Smart Home

Let thoughts interact with real life effectively, build up thought to control furnishing and equipment through NeuroCube, experiences future furnishing’s intelligent control thought means action.

Example:
Combine NeuroCube with Smart home environment for brain-based remote control such as TV & air-conditioner.

Neurofeedback
Training

Real-time feedback from the brain enables a new way for mental status improvement.

Example:
Combines with reaction equipment or game, NeuroCube could train children how to focus and control emotion.
Brain-Computer Interface (BCI)
Creation Infinite Possibility

Example: Build a BCI system using NeuroCube to control virtual menu generated by AR system, without any movements.

NeuroCube+VR/AR open the new world of brain control virtual interactive.
Free your hands and let your thoughts seamlessly dock with the virtual world. Build a BCI system by combining NeuroCube with VR/AR system.

Brain Controlled Exoskeleton for Rehabilitation
Connect NeuroCube with the exoskeleton to translate the brain motor imagery signal into mechanical body movements. Then, the patients can conduct brain controlled active rehabilitation training. This system could help patients with motor dysfunction to regain the possibility of walking again.

Example: Combine NeuroCube with the exoskeleton, helping stroke patients with paralysis conduct active rehabilitation training.

Smart Cube for Brain-computer Interface Application

Research-grade EEG Signal Quality
- 8 channels, 24-bit resolution, sampling rate 16kHz
- Common mode rejection ratio (CMRR) ≥120dB
- Input noise < 0.4μVrms from 1-100Hz
- Data and event wireless synchronization, <1ms latency and jitter
- Support spontaneous EEG, ERP and SSVEP, Mu Rhythm
- 9 axis motion sensors for real-time motion artifact removal

Smart Processing System Inside the Device
- Intel Atom Dual-Core processor, 1GB memory, 4GB flash storage with external SD card support.
- Linux-based development platform, support C/C++, Matlab & Simulink, Python, Node.js, HTML5, JavaScript etc.
- Built-in algorithms for high-performance filtering and denoising, basic BCI algorithms such as CCA, CSP, SVM etc.
- Support Intel IoT platform, easy access and interaction with cloud data.

Support Various of Interfaces
- Bluetooth Low Energy 4.0
- WiFi 2.4/5GHz, hotspot Available
- UART/I2C/SPI/PWM, Supporting different types of external devices

Smart and Flexible Design
- Lightweight and compact, perfectly integrate into different environments.
- Compatible with wet and dry electrodes.
- Designed with magnetic connectors for comfort and convenient

Specifications

| EEG Channels | 8 |
| Sampling Rate | 16kHz |
| Common Mode Rejection Ratio (CMRR) | ≥120dB |
| Resolution | 24bit |
| Input Noise | < 0.4μVrms |
| Dynamic Range | ±375mVpp |
| Bandwidth | Keep complete low-frequency signal with DC-coupled Amplifier |
| Event Synchronization | Wireless Sync, <1ms latency and jitter |
| Impedance Measurement | Support regular offline detection and real-time monitoring |
| Power Supply | Internal lithium battery |
| Operational Time | Up to 2 hours |