

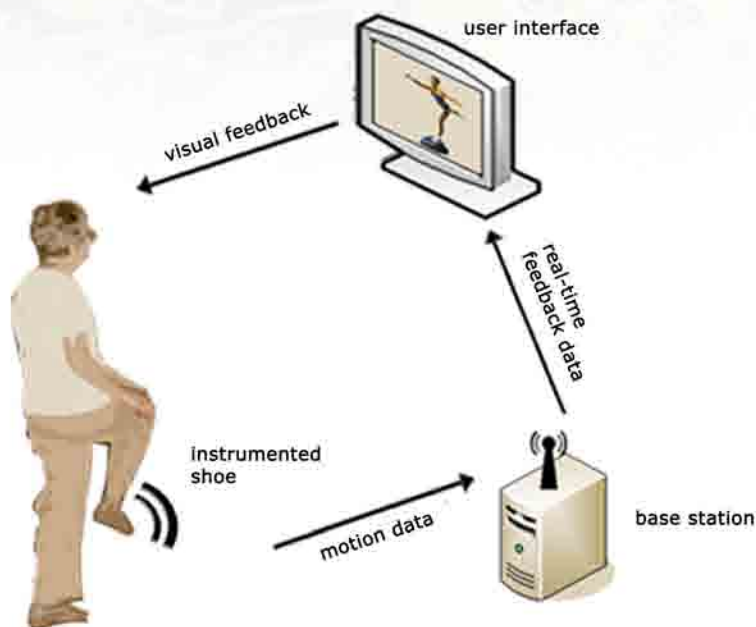
ICT-supported, smart-textile based system for the enhancement of the activity-level and fall prevention

Neuromuscular deficits due to physiological ageing, multimorbidity and inactivity constitute the most common cause of falls, immobility and the resulting consequences. Within the project "vitaliSHOE" a monitoring and training system will be developed, which will slow down or even prevent the need for care by identifying problems at an early stage giving the opportunity for early balance and activity training and medical intervention. In this way the system will contribute to a longer, more independent living and active ageing.

Whereas the combination of the three topics

- „Balancemonitoring and -training“,
- „Fall-risk Assessment“
- „Acquisition of the level of activity“

should lead to an increased activity, improved postural control and related to a reduced risk of falling.



Monitoring and Training

An **Assessment and Training** is the main area of focus. This is realized by acquisition and interpretation of specific parameters of motion with a instrumented shoe and further processing and a visual feedback on a user interface, which can easily be understood by elderly people.

main aims:

- long-term assessment of the person's state
- enhancement of the level of activity

Smart textile - an instrumented shoe

Via a sensor network and an embedded system integrated in the shoe, characteristical motion patterns will be extracted by applying current methods of sensor signal-fusion and data abstraction



User interface for elderly people

At the graphical user interface the data will either be presented in real time as feedback for training purpose or as trend and set of advice to enable a long-term assessment of the elderly person's state. In addition the data will be made available to experts and caregivers via a client-server-connection.

User Involvement

In order to be able to meet the needs and wishes of the end-users, the project will be carried out with a high degree of user involvement. Potential future users - elderly people, nursing staff and medical experts - will iteratively be involved in the development process right from the beginning to the end of the project. The aim of this user-centred approach is to develop a close to the market prototype.

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