



GUARDIAN ANGEL SYSTEMS
Innovative solutions for protection and safety



Healthcare and care of the elderly





- > Deliver responsible care
- > Improve safety
- > Increase freedom
- > Relieve the burden on staff
- > Improve the atmosphere
- > Increase efficiency



Dementia poses a great challenge

The number of people suffering from dementia is growing constantly and rapidly. Caring for people with complete or partial disorientation poses an ever-greater challenge.

> **Safety both indoors and outdoors**

Protective areas in institutions restrict freedom of movement, reduce quality of life and often lead to conflicts and tension. On the other hand, institutions bear responsibility for their patients and staff. When people with dementia leave their institutions, they often enter uncontrollable, hazardous situations. This often results in costly observation or even search operations, causing considerable disruption to day-to-day procedures. Furthermore, separate areas make it harder to achieve optimum utilization of the institution.

> **As much freedom as possible**

The GUARDIAN ANGEL SYSTEM for protection of persons with dementia allows you to provide freedom and thereby increase quality of life, delivering a better atmosphere, safety for the residents and the institution, and a tangible reduction in the burden on care staff.

> **Modular solutions for any application**

To achieve the optimum solution for you, we offer various dementia-care systems that build upon one another's functionality, allowing the solution to be designed individually to meet your needs. Solutions range from a simple system on a door to an all-round system covering entire buildings, outdoor facilities and user-definable areas.

> **Reporting to existing systems**

Notifications can be delivered in various ways: to visual call systems, pagers, in-house telephones, mobile phones or any other electronic notification system.

> **Documentation**

Integrating the solution into a computer system brings additional documentation capabilities. You can therefore prove at any time that you have met your duty of care and acted responsibly.

> **Positive assessment**

The use of a Raphael dementia-care system positively affects the assessment of your facilities.

Raphael-activ

The dementia-care system for use in institutions (Pages 4–7)



Raphael-select

Privacy for every resident, the selective door-control system (Pages 8–9)



Raphael-GPS

For out and about, an inexpensive option for private use (Pages 10–11)



Raphael-dual

The dementia-care system for use inside and outside institutions (Pages 12–13)





GUARDIAN ANGEL SYSTEM

Raphael-activ

Raphael
activ

The dementia-care system for use in institutions.

Dementia-care system with transponders

The tried-and-tested Raphael GUARDIAN ANGEL SYSTEM with active transponder technology (RFID) is ideal for use indoors. User-defined areas, implemented using a wristband or pendant, can be allocated to disoriented residents or patients. This makes it possible for the wearers to go for a walk on the premises or even outside of the institution. The system reports and documents when people enter or leave precisely defined areas. It also detects and indicates the direction of the person's movement.

Planned in accordance with your requirements to be effective as possible, and with an eye on cost-effectiveness, the system can be expanded at any time. Installation is simple and is achieved without considerable interruption to day-to-day procedures.



Raphael wristwatch

With built-in transponder for radio-frequency identification, splash proof.



Dummy watch with patented clasp

Can be worn on the wrist or ankle. Freely adjustable when open; fixed and secure when closed.



Raphael key

This opens the patented clasp. Magnet technology ensures easy operation and excellent reliability.



Raphael detector

Easy to install and set up. The detection distance is 0.5–7 m, and the device reports to any electronic notification systems.



Main advantages and technical features:

Raphael
activ

> **Enables monitoring of doors, gates, passageways, lifts and boundaries of premises**

> **Reliable three-dimensional detection and optimum data transmission**

We decided to implement three-dimensional – and therefore seamless – detection. To keep installation work to a minimum, we fit the transponders with appropriate three-dimensional components. Combination of two different frequencies with different characteristics allows us to provide transponders with corresponding benefits:

- Low frequency, e.g., 125 kHz, brings the benefits of excellent adjustability, excellent penetration of solid objects and better performance with metal surfaces.
- High frequency, e.g., 868 MHz, brings the benefits of fast data transmission and low energy expenditure during transmission.

> **Reliable detection thanks to automatic control**

Automatic peak matching constantly readjusts the detection field, allowing immediate compensation for external interference due to, for example, wheelchairs, serving trolleys and other metallic objects. Without automatic peak matching, detection becomes ineffective in the presence of a sufficient quantity of metal.

