

MINDZILLA. Mind your mind

Wireless medical grade EEG device that sends electrical signals from the brain to a unique algorithm designed to detect acute stress and reduce it

According to the World Health Organization stress will become the epidemic of the 21th century, a growing pathology mainly aggravated by our lifestyle 24/7 always available and our increasingly demanding jobs, that inevitably affect our health and quality of life. 40 million people are affected by stress in Europe, which entails a cost of € 20,000 million per year. This situation also produces a high cost to companies and governments diminishing their productivity. One out of four sick work leaves is related to stress. MINDZILLA is a medical grade device that controls stress levels offering an elegant and clinically reliable solution to this problem. For that purpose, we have developed a wireless electroencephalography (EEG) device along with a unique Software that can exploit all its technological potential. Therefore, creating a complete system based on Neurofeedback –conditioning real-time neural activity as it is recorded– that works for both diagnosis and treatment, getting rid of most common problems associated with standard solutions nowadays, and thus, enabling companies to increase their productivity by reducing the stress of their employees.

Technology solution supported by the Technical University of Madrid

Technology solution

MINDZILLA consists of a hardware device and a unique software, with the following features:

- **Hardware:** Wireless medical grade EEG device. It uses a new type of electrode –dry electrode– which ensures a quick and hygienic placement of the device and requires no gel or water to function. Being auto-amplified, no wires from the head of the subject to an external amplifier are needed, allowing complete mobility. The headset design where the sensors are placed achieves a great attachment and comfort for the user, being as easy to use as a cap. The location of the electrodes follows the international 10-20 standard system used in clinic and research. Moreover, the device has a Li-ion high capacity battery to prevent power cables and provide a long durability. Its bluetooth interface connects the device with tablets, smartphones and PCs .
- **Software:** The associated SW application is based on neurofeedback. Through a unique functional brain connectivity algorithm it detects brain stress levels of the subject and helps you reduce it.

"MINDZILLA records brain electrical waves to monitor and reduce stress levels "



Areas of application

- ICT applied to health

Market demands

ICT applied to health

- In 2020, anxiety disorders, stress and depression will be the number one cause of disease in the developed world [World Health Organization, WHO].
- 60% of consultations in primary care are related to stress. Stress knows no age or sex [American Psychological Association, APA], [Sociedad Española para el Estudio de la Ansiedad y el Estrés, SEAS].
- Today there is a huge gap between what the health system provides and what people affected expect from it. Thus, they often have to ultimately use anti-stress balls, yoga or psychotherapies. However, 81% of patients fail treatments based on changes in lifestyle, due to willpower, confidence, time and stress itself [APA].
- Companies can not provide personalized tracking of their employees, which are subject to an increasingly "stressful" environment.

"In 2020, anxiety disorders, stress and depression will be the number one cause of disease in the developed world, according to a study carried last year by the World Health Organization"

Market potential

ICT applied to health

- 40 million people in Europe are affected by stress, which translates into a cost of € 20,000 million per year (due to absenteeism, decreased productivity, accidents, etc.) [Asociación Española de Especialistas en Medicina del Trabajo, AEEMT].
- Up to 80% of workers are more stressed than last year [APA], and one in four sick leave is related to stress [American Institute of Stress, AIS].
- Work stress affects in Spain to more than 40% of employees and nearly 50% of businesspeople suffer from Burnout [Instituto Nacional de Estadística, INE].
- Moreover, this disease also caused high rates of turnover and 50% of not justified absenteeism in companies [INE].

Competitive advantages

- Improves time efficiency: a conventional EEG placement requires 45 minutes, we reduce this time up to 80%.
- Mobility: full mobility with our wireless solution, in comparison to those using cables.
- Hygiene: uses dry electrodes, which allows greater hygiene and comfort for the user that when using gel.
- Medical Grade quality: and sensors positioned in the international 10-20 system used in clinic.
- Objectivity of results: current techniques for stress are subjective and difficult to monitor progress, we bring reliability and objectivity.
- Cost more than 50 times lower than the current research devices.

References

- Prize for best ideas at I actúa_COM Edition. Center for Open Middleware and Entrepreneurship Program UPM (2014).
- Honorable Mention for an Entrepreneurial Project. IDEA2, Madrid-MIT M+Vision Consortium (2013).
- Finalists at Venture Lab Accelerator. IE Business School Madrid (2013).
- Bioengineers doctors with 7 years of experience in engineering and neuroscience research, working at the Center for Biomedical Technology (CTB-UPM), which has 6 years in applied research projects, 2 companies created, 13 patents granted and a high involvement in the business sector since its creation in 2008.

Development stage

- ☐ Concept
- ☐ R & D
- ☒ Lab Prototype
- ☐ Industrial Prototype
- ☐ Production

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