FUTURE SHAPE

THE SENSFLOOR® SYSTEM IN PROFESSIONAL CARE

Functions, Facts and Features

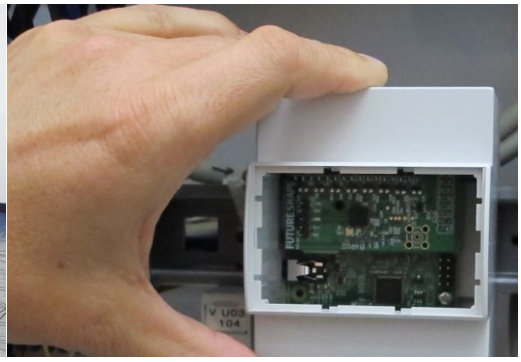
SENSFLOOR® -
THE COMPLETE CARE SOLUTION

THE FUTURE OF CARE BEGINS NOW

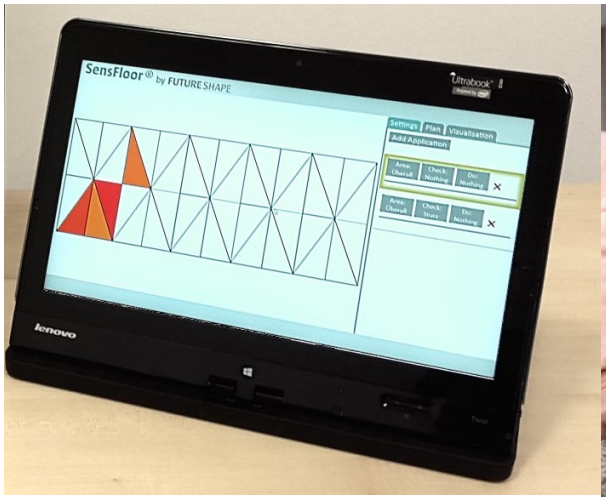
Imagine a technology which provides residents and attendants with assistance functions that are tailored to their individual preferences. A technology which offers safety and comfort, reduces reaction times in case of accidents, detects changes of the individual health status, keeps the family informed and takes over nursing documentation work. And now imagine you would not even guess that this technology is there as it is invisibly integrated in a top-design nursing home. This is where imagination stops and the reality of the SensFloor system begins!

THE BUILDING BLOCKS OF A HIGHTECH ASSISTANCE SYSTEM

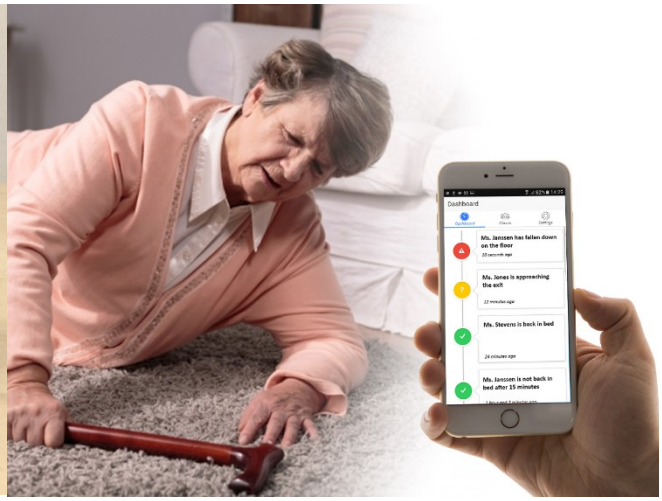
Proximity sensors in a textile underlay underneath any sort of floor covering detect position, and gait of a person and distinguishes between a person standing or laying on the floor



Wireless transceiver in the installation box processes sensor signals and connects to the server-based attendant information system. Integration into any already existing nurse call system is also possible



Live-views and playbacks of sensor data and the institution-wide event status and -history can be displayed on any authorized web browser



For selected events, the cloud- or local server-based information system sends push messages to the attendants' individual smartphones.

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FLEXIBILITY EVERYWHERE

ANY FLOORING

With up to 32 sensor fields per m², the textile underlay with built-in electronics detects presence and exact location of people underneath almost any conventional floor coverings.

