Around 4.7 million individuals in the US are living with Alzheimer’s Disease (AD). Recent findings suggest central auditory dysfunction may act as early indicators for developing stages of AD. We have developed a wireless, portable system for soundscape monitoring and capturing brain activity (EEG). The system consists of three stages: 1) signal acquisition, 2) data transfer and storage 3) digital signal processing. Our system is able to synchronize the EEG and recorded sound with respect to time, allowing us to monitor the relationship of a patient’s cognitive perception to various acoustic events.

**Features:**
- Wireless
- Fast Data Transfer
- Secure Data Encryption
- Extensive Battery Life
- Comfortable
- Lightweight
- Stylish

**Hat:** A custom-built hat that serves to house our electrical components: Raspberry pi 3B+, internal wiring, signal acquisition circuit and EEG cap. Manufactured by Classic Caps

**EEG CAP:** Handmade EEG cap that firmly secures flex sensors (dry electrodes); includes adjustable chin strap

**ADS1299:** Texas Instruments’ analog front-end chip acquires the brain activity; located within back pocket of the hat

**In-Ear Monitors:** The monitors provide the ability to measure the surrounding acoustic environment

**Battery:** Small and light. Rechargeable battery provides portability and efficient power management to the system

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