

Project Proposal Ideation

What to Measure?	How?
Stress Response	High beta wave activity (13-30 Hz) and low alpha wave activity (8-13 Hz)
Creativity	Difficult, but often associated with alpha wave activity (8-13 Hz), which is linked to relaxed, divergent thinking, and gamma wave activity (above 30 Hz), which is linked to the combination of ideas or binding process
Learning Curve	Tracking changes. Alpha and beta waves are often associated with cognitive processes involved in learning. This is somewhat more challenging, just like creativity.
Attention Level	Attention is often associated with beta wave activity (13-30 Hz).
Cognitive Load	Cognitive load is often associated with changes in theta wave activity (4-7 Hz) and alpha wave activity (8-13 Hz)
Meditation	Often associated with alpha wave activity (8-13Hz) Theta wave activity (4-7 Hz), when being in a complete mindful state.

Proposal 1: **Stress Indicator**

Measure stress levels while scrolling on Social Media using beta wave activity and display it on an LED light strip that changes color based on the stress level.

Proposal 2: **Meditation Guide**

Measure theta wave activity during meditation and control the ambiance of a room (e.g., dimming lights or controlling a sound system).

Proposal 3: **Attention-Based Audio Book Speed Controller:**

Measure attention levels during listening to an audiobook and adjust the playback speed.

Proposal 4: **Pokerface**

Learning how to control your mental state to maintain a poker face. The lower your stress level, the lower the stake you put in the game, and vice versa.

Proposal 5: **Relax! It's just PacMan**

The more relaxed you are, the faster your PacMan can go in the game, the rest of the game can be controlled as normal.

Proposal 6: **Mindfulness Indicator:**

Detect when the user's mind is not focused on the present moment and provide a gentle reminder through a vibrating wristband. (or use smart textile)

Proposal 7: Empty your Mind During Sports

Measuring alpha wave activity, associated with relaxation, and clearing the mind, during sports activities. The measured relaxation level could be used to provide real-time feedback to the user, helping them to clear their mind and focus on the sport.
(However difficult to do because EEG headset during sports is difficult)

Proposal 8: Fitness Motivator:

Measure beta waves during physical exercise and provide motivational audio cues based on the user's focus level.

Proposal 9: Creativity Enhancer

Detect gamma wave activity during creative tasks and play different types of music to enhance creativity. (Difficult to measure, and music = noise)

Proposal 10: Memory Training Game:

Monitor brain activity during the game of memory and control the complexity of the game based on performance. (But too complex I think)

Proposal 11: Multitasking Efficiency Tracker:

Assess cognitive load during multitasking and provide real-time feedback through a progress bar. (Really difficult within time frame as well I think)