Certainly, most nursing home rooms have PVC flooring. However, due to SensFloor's capacitive proximity sensing technology no concessions with respect to the floor design have to be made: carpet, laminate, parquet and even stone tiles work as well! No mechanical pressure is necessary to capture the exact location, walking direction and even the gait pattern of residents. A person lying on the floor is safely detected even when the fall has occurred without any impact. Even spilled liquids are detected and their location is indicated to the attendants to prevent accidents on slippery floor. If desired, SensFloor can be installed beneath a floating layer of floor covering. This enables the exchange of the floor covering for renovation without affecting the sensor underlay. Due to its high spatial redundancy, SensFloor remains functional even if small areas become destroyed (e.g. by accidental drilling into the floor). However, if necessary any part of the underlay can be easily replaced locally.

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ANY GROUNDPLAN

SensFloor® adapts to any room geometry and exactly locates any number of people simultaneously.

We all know it: architects like to create innovative ground plans. Curvy or non-rectangular rooms, open spaces, windows and doors on every wall. SensFloor does not interfere with this creativity: The sensor electronics is embedded in the underlay which makes it fully self-containing. Sensor data is wirelessly transmitted directly from where it is measured so that no external electronics in the skirting board is required. Any size or layout of the sensor areas can be realized by cutting the underlay with an ordinary knife during the installation process. Sensor underlay can be spared by leaving out inaccessible areas e.g. underneath fixed furniture.

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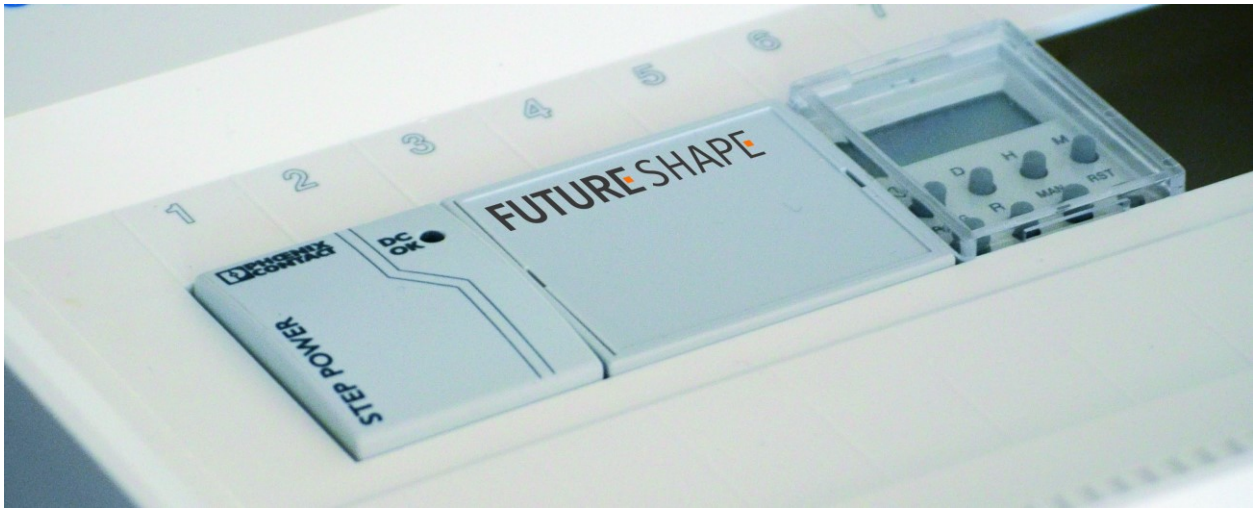
ANY INFRASTRUCTURE



Using LAN, WIFI, RS232 or built-in potential-free relays, the SensFloor transceivers work with any indoor call system or building automation.

People say: the best with standards is that there are so many of them. Nothing is truer in building automation and indoor call systems. Therefore, the SensFloor system offers the highest level of compatibility with existing infrastructure. The built-in wireless data transmission guarantees maximal freedom for the electrical installation. The most common way is to mount one SensFloor transceiver in every apartment's installation box and connect its potential free relay outputs to the indoor call system. This way, alarms and events based on the SensFloor are seamlessly integrated into the existing nurse-call system. Depending on the electrical infrastructure, it is also possible to mount the transceiver in a central installation box in the hall and capture the sensor data from many adjacent apartments at once. Finally, it is also possible to make use of the SensFloor technology without any connection to an indoor call system as there exists a variety of components such as radio bells, wireless sockets, orientation lights, GSM modems and automatic door controllers which are compatible with the SensFloor system.