> **Designed for existing institutions**

The system can be easily retrofitted and allows expansion to any required extent. It is not necessary, for example, to install loops (concealed cables as an inductor around the door frame or in the floor). Simply mount a device on the wall and the installation is complete.

> **Waterproof**

The transponders are fitted with a seal and can be used in the shower.

> **Replaceable batteries**

The nursing staff can replace the batteries themselves. This keeps replacement and servicing costs down.

> **Patented wristband clasp**

The patented wristband clasp is adjustable and reusable, and can only be opened by the nursing staff. The wristband clasp and the wristband are available in leather or as a cut-proof metallic version. The wristband can be put on and removed as many times as necessary.

> **Alarm suppression (escort function)**

If a member of the care staff or a responsible relative is present, the wristband can be left on the resident. The person accompanying them carries a carer transponder. The system detects that an authorized escort is present and suppresses the false alarm that would otherwise be triggered. This can be adjusted in the software solution to suit individual requirements – for example, so that only the authorized relative can suppress the alarm.

> **Reporting to existing systems**

The notifications can be delivered in various ways: to visual call systems, pagers, in-house telephones, mobile phones, computers or any other electronic notification system. This can be achieved using potential-free contacts or directly with an interface (e.g., ESPA4.4.4 or ESPAplus).



Raphael-activ

> **Allows detection of direction of movement**

You are not only informed of when a person was at which exit, but also the direction in which they were moving. This allows you to act quickly, reduces stressful situations and significantly relieves the burden on staff: It takes time for the carers to reach the door or exit, and, instead of staying in one place, the disoriented person has usually already moved further away or returned.

> **Detection distance**

The detection distance can be varied continuously throughout the range depending on the door height and width. It can cover a radius of half a metre to max. seven metres. If additional loops are used (concealed cables in the ground as an inductor along the boundary of the premises), the detection distance can be up to 2 x 75 metres, for example, for site boundaries with a single system.

> **Lift authorization**

Persons suffering from dementia can be stopped from using the lift. The lift does not move, the door stays open and the care staff are notified. If an authorized escort or relative enters the lift, it will work as usual. In larger institutions, authorization can be restricted to the respective person or respective floor. This way, certain residents cannot use the lift to access the underground car parking, for example, and some can only move between the upper floors or to the ground floor.

> **Connecting further sensors and actuators**

Additional sensors, such as temperature or rain sensors, can be connected. Any desired systems can also be controlled on the output end, such as a barrier, an automatic door or another horn.

> **Summer/winter solution**

The summer/winter solution allows you to expand the protection area on warm days. At night or in the event of bad weather, the notification can be set to go off when the wearer reaches the main doors or can simply be restricted to a smaller area. This can be implemented individually for every resident or patient.

> **Automatic door management**

Doors are opened, closed or locked and, at the same time, monitored for correct closing. The delivery entrance can, for example, be open to everyone throughout the day but then only for the care staff from 6pm and only for authorized persons, such as the caretaker or institution manager, from 10pm. If the door is not closed properly, this is reported and documented. It is therefore no longer necessary to lock and unlock the door by hand on a daily basis.

> **Documentation and authorizations**

Integrating the solution into a computer system brings the additional advantage of documentation capabilities. This way, you can prove at any time that you have met your duty of care and have acted responsibly. Depending on their authorization, the care staff can reset alarms, view the history and define and specify authorizations or times. It is possible, for example, to specify that a resident can leave the building and move as far as the site boundary in good weather until a maximum of 6pm.

> **Remote maintenance options**

Maintenance and inspection of the system can be carried out directly by our technicians without incurring travel expenses. If the institution wishes, we can provide 24/7 monitoring. We will therefore know immediately in the event of a power failure or another fault and will arrange for the necessary steps to be taken. The staff can also access the central system or receive notifications from any PC in the network. The caretaker, for example, can receive information on which transponders' batteries need to be replaced again.

> **Permanent self-monitoring of the system**

All components are, naturally, subject to constant monitoring. If a system or a transmission path fails, an alarm is triggered immediately. A redundant (double-safeguarded) alarm route and an uninterruptible power supply (UPS) can also be provided.

