DeepVest: Next-generation mental health tech wearable integrating sensors, AI, and deep pressure therapy for real-time monitoring and intervention

Summary

Profile type	Company's country	POD reference
Technology request	**Germany**	**TRDE20250403004**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Research and development cooperation agreement**	**• World**
Contact Person	**Term of validity**	**Last update**
Enrico FRANZIN	**3 Apr 2025** **3 Apr 2026**	**3 Apr 2025**

General Information

Short summary

DeepVest is a wearable solution for mental health management that combines biosensing, AI analysis, and pneumatic actuation. It enables real-time monitoring, prediction, and mitigation of stress and anxiety. Designed as an invisible support companion for people living with anxiety, PTSD, and chronic stress, DeepVest bridges the gap between passive monitoring wearables and active medical-grade interventions. Partners are needed for clinical validation and AI integration.

Full description

DeepVest is a next-generation smart garment that integrates biosensing, AI-driven analytics, and deep pressure therapy (DPT) through pneumatic actuation to deliver real-time, non-invasive mental health support.
Designed for individuals living with chronic stress, PTSD, anxiety, and professionals in high-pressure environments, DeepVest enables continuous physiological data collection, stress pattern prediction, and active therapeutic response. The system uses soft, textile-based sensors and fluidic actuators to detect biomarkers such as heart rate, respiration, and perspiration. These data are analyzed by AI models trained to recognize early signs of anxiety. When needed, DeepVest activates deep pressure feedback (e.g., gentle, hug-like compressions) to help calm the nervous system and reduce escalation.

Unlike existing wearables that passively track stress, DeepVest provides a closed-loop solution with real-time intervention and learning capabilities.
DeepVest is currently in the prototyping phase. The core technology modules (sensor integration, pneumatic actuation, and textile architecture) have been individually validated by consortium partners. The next milestone is the integration of these modules into a functional proof of concept (PoC). Early user and expert interviews confirm the strong market relevance of wearable-based mental health tools.
A complementary mobile app enhances the experience by providing insights on stress triggers and physiological states throughout the day. It also enables users to personalize mitigation settings (e.g., pressure level, duration, rhythm) and give subjective feedback, allowing the system to continuously adapt to individual preferences.
DeepVest is developed by a European consortium with expertise in high-performance engineering knitting, wearable sensors, and soft robotics. Strategic conversations are ongoing with clinical and AI partners. The project aligns with EU goals on mental health, workplace well-being, and sustainable digital innovation.
We are actively seeking partnerships with:

- Clinical research institutions for pilot trials and validation
- AI/data partners for signal interpretation and adaptive modeling
- Public and private investors interested in wearable mental health solutions

Advantages and innovations

Technical specification or expertise sought

We are looking for partners with:

- Clinical expertise in mental health for validation studies
- AI expertise to refine predictive algorithms
- Interest in co-development, licensing, or R&D collaboration

We welcome partners with capabilities in:

- Physiological signal interpretation
- Pneumatic control systems
- Neurofeedback and wearable interface design

Together, we aim to bring DeepVest to market readiness and improve access to non-invasive mental health support tools.

Stage of development

Sustainable Development goals

- **Goal 3: Good Health and Well-being**

IPR Status

IPR Notes

IPR Notes

Partner Sought

Expected role of the partner

Type: Academic partner, research institution, or (university) clinic
Field: Mental health, clinical psychology, psychiatry, neuroscience, digital health
The company is looking for a clinical research partner with expertise in treating anxiety disorders, panic attacks, and post-traumatic stress disorder (PTSD). Ideally, this partner would have access to relevant patient groups and experience in conducting clinical trials involving wearables.
The envisaged cooperation partner is expected to:

- Expert advice and active role in defining the active mitigation strategies variations
- Design and conduct clinical validation studies focused on the efficacy and safety of DeepVest in supporting individuals with anxiety, PTSD, or chronic stress
- Support patient recruitment and ethical approvals for pilot trials
- Provide clinical insights for tailoring intervention strategies and assessment metrics
- Collaborate on data collection and analysis, contributing to evidence generation for future regulatory pathways

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **R&D Institution**
- **Other**

Dissemination

Technology keywords

- **02007018 - Advanced Textile Materials**
- **06005004 - Remote diagnostics**
- **03005009 - Woven technical textiles for industrial applications**
- **06005003 - Health information management**

Market keywords

- **05007004 - Monitoring equipment**

Targeted countries

- **World**

Sector groups involved