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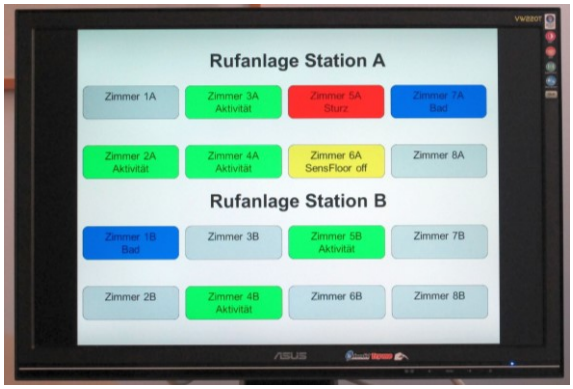
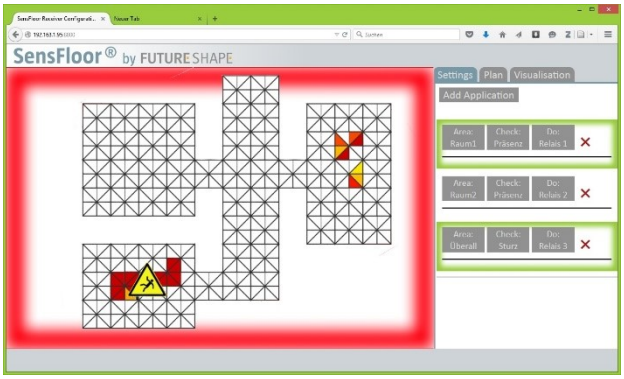
ANY FUNCTION



The status display aggregates notifications on the ward level



Functions, their operating area and the type of notification can be configured on the single-room level.

No matter if and how the SensFloor system is integrated into an existing nurse call system or not: by connecting to the transceiver's built-in web-server through WIFI or wired TCP/IP network, authorized carers can access all functions through smartphone, tablet or PC at any time from any location. This includes alarm messages with room number and time stamp as well as the access to long term observations such as nightly activity and sleep times. An intuitive graphical user interface guides an authorized installer through the configuration process for these functions. Any function can be associated to one or many locations from the ground plan in order to tailor a functional profile to the individual resident's requirements. It is possible, for instance, to limit the location which indicates activity to the area near the apartment's door such that carers become informed when a resident leaves the room at night. By setting a timer on sensor areas, an automatic immobility alarm message can be sent if a resident remains exceedingly long in the bathroom, for instance. As the functions reside in the corresponding transceiver(s) and not in the SensFloor underlay, it is very easy to add new functionality to an installation. For installations where the receiver is connected to the internet via a secure VPN line, this can be done remotely. For isolated systems, an update can be performed by simply replacing a transceiver's memory card.

