In the Right Place at the Right Time

Using advanced sensing technology and local artificial intelligence, the P.SYS Bed Monitor supports care professionals to minimize nightly rounds, enabling them to give attention where needed, and allowing residents to get a better night's sleep

The P.SYS Bed Monitor

For residents of care homes, frequent nightly rounds by nursing staff, where the nurse enters the room to physically check on the resident, are often the cause of a poor night's sleep.

Residents may get restless and start to wander, others even wake up before the checkup . The nightly rounds cause distress and sleep deprivation. This can easily lead to health or mental issues for the elderly clients and stress for the nursing staff.

To avoid unnecessary rounds, while enhancing the monitoring possibilities of the staff, P.SYS has developed the P.SYS Bed Monitor

It uses advanced sensing technology with (built-in) local artificial intelligence to remotely monitor the residents in bed and provides real-time information about their status to the nursing staff.

The self-learning technology builds an individual behaviour pattern for each resident and evaluates their status autonomously. Nursing staff can monitor each resident's status at either a central monitoring station or using a specialist app., enabling the possibility for virtual rounds to be performed.

Alerts can be provided when abnormal situations are detected, allowing attention to be given where needed.

Detect & Connect

The rising percentage of elderly people in the population combined with a shortage of nursing professionals and reduced public budgets leads to challenges in the healthcare sector.

To face these challenges, **P.SYS caring systems** is developing and testing a self-learning system which recognizes or registers the needs of a client autonomously **(DETECT)**. Upon determination of a need, a dynamic network technology finds and activates the most suitable support in the individual social environment of the client **(CONNECT)**.

The **P.SYS Bed Monitor** is the first product of the Detect & Connect series and can be used stand-alone or integrated in the complete Detect & Connect system. This technology can be applied in institutional or private settings.

The Detect & Connect Project is a research and development project funded by the Austrian „Forschungsförderungsgesellschaft" (FFG) and the „Kärntner Wirtschaftsförderungsfonds" (KWF). The commercialisation of the product is supported by PreSeed funding from the BMDW and BMVIT managed by the AWS.

Resident — *Maria, 87*

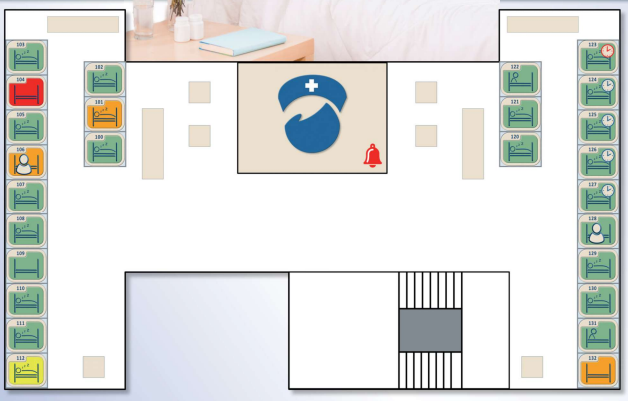
Maria lives permanently in a care home. She enjoys the safety and care provided and is happy that help is available in case her condition changes, especially at night. However, Maria often feels disturbed by the frequent rounds of the nursing staff. In most of the cases Maria has trouble to fall asleep again after the nurse has entered her room to check on her.

Our system helps the nursing staff to do their work and minimizes the need to intrude on the residents sleep.

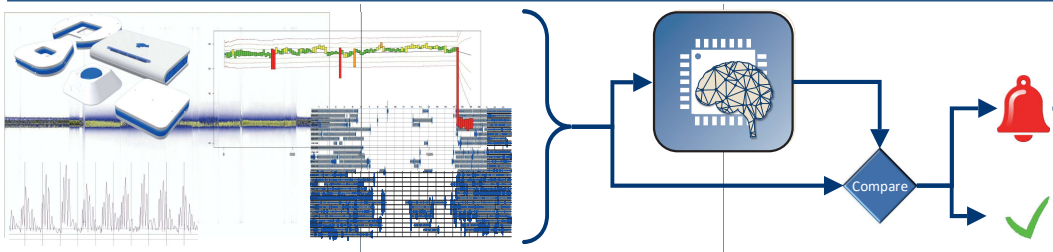
Claudia, 30 — *Nursing professional*

Claudia is a caregiver in a nursing home in a small town. Since there are never enough staff, Claudia is often overworked. The night shifts in the nursing home are tough. Although most of the residents are in a good physical condition, it is necessary that Claudia frequently checks if everything is okay. Many residents feel inconvenienced by her opening the door and checking periodically.

Our goal is to provide Claudia a tool, which enables her to check whether the residents are okay without the need to enter their rooms all the time.



How it works



Measure

The **P.SYS Bed Monitor** consists of :

- **4 Sensor Pads,** which are placed under the legs or wheels of the bed
- **1 Evaluation Unit,** which contains our self-learning technology

This sensing technology combined with local artificial intelligence enables a **contact-less**, unobtrusive measurement and works completely **autonomously** without any required user interaction or maintenance.

Interpret

The measured data is processed in real-time by the monitor unit to extract relevant information.

The **Real-Time Information** is used to build models for the normal patterns in data Combinations, Sequences and Durations.

Current real-time information is evaluated against these **Normality Models** and deviations are determined.

Sudden changes and persistent deviations are interpreted as **Exceptions**, which trigger support scenarios

Inform

The information is formatted so that it is easy to interpreted by the nursing staff. The relevant information can be displayed on a **Central Care-Station** or in applications on mobile devices.

The Care-Station supports the staff in conducting **"Virtual Rounds"** throughout the residents rooms.

During these virtual rounds, the staff is offered comparing qualitative current and past information on the bed **occupancy, movements and physiological indicators**. This information can help the staff decide where they are needed the most.

Communicate

Besides operating the Care-Station, communication to the staff can also take place through various communication channels such as **WiFi, SMS** or **radio**. This especially to inform on alarm conditions.

For redundancy, Alarms can be simultaneously transmitted on multiple channels and even trigger existing **emergency call systems**.

Home application

The P.SYS **Bed Monitor** can also be used in private settings. Either as stand alone unit or as module of the P.SYS **Living Space Monitor** system. These monitor systems assist elderly people in their independent lives. The home application offers peace of mind that helpers will be alerted should the user get into difficulties. The monitors can send alerts via mobile phone or Internet to family members, neighbours or emergency services, should abnormal conditions be detected.

The system can be easily set up via Bluetooth and a mobile app. This app also gives the local user insights into sleeping patterns through several lifestyle features. Privacy or security concerns are avoided by **strictly local data processing**. Personal data never leaves the monitor and thus is absolutely secure. Only the alarms are communicated externally.

Bundesministerium Digitalisierung und Wirtschaftsstandort
Bundesministerium Verkehr, Innovation und Technologie
austria wirtschafts service aws

P.SYS, caring systems KG
Gritschacher Strasse 27, 9500 Villach, Austria
+43 4242 22503
WWW.PSYSENGINEERING.COM/CARE
INFO@PSYSENGINEERING.COM

FFG Forschung wirkt.
KWF
KÄRNTEN University of Applied Sciences