> **Emergency-call capability**

For assisted living or as an interim solution, the transponders can be fitted with a push button, depending on the system's stage of expansion, and used as an emergency-call system. The residents each wear either a wristband or a pendant with an emergency-call button. If the emergency call function is triggered, the care staff know who triggered it and where this person is located.

> **Localization**

Depending on the stage of expansion, the system can allow localization within the building or on the institution's premises.



> **Selective door control for the residents' rooms**

People suffering from dementia enter the wrong room, get into the wrong bed, start looking for something and end up rearranging someone else's room. This almost unavoidably leads to damage, clearing out of cupboards and significant potential for conflict. The system allows room doors to be allocated to the respective residents, ensuring that residents can no longer access other people's rooms. Selective door control is an optimum solution for this problem and ensures that residents' privacy is maintained. (See pages 8 and 9 for more information.)

> **Selective door control of other rooms**

Rooms that residents, patients or visitors are not permitted to enter can be fitted with an access-control system. All of this uses the same system and the same transponders, and the solution can produce documentation if desired.

> **Logistics recording**

Logistics recording for beds and devices – for example, their exact location, service intervals for devices, etc. – can be a valuable tool and can be integrated without significant extra costs.

> **Theft monitoring**

If valuable pictures or devices such as projectors, notebooks or other medical devices are stolen, significant damages can quickly result. With our system, the devices remain mobile within the building. If a device with a built-in transponder is stolen, however, an alarm is triggered immediately and, if desired, a camera can be activated.



GUARDIAN ANGEL SYSTEM

Raphael-select

Raphael
select

Privacy for every resident:
Selective door control for residents' rooms.

People suffering from dementia enter the wrong room, get into the wrong bed, start looking for something and, in the process, rearrange the room. This almost unavoidably leads to damage, clearing out of cupboards and significant potential for conflict. With Raphael-select, room doors can be allocated to the respective residents, ensuring that residents cannot access other people's rooms. Selective door control is an optimum solution for this problem and ensures that residents' privacy is maintained.

Protecting residents' privacy represents genuine added value for the institution, improves the residents' sense of wellbeing and makes the care staff's work easier. Only the authorized resident may enter the corresponding room; the door remains locked for other people. The resident wears a remote-control key in the form of a wrist-watch; if desired, this can be provided with a patented clasp. Access to unauthorized rooms or other residents' rooms is reliably prevented. If the resident stands in front of their own door or a door to which they have access, the door will open. Members of the care staff have an authorization key that automatically unlocks the door. The door can, of course, also be opened with a mechanical key. The door always opens if approached from the inside.



Main advantages and technical features:

Raphael
select

> > **Unique allocation of the residents' rooms**

Accidental or intentional access to another resident's room is prevented. This ensures that privacy is maintained and avoids the potential for conflict.