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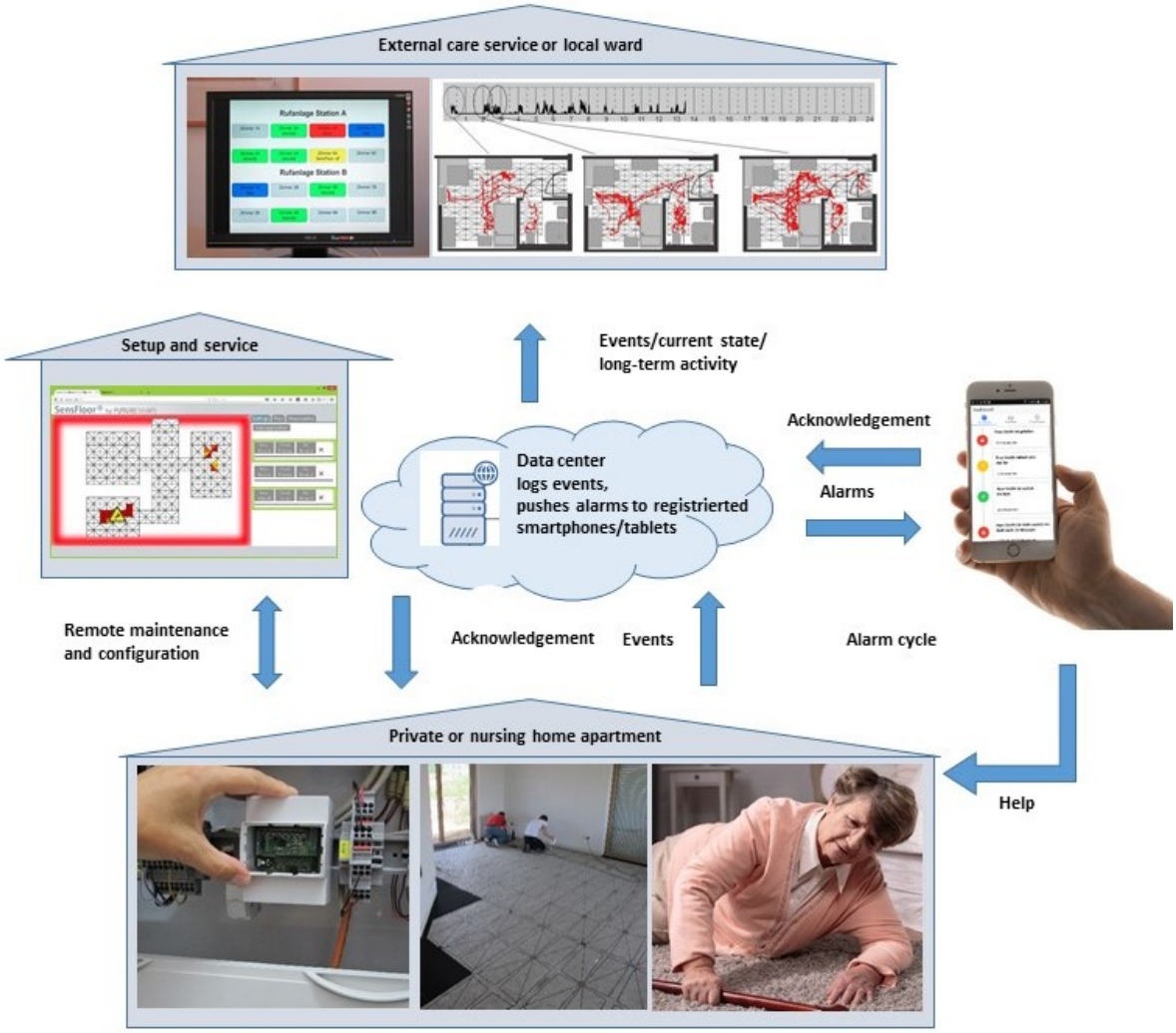
PROFESSIONAL DATA HANDLING

DATA CENTER IN THE CLOUD OR LOCAL SERVER



Schematics and working principle of the SensFloor® assistance system: The SensFloor® underlay sends its sensor data wirelessly (868 MHz) to the SensFloor® transceiver (based on Raspberry Pi), which is mounted in the installation box of the apartment. It controls the local nurse call system or the home automation system (e.g. KNX) and submits the events directly or over a local server via a secure internet connection to the cloud. If no acknowledgement is received, an alternative data path is chosen (e.g. via GSM).

The configuration of the functions and the remote maintenance of the SensFloor® is realized using the same transceiver via secure internet connection (VPN).

The caregivers in the local ward are able to see the actual status in their dedicated apartments and can access the stored data, like long-term activity monitoring of the apartments, if they are authorized. If required, also external care services might become authorized for these functions.

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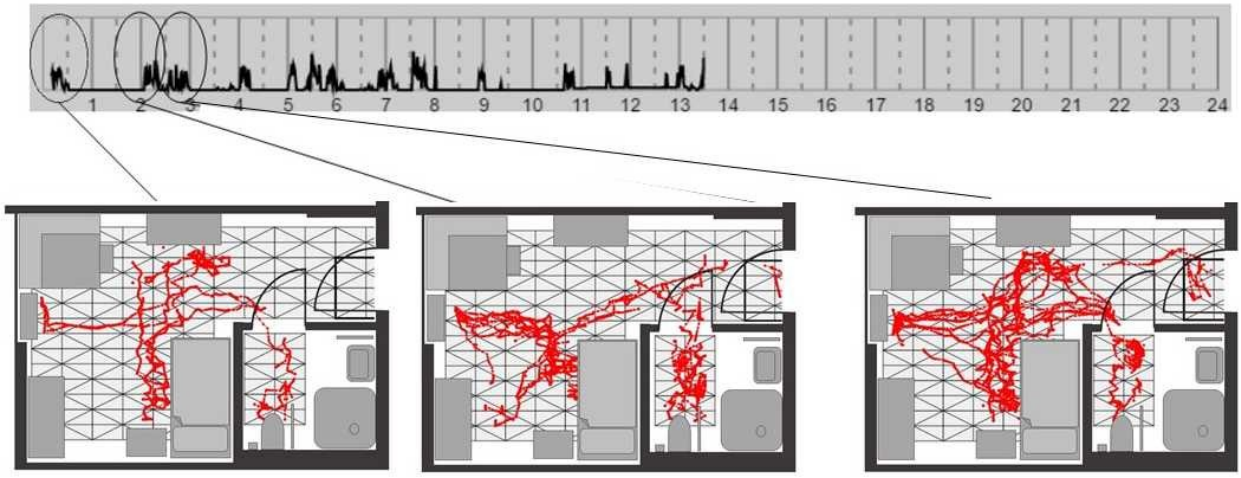
INNOVATIONS ALL AROUND

PREVENTION, PRECAUTION AND REHABILITATION



Replay of movement trajectories of a resident for three periods during the night.

