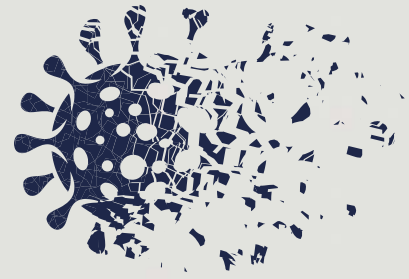


RACE RESULT



*How a simple infrastructure
helps tracing and
protecting **COVID-19**
contacts*

TAVI **CORONA-TRACING** *for Care Homes*



Contact tracing is fundamental to contain the COVID-19 pandemic and to protect high-risk patients. The tracking and tracing of contact persons of proven infected individuals not only helps to save lives, but also to avert large-scale quarantine measures.

The use of intelligent technology in tracing plays a key role for experts in coping with the crisis, in both short and long terms. However, the currently planned smartphone apps are not very practical for tracing contacts within a care facility. An in-house system that reliably records contacts between residents, employees and visitors is significantly more effective than an app in the event of an infection. You can find out the reasons and how such a system can be installed and operated with minimal effort on the following pages.



Particularly Endangered - Specially Protected

The COVID-19 pandemic poses enormous challenges for care homes. The experience with SARS-CoV-2 shows that the virus spreads particularly quickly in care homes and has particularly serious consequences. Almost all residents belong to the high-risk group. According to a study by British researchers, approximately [every second a death is reported from an elderly home, directly linked to the coronavirus.](#)

After confirmed cases of infection, entire facilities are often quarantined by health authorities. The emotional, organizational, and financial effects of such constraints are significant.

The faster relevant contacts can be tracked within a facility in the event of an infection, the better the residents and staff are protected.



How useful are tracing apps?

Virologists see a voluntary tracing app for smartphones as an important aspect to permanently limit the spread of the **SARS-CoV-2**. The app uses the smartphone's Bluetooth interface to recognize which other app users come within close range and for how long. If a user is later found to be infected with COVID-19, they can now anonymously warn others with whom they have been in contact with.

Within the core business of **RACE RESULT**, we have seen similar efforts to use app-based solutions for sports timekeeping. However, experience has shown that an app has clear disadvantages for such use cases. These disadvantages can also be transferred to care homes:

- An app requires that the user has installed and started it. In addition, the Bluetooth interface must be activated and sufficient battery runtime must be available. With each of these requirements, the possibility of user error increases
- During operation, the person responsible cannot see whether the system is working as intended and who is actually using the voluntary app
- In the event of an infection, it is up to the positively tested app user to disclose this and warn contacts
- Care home operators do not have central access to data collected within the facility. A central query in the event of an infection is not possible

A tracing app can help contain the virus in the general population. In the specific case of infection within a care facility, however, it does not provide reliable data. Anyone who is responsible for creating lists must be able to master and control the technology used and the effort for each end user must be reduced as much as possible. A quick and targeted analysis of the contact data is only possible if it is saved centrally for each facility.

