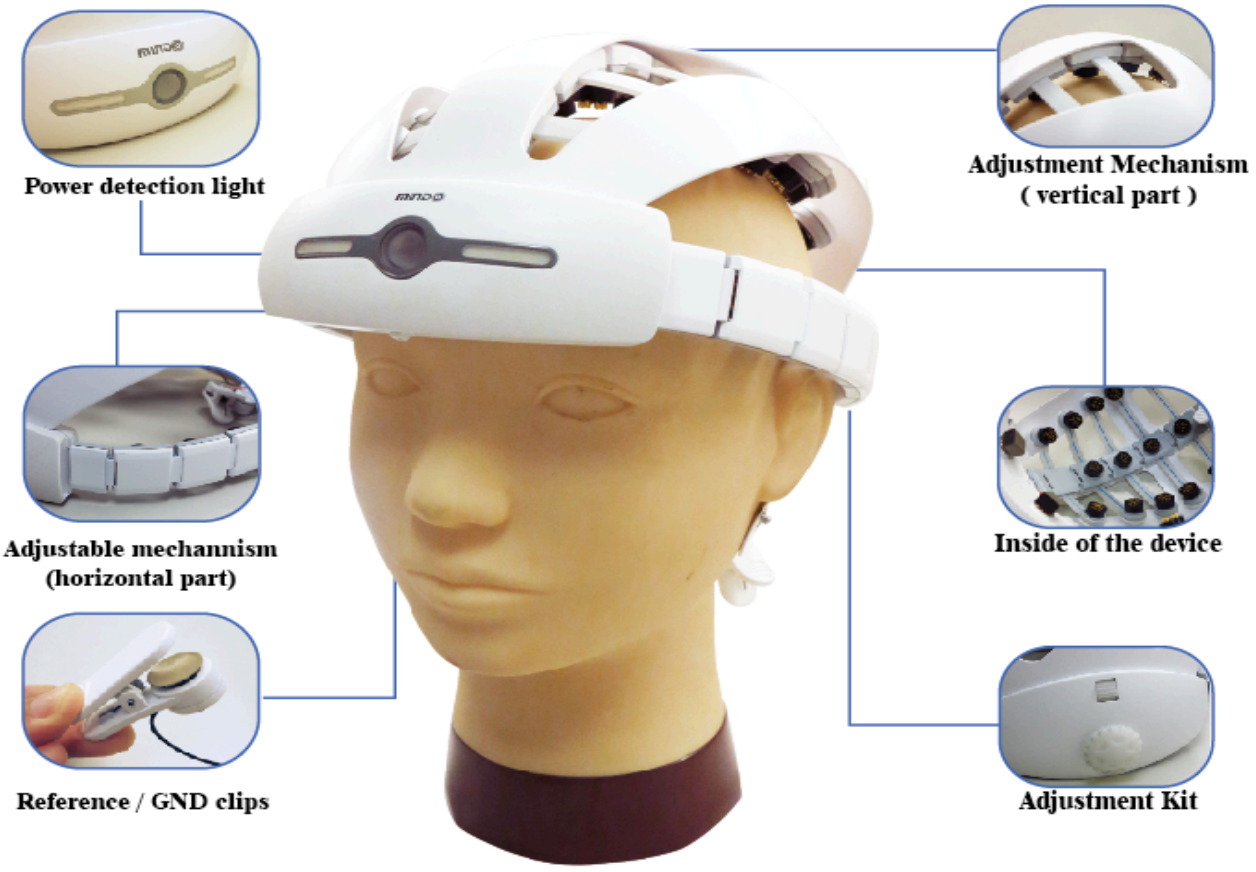


Mindo-32 Trilobite

The Mindo-32 Trilobite is a wearable, multi-channel dry EEG system developed for high-fidelity wireless brain wave monitoring. It is designed to capture signals across the entire head, offering data quality comparable to traditional wet-electrode systems without the need for skin preparation, abrasion, or conductive gels.

Design Philosophy

- The "32" in the system's name represents its 32-channel capacity.
- The "H" designation stands for the device's hard shell construction.
- The headset mimics a trilobite skeletal structure, utilizing flexible joints to quickly align the electrodes with the natural bending of the head.
- The rugged shell features an adjustment mechanism to change the elasticity, allowing for fast wearing and easy adjustments.

Design and Structure

- **Trilobite Inspiration:** The headset features a hard shell (denoted by the "H" in its model designation) with flexible joints that closely mimic a trilobite's skeletal structure.
- **Adaptive Fit:** This segmented design enables the electrode array to conform quickly and seamlessly to the natural curvature and bending of the user's head.
- **Adjustment Mechanisms:** The rugged shell includes both horizontal and vertical adjustment bands to secure the device securely around the circumference and over the top of the skull.
- **Quick Calibration:** A rear adjustment kit dial allows users to easily modify the shell's elasticity for fast wearing and optimal sensor contact.

Hardware Components

- **Sensor Array:** The interior of the device houses the dry sensor electrodes responsible for signal capture.
- **Power Indication:** A power detection light is centrally positioned on the front visor.
- **Grounding:** The system utilizes reference and GND ear clips to properly ground the electrical signal.

Component Identification

The Mindo-32 Trilobite consists of several key hardware features to ensure accurate data collection:

- **Power detection light:** Located centrally on the front visor.
- **Adjustable mechanism (horizontal part):** Secures the device around the circumference of the head.
- **Adjustment Mechanism (vertical part):** Secures the structural bands over the top of the skull.
- **Adjustment Kit:** A dial located on the rear of the device to tighten the shell.
- **Reference / GND clips:** Ear clips utilized for grounding the signal.
- **Inside of the device:** Houses the dry sensor electrode array.