The best way to deal with accidents such as falls is to prevent them. Switching on an orientation light when residents get up at night is one of the simplest methods. Needless to say that the presence detection feature of the SensFloor system does this in the best possible manner: radio controlled built-in orientation lights are activated when the feet approach the floor in preparation to leave the bed. The lights are switched off without any annoying delay when returning into bed. For frail patients, the system can combine the activation of the orientation light with a nurse call to ask for support.

However, SensFloor does not only know when someone steps on the floor. Due to the high spatial resolution, the exact location of a person can be captured at any time. A long-term recording of the movement activity can give valuable hints on the causes of eventual declines of a patient's health status. For this purpose, a special visualization of the movement trajectories of residents can be played back on authorized terminals.

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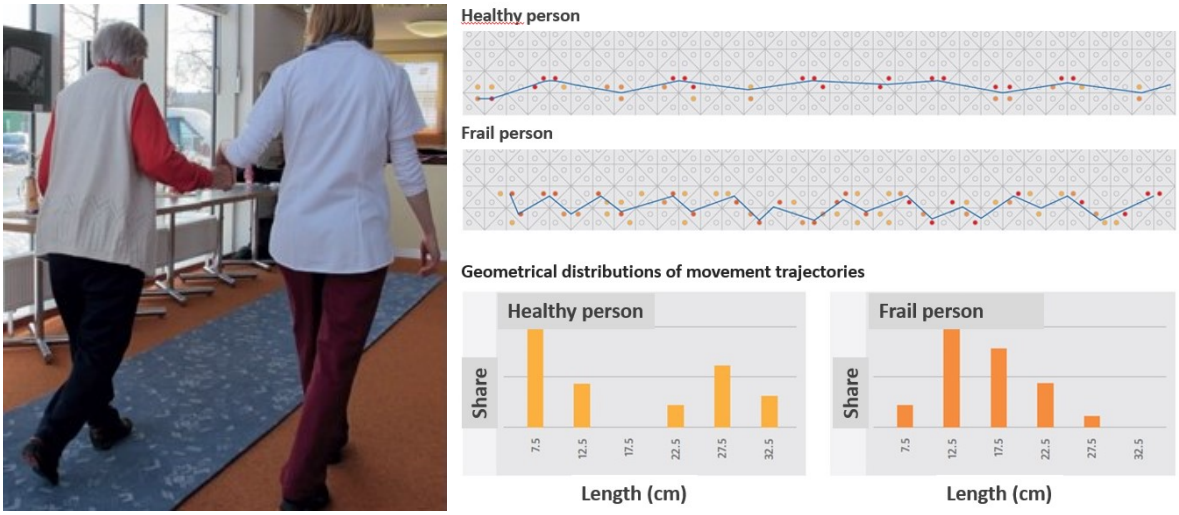
SENSFLOOR® MED FOR GAIT ANALYSIS



Comparison of gait patterns of healthy and frail persons and the according distribution of the movement trajectories

But SensFloor goes much further: even the gait of residents can be analyzed and long-term changes therein can be detected. In recent studies in nursing homes and hospitals it has been shown that a six meter long high resolution underlay in the hallway is sufficient to record, learn and classify gaits of people with respect to frailty. This way, the success of rehabilitation procedures can be measured and recorded.

These rehabilitation procedures can make use of the SensFloor as well: without any problem, the precise localization of peoples' feet can be used as input to so-called "serious games". Future-Shape offers components such as MIDI devices and keyboard controllers to configure any SensFloor area as floor piano or giant mouse pad. This way, residents can train their musculoskeletal system while having fun in social games at the same time. All this works on the ordinary SensFloor signals so that no changes to the floor whatsoever are required to introduce these new functions into an already existing installation.

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GET MORE INFORMATION NOW

CONTACT

Reading a brochure is one thing. But nothing is like touching a product and experiencing how and where it is manufactured. Get in contact with us and we arrange a visit at our production site with show room.

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