

Remote Rehabilitation and Diagnostic Systems

(FEIM – Future Electronics for Industry 4.0 and Medical 4.0 project)

Objectives of the Project

The project focuses on the development of advanced wearable systems and sensors for remote rehabilitation and diagnostics. It aims to optimize human–device ergonomics, improve multimodal data fusion and signal interpretation algorithms, and implement IoT-enabled software tools for continuous, real-time health status monitoring. Targeted application domains include clinical healthcare, telemedicine, and occupational safety in industrial environments.

Topics covered by the Project

- Development of Healthcare Sensors – Design and implementation of wearable systems for continuous remote monitoring of physiological (e.g., ECG) and kinematic (e.g., IMU-based motion tracking) data across clinical, home-care, and industrial settings.
 - Smart Sensor Integration – Development of autonomous, modular sensor platforms with onboard signal processing, wireless communication, and local data storage for uninterrupted operation.
 - Ergonomic Optimization – Engineering of lightweight wearable devices with enhanced biomechanical compatibility to minimize user discomfort and maximize compliance during long-term use.
 - Tele-rehabilitation Software – Creation of software tools for remote diagnostics, real-time patient assessment, and longitudinal monitoring.
 - Industrial and Medical Applications – Deployment in Industry 4.0 safety monitoring systems and Medicine 4.0 frameworks for diagnostics and rehabilitation.
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What will the Project Results enable?

- Real-time remote health monitoring
- Improved rehabilitation outcomes
- Safer working environments via smart sensing
- Ergonomic wearable technologies
- Integration of IoT tools in clinical and industrial practice



Selected Results

- Smart sensor system for monitoring workers' safety
 - Expert diagnostic and rehabilitation software
 - Portable mechatronic system for medical application and rehabilitation
 - Modular multisensor platform for movement analysis
 - IoT-based software for remote health data evaluation
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Partners involved:



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More about FEIM project can be found on [projects webpage](#).

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