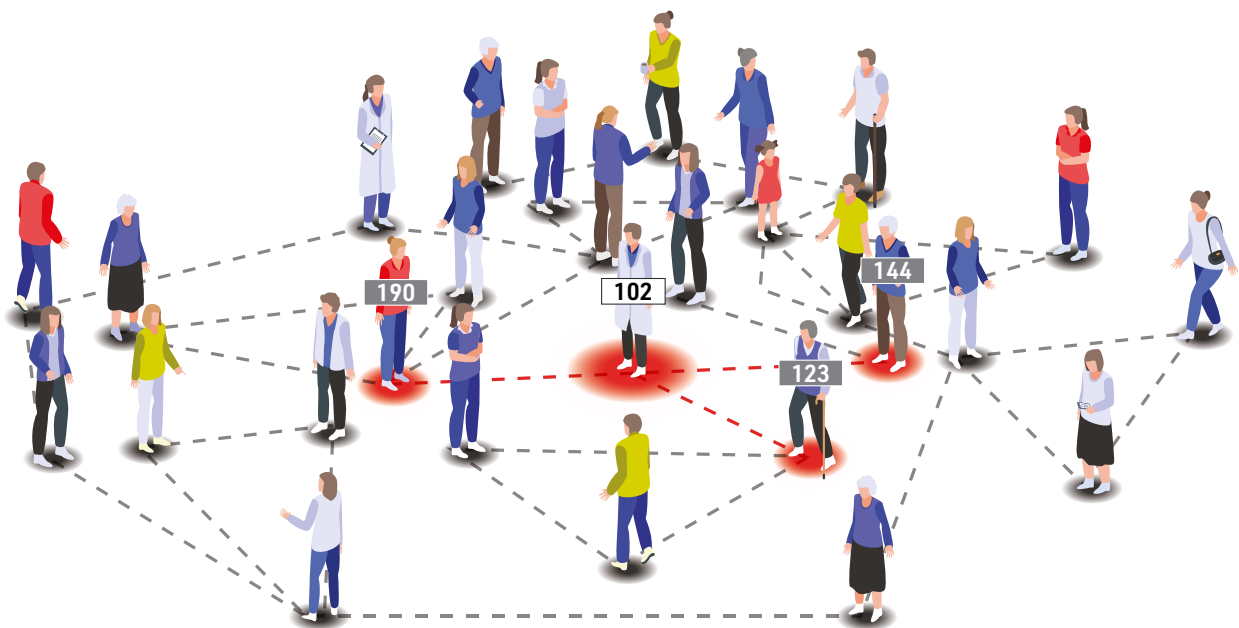
The In-House Tracing Solution

Care home operators can only make reliable statements about contact persons if they are able to independently record and evaluate contacts. In the event of an infection, quick action is required, especially when it comes to personnel planning. Automated data from the past few days are particularly valuable here:

- Did shift plans or work areas overlap unexpectedly?
- Have residents of other facilities visited the affected area?
- Is it enough to only isolate individuals?
- Who had no contact with the infected?
- Do visitors have to be informed?

The basic requirement for reliable data is that all relevant contacts have been recorded. To do this, residents and employees must be able to use a tracing system without any technical effort and without "incorrect operation".

This is exactly where **TAVI** comes in, "**Transponder Against Virus Infection**". The system automatically records and archives contacts in critical areas. This allows operators to reconstruct who was with whom in the same room and at what time. TAVI uses UHF transponder technology. It has the great advantage that it works without user intervention. Anyone who has the feather-light transponder on their person is already prepared.



RACE RESULT

TAVI - Transponder Against Virus Infection

Automatic Contact Tracker

ID of Infected:

From:

To:

Contacts

Report for ID:	Contact IDs:	Seen within:
102	190	together
	123	8min
	144	5min



Track Box

- Installed at critical points
- Records which transponder is within range and when
- Sends the data to a secure server via the mobile network