> **Intelligent system**

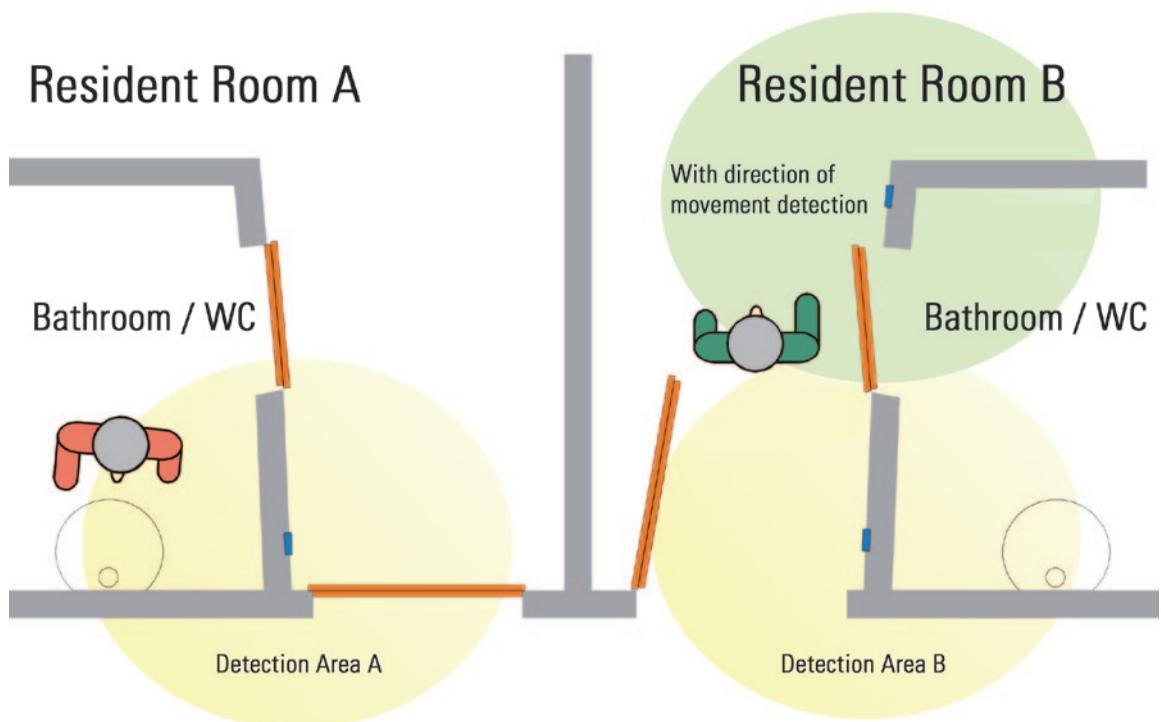
If a resident is followed into their room by another resident, the care staff are notified of the unauthorized access. Conflicts between residents can thus be stopped before they start. In the event of fire or an emergency, all doors can be unlocked centrally and are open in both directions. In the event of an accident, the staff receive a quick overview of which residents are still in their rooms and are therefore able to react quickly.

> **Reduced workload for the staff**

If a member of the care staff enters the room, the time and duration of the visit are automatically recorded and logged (without the need to press a button).

> **Extras...**

Raphael-select can be extended with call tracking and a nurse-call system. Additional sensors such as pull cords, emergency call buttons, motion sensors, bed monitoring and contacts for doors and windows can be integrated easily.





GUARDIAN ANGEL SYSTEM

Raphael-GPS

Raphael
GPS

for out and about.

Raphael-GPS detects when a person leaves a safe area or spends too long inside or outside of certain areas. On your smartphone (GPS-enabled mobile phone), you can see your own position and the position of the relative or patient being supervised.

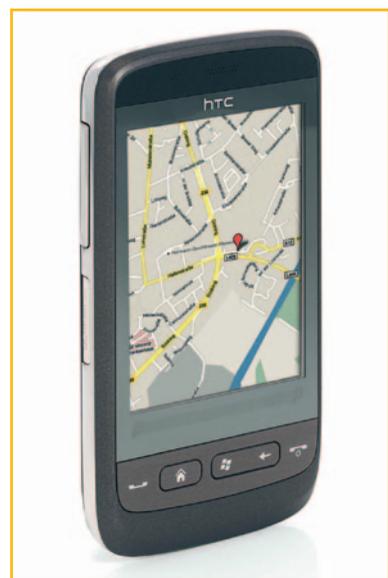
This requires:

- The Raphael-GPS transmitter (with SIM card) and spare battery
- The HTC smartphone (with SIM card) or, alternatively, a PC with Internet access (requires access to a corresponding Internet portal)
- Software licence per GPS transmitter on the smartphone
- Belt (special model), available on request

Depending on the contract for the smart phone, a line rental fee and SMS/Internet fees may be payable on top of the one-off costs.

The SMS/localization service is also possible with a prepaid card. No mobile phone contract is necessary.

**Smartphone
with Raphael software**
(exact model on request)





More freedom of movement

Raphael
GPS

An overview of the main advantages:

> **A high level of protection for a low price**

Low investment costs and easy operation mean the system is also ideal for private users.

> **Individually adaptable**

Protected and secure areas (geofences) can be defined and adjusted individually. The changes are sent to Raphael-GPS by SMS.

