



Funding Project Neurofunctional Suit STS: “SmartTextStim”

Smart Suit Supports People with Mobility Impairments

BMBF Funding Initiative for Interactive Technologies for Health and Quality of Life as part of the funding priority “KMU-innovativ: Interactive Technologies for Health and Quality of Life”
(Call for proposals: April 2024)

Motivation

People whose motor function and balance are impaired—such as those with spastic paralysis—often suffer from reduced mobility and quality of life. Advanced textiles like neurofunctional suits with integrated sensors and electrical stimulation offer new therapeutic approaches for those affected.

Objectives and Approach

The team behind the project Neurofunctional Suit STS: “SmartTextStim” is developing a neurofunctional suit designed to support patients with motor impairments. The suit consists of a textile that, with the help of integrated sensors, detects spastic events such as muscle cramps. It can automatically trigger countermeasures in the form of electrical impulses, which not only alleviate acute cramps but also improve muscle control and help prevent further spasms.

By combining their expertise in textile technology, medical engineering, and computer science, the researchers are creating a user-friendly and practical everyday product. In cooperation with medical partners, they will evaluate and optimize the effectiveness and safety of the suit in several testing phases.

Innovations and Perspectives

The neurofunctional suit provides a promising basis for new therapeutic approaches and could in the future be adapted for individuals with similar symptoms. It contributes to improved healthcare and promotes social participation among patients.



Neurofunctional suit detects and prevents muscle cramps (Source: NOON GmbH 2024).

Consortium Coordinator

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Project Volume

€1.72 Mio. (74% funded by BMBF)

Project Duration

01 January 2025 to 31 December 2027

Project Partners

- NOON GmbH, Limbach-Oberfrohna
- Sanimax GmbH, Annaberg-Buchholz
- Chemnitz University of Technology - Faculty of Electrical Engineering and Information Technology – Institute for Microsystem and Semiconductor Technology – Professorship of Electrical Measurements and Sensor Technology
- Chemnitz University of Technology – Faculty of Behavioural and Social Sciences – Institute of Human Movement Science and Health – Work Group Motor Control, Cognition, and Neurophysiology

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