Ring

Wearable and wireless device for real-time monitoring of electrodermal activity (GSR) and cardiac activity (BVP) for real-world applications and real-life research scenarios.

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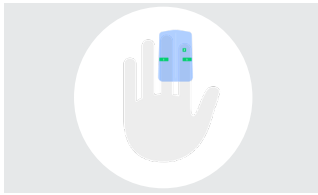
In **clinical research**, perform biofeedback applications for stress, or assessments based on physiological responses.

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

Technical overview

Layout optimized for measure-ment of GSR and BVP (cardiac activity), often used to estimate emotional states.

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

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

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	Removable micro SD card
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++ with Python bindings for Windows and Linux.
Bitbrain data acquisition and visualization suite	Live visualization, streaming and/or memory card recording, data export in CSV and raw data visualization.
Third parties real-time I/O	LabStreamingLayer LSL compatibility (Matlab, Python).
Third parties data processing	Matlab, Python, etc.

Bitbrain software platforms (optional)	
Bitbrain Viewer Software	Software for data visualization and recording, with large compatibility with real-time I/O and data processing third parties.
Bitbrain Software Development Kit	Software kit consisting of different scripts that allow communication and control of the hardware used. It is a starting point for the development of brain-computer interface applications.
Bitbrain Human Behaviour Research Lab	Practical research platform for experiment design and data acquisition with 30+ sensor modalities seamlessly synchronized and analyzed with a wide range of emotional and cognitive biometrics available.

Bundle includes

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

Additional services

Online training available
Our team provides a training course that includes the installation of your hardware and software, plus resources including quickstart guides, a knowledge base, etc.

Real-world research and applications

Bitbrain