> **Clear map display**

Die Positionsmeldung erfolgt mit Kartendarstellung auf einen PC oder auf ein Mobiltelefon des Angehörigen (Smartphone mit GPS). Die Positionsdaten sind jederzeit abrufbar.

The position is reported on a map display on a PC or a relative's mobile phone (smartphone with GPS). The position data can be accessed at any time.

Depending on the contract for the smart phone, a line rental fee and SMS/Internet fees may be payable on top of the one-off costs. The SMS/localization service is also possible with a prepaid card.

Note that both devices must be charged daily. Furthermore, absolute certainty cannot be guaranteed, as these devices also depend on GPS and GSM availability.

In an institution, using Raphael-GPS only makes sense in conjunction with the „Raphael activ“ dementia-care system. While the resident is in the building, Raphael-GPS is switched off automatically to save battery power. The care staff receive a notification when the resident leaves the building or premises. This ensures that the care staff have been informed even if the GPS or GSM network is not available.

Epilepsy monitoring in the building and out and about:

People suffering from epilepsy become disoriented following a seizure. It is sensible to inform the carer automatically in order to ensure that the person receives help quickly. Since the person is barely able to speak, let alone tell someone where they are, localization (with position indication) is an indispensable tool. The person who suffers from epilepsy wears a wristband containing a motion sensor that sends an alarm directly to the detection unit inside the building in the event of a seizure. The more detection units there are spread around the premises, the more precise the localization will be.

If the person is outside of the building or out and about, the wristband they are wearing transmits information to Raphael-GPS or Raphael-Dual, which the person wears on their belt. The Raphael system transmits to the carer's GPS-enabled mobile phone (smartphone) so that the carer can see the alarm and a map showing the precise GPS location details.



GUARDIAN ANGEL SYSTEM

Raphael-dual



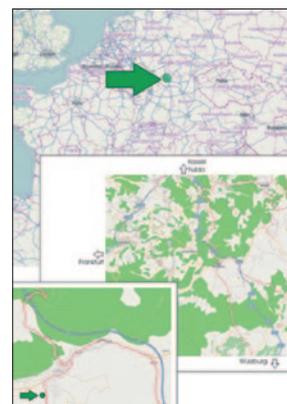
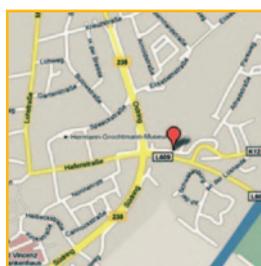
The dementia-care system for use inside and outside institutions.

The new, patented **Raphael-dual GUARDIAN ANGEL SYSTEM** combines the Raphael-activ and Raphael-GPS systems. This allows reliable care both indoors and outdoors, with precise position determination.

The GPS module is switched off when inside the building to save power. This increases battery life many times over. If the resident leaves the building, the GPS module is switched on and a notification is sent to the care staff. If the SMS does not arrive or arrives late, the care staff know immediately nevertheless.

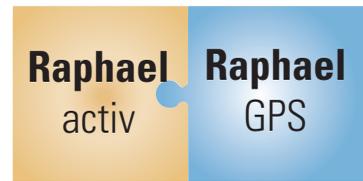
The programmable areas (geofences) allow extended areas to be defined at the user's will and thus to considerably increase the freedom of movement of people suffering from dementia. The system informs the carer if, for example, the person leaves an area of the city or any precisely defined area. By request or via an automatic notification, the precise position (with a map display) can be viewed on the GPS-enabled smartphone or on the PC. The notifications can be sent directly to a GPS-enabled mobile phone or an on-site server, or can be sent as an external service.

The GPS alarm messages are also reported on the visual call system, on the pager system or on DECT telephones.





As much freedom as possible – as much protection as necessary!



> **Safety both inside and outside the institution**

Battery life of the GPS device is extended many times over.

> **Flexible operation**

Raphael-dual is a flexible device to be worn on the belt or around the ankle.

> **Individually adjustable**

Protected and secure areas (geofences) can be defined and adjusted individually. Localizations can be restricted to certain areas (no violation of privacy rights).