Technical Specifications

Parameter	Specification
EEG Channels	32
Sampling Rate	500Hz
Connection	Bluetooth LE
Battery Life	< 15 hours
Charging Time	< 4 hours
Sensor Type	Dry electrodes (no gels or skin preparation required)
Signal Quality	Comparable to traditional wet-electrode systems

Core Advantages

- **Rapid Setup:** Dry sensors require no skin abrasion or extensive preparation, drastically reducing the time it takes to begin a recording session.
- **Enhanced Comfort:** Users do not have to wash their hair after a session because the sensors leave no messy gels or fluid residue behind.
- **Long-Term Monitoring:** Traditional wet gels dry out over time, which degrades signal quality. Dry electrodes maintain a consistent physical connection, making them ideal for extended, continuous brain monitoring.
- **Mobility:** The lack of required fluids makes dry sensors highly compatible with lightweight, wireless systems designed for mobile data capture outside of a laboratory setting.

Common Sensor Designs

- **Pin or Spring-Loaded Electrodes:** Designed to push through thick hair to make direct contact with the scalp. Systems like the Mindo-32 utilize a mechanical shell to maintain the pressure needed for these pins to capture signals effectively.
- **Flat or Silicon-Based Sensors:** Used primarily on hairless areas like the forehead. For example, the Mindo-4S Jellyfish utilizes a novel silicon-based strip as a dry electrode to measure frontal brain activity.

Technical Challenges

- **High Skin-Electrode Impedance:** Because there is no conductive gel to bridge the microscopic gaps between the sensor and the skin, dry systems naturally face higher electrical resistance. This requires advanced internal active amplifiers to resolve the brain's microvolt-level signals.
- **Motion Artifacts:** Dry sensors are significantly more susceptible to signal disruption from physical movement. If the headset shifts slightly, the friction alters the electrical contact, creating noise (artifacts) in the data that must be filtered out algorithmically.

Structural & Ergonomic Features

- **Trilobite Exoskeleton:** The hard shell (denoted by "H") mimics the skeletal structure of a trilobite, utilizing segmented, flexible joints to accommodate various head shapes.
- **Dynamic Articulation:** The segmented bands allow the electrodes to quickly align with the natural bending and curvature of the user's head.
- **Dual-Axis Adjustment:** Features both horizontal and vertical adjustment mechanisms to ensure uniform pressure across the scalp.
- **Rear Adjustment Kit:** A built-in dial mechanism allows the user to quickly tighten or loosen the elasticity of the rugged shell for fast wearing.

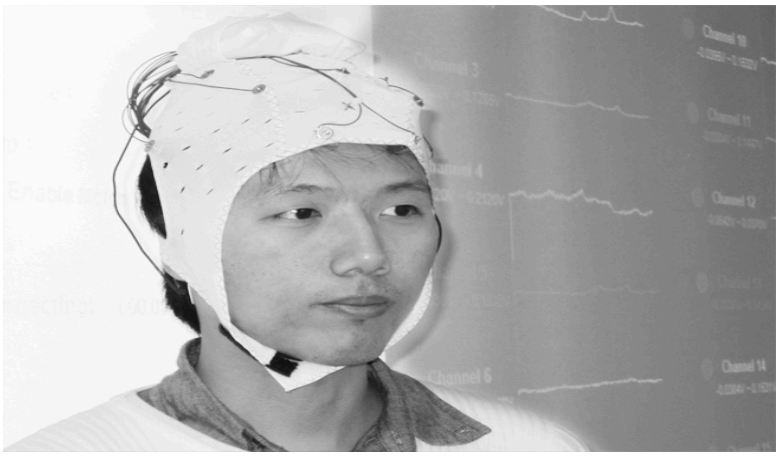
Dry Sensor Technology

- **Gel-Free Acquisition:** Uses dry sensors that eliminate the need for conductive gels or fluids, leaving no messy residue in the user's hair.
- **Non-Invasive Setup:** Bypasses the need for traditional skin abrasion or lengthy scalp preparation.
- **High-Fidelity Signal:** Despite lacking conductive gels, the system maintains data quality that is comparable to standard wet-electrode systems.
- **Full-Scalp Coverage:** The 32-channel array is distributed to capture brain wave signals across the entire head, rather than being limited to the forehead.

Software applications

Source localization	EEG record and review	Compressed density array
Compressed density array	Brain Mapping	Cerebral function monitoring
ERP	Sleep (Auto PSG) Software Package	Sound playback
ICU/NICU Neuro monitoring	Real-time spike detection	PSG Trend Analysis
Compressed spectral array	Real-time seizure detection	BESA Compatibility
Polysomnography (manual)	Digital Full HD Video	

Mindo



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EXPLORE THESE TOO!!

Mindo-64 Coral

·Dry sensors require no gels or fluids, and do not leave messy residue ·High quality signals ned without skin abrasion or preparation ·Wireless, lightweight, comfortable and rechargeable system allows for mobile data capture ·Raw data output specifications are provided for building custom applications

DETAIL

Mindo-32 Trilobite

The Mindo-32 Trilobite offers numerous convenience and comfort advantages. The foremost is that the data quality is comparable to that obtained with wet-electrode systems but without the need for skin abrasion or preparation and no gels.

DETAIL

Mindo-4S Jellyfish

Mindo-4 Jellyfish is a dry-sensor, lightweight and wireless brain-sensing technology, which uses a novel silicon-based strip as the dry electrode to measure the brain activity on the forehead area.

DETAIL

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