechnology for cognitive rehabilitation in mental disorders, cognitive maintenance in active aging, and cognitive enhancement in high performance.

Programming Platform

Programming platform to boost the development of neurotech applications, with a wide variety of hardware and software plugins for acquisition, processing and interaction.

Bitbrain

Clients & Partners

Bitbrain products are favored by leading universities, government research and development funding, and forward-thinking companies around the world — with over 600 individual institutions relying on our products for the best in physiological and neurological research.

Academy

MIT · Stanford University · EPFL ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE · Imperial College London · UNIVERSITÄT HEIDELBERG ZUKUNFT SEIT 1386 · TU Graz

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Real-world research and applications

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