> **Versatile notification options**

Notifications must reach the care staff reliably during operational activities in a clinic or old people's home. These notifications must be seen and, where necessary, repeated and confirmed, so we have expanded the link-up of the GPS notifications so that these can be delivered directly to the care staff via the nurse call system, the pager or the DECT telephones.

This way, the alarm is sure to reach the intended people without the need for them to carry an additional device. The position can be viewed on the PC or on the smartphone (GPS-enabled mobile phone).

> **Maximum freedom with improved safety**

This ensures maximum freedom while also improving safety for the residents and the institution – and delivering a tangible reduction in the burden on care staff.

> **Comprehensive and precise documentation on the PC (duty of care)**

All dementia-care systems are individually and personally adapted to the needs of the respective institution. Arrange a non-binding consultation and we will present you with proposals for your optimum solution.



Flexible solutions for care homes and old people's homes, clinics, at home and out and about:

GUARDIAN ANGEL SYSTEMS offer a multitude of other applications. Combining different uses allows further simplification of procedures and enhances transparency. The system can be extended at any time. Here, as with the initial installation, no elaborate installation work is necessary. This avoids prolonged disruption to day-to-day operations.

Door control

From a single door to entire departments, lifts, floors or whole buildings.

Area protection

For people suffering from disorientation. This delivers new freedom while maintaining safety.

Direction indication

Informs you of the direction in which a disoriented person left the site.

GPS localization

Provides precise information on the status and location of at-risk persons (to allow you to provide help quickly).

Building management

From access authorization to fire protection and burglar security systems.

Inventory protection

Protects valuable devices and systems from misuse and theft.

Logistics

Tells you the location and status of beds or other inventory items, for example.

Central control system

Networked systems allow convenient and flexible control and maintenance of all systems.

Documentation

Documentation of all processes allows you to prove, for example, that all duties of care were fulfilled at all times.



GUARDIAN ANGEL SYSTEMS in practical use

Our technology has already proven itself in daily operations at numerous institutions, and provides increased quality of life, safety and efficiency by reducing the burden on staff and achieving better utilization of facilities.

All systems were designed, planned and implemented – according to customers' economic specifications and budgets – in cooperation with the people responsible on-site.

Old people's homes and centres for the disabled in Germany and Europe:

Guardian angel systems are already in use in more than 300 old people's homes and centres for the disabled in Germany and other European countries.

Neurological clinics:

Our clientele includes an increasing number of neurological clinics.

> We will be delighted to send you our list of references on request.

For the latest information, visit www.schutzengel-systeme.de



Financing offers and hire purchase

If you want to enjoy the benefits of GUARDIAN ANGEL SYSTEMS at your institution quickly and independently of far-reaching budget considerations, we invite you to consider our various financing and hire-purchase offers.

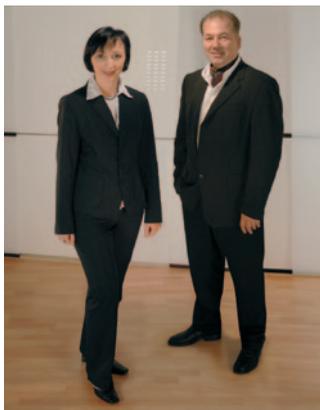
These are specially adapted to meet your requirements and ensure rapid deployment of the technology, providing considerable improvements in both safety and efficiency. Using example calculations, we will be delighted to demonstrate how quickly the system pays for itself.



Technology that serves humanity!

People and the protection of our environment are core considerations of our work. Technology that serves humanity supports life processes in old age and in life at home. We stand out by offering innovative solutions, developing plans in a customer-oriented manner and responding to our customers' requests and requirements with a high degree of flexibility.

We are your personal contact, ready to enter into an open dialogue at any time. Exceptional service and precise planning and implementation form the basis for our claim to a leading role in the field of protection and safety solutions for the healthcare industry and care of the elderly.



Annette and Dieter Martin
Managers and your contacts at Martin
Elektrotechnik GmbH

Martin Elektrotechnik GmbH
Dr.-Gartenhof-Str. 4
D-97769 Bad Brückenau, Germany
Tel. +49 (0) 97 41-15 00

martin@schutzengel-systeme.de
www.schutzengel-systeme.de