

Flexible & Wearable Electronics Application Experiments



Netsensing HSATPro is a Home Sleep Apnoea Testing (HSAT) device indicated for use by Health Care Professionals (HCP) and help them in the diagnosis of sleep apnoea for adult patients.

www.netsensing.ch



Problem to be solved

Today, sleep apnoea detection or testing devices are very costly and not easily available. Due to the complexity of existing devices, they are predominantly used in clinical environments, which causes a bottleneck due to the availability of sleep doctors/hospitals, and, consequently, a long waiting list. Current devices require specialized doctors for the interpretation of results obtained, with scoring being done manually. The development of a user friendly, stretchable, reusable and wearable device acting as a respiratory inductive plethysmograph (RIP) belt and integrating a chest blood oxygen saturation (SpO₂) sensor and 3D accelerometer, to detect sleep apnoea in a faster and cheaper way is urgently needed.

Solution provided by SmartEEs

The AE output was a faster and cheaper wearable device capable of detecting sleep apnoea, focusing on the manufacturability, easy-to-wear and cost of the final device, and embedding proprietary algorithms compliant with the American Academy of Sleep Medicine (AASM). The application of Flexible and Wearable Electronics gives a clear advantage by integrating selected sensors in a smart stretchable device and drastically reducing complexity and costs. The device measures blood oxygen saturation via the SpO₂ sensor and both the abdomen and chest respiratory cycles, which, in combination with an accelerometer, allows the system to process an apnoea score that is sent to a tablet for analysis and monitoring.

Business model & impact

Through the EU and the US, 120M persons suffer from sleep apnoea (The Lancet). The prevalence of Sleep Apnoea is about 15% with several serious effects on health conditions (Diabetes, Heart attacks, Strokes, Anxiety, Car accidents). Find a low-cost solution for such problem will have a strong impact in people who suffer from this problem. The HSATPro AE successfully reply to the challenge of Sleep Apnoea diagnostic. The Go-To-Market strategy was primarily defined based on the need for pharmacies to develop new services to enlarge their business opportunities.

Netsensing was among the 12 finalists at the 14th Healthcare Innovation World Cup at Medica in 2022.