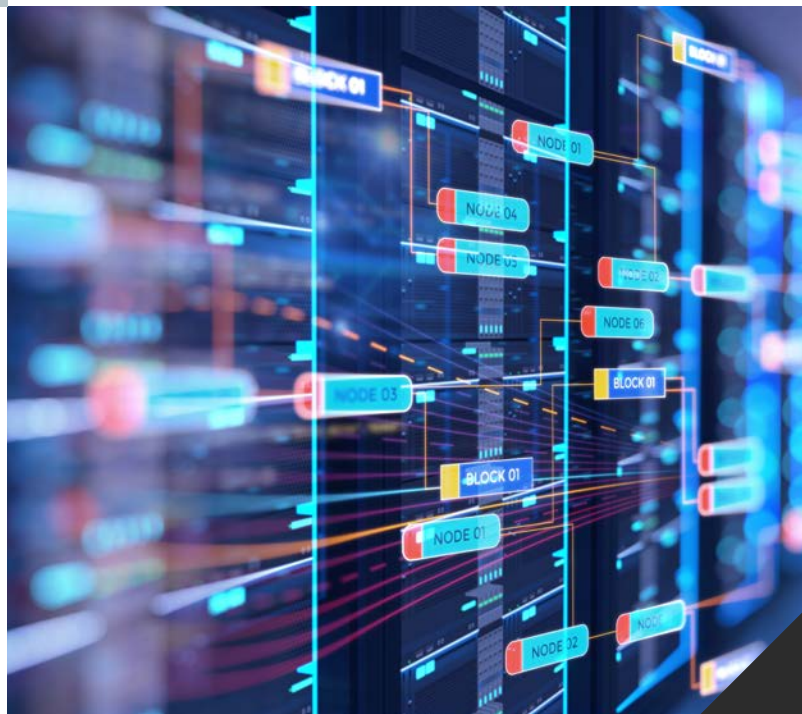


Transponder

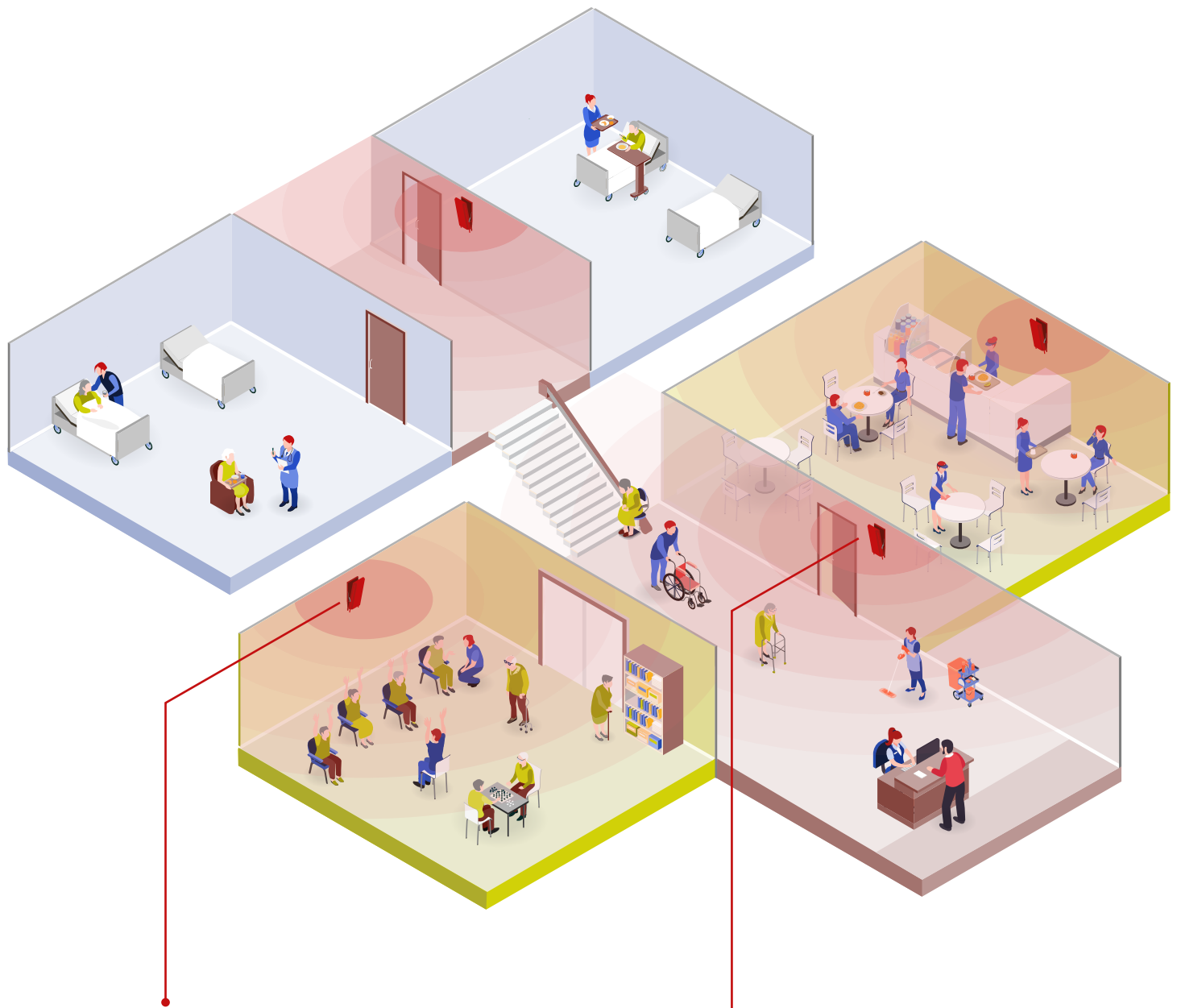
- Will be distributed to everyone in the facility
- Can be worn as a sticker or lanyard
- Sends an anonymous code via radio technology that is received by the Track Box
- Inexpensive (<1 € each)

Server

- Saves the collected data of the track boxes with date and time
- Calculates on demand which transponders “met” near the Track Boxes in a certain period of time



Installation Example



Where several people are together for a longer time, the risk of virus transmission is particularly high. These are, for example, employee rest rooms and social rooms for residents. Here, the installation of a **Track Box** makes sense.

Positioning the boxes at other **critical points** can also make sense, for example at the entrances and exits of individual wings or floors. The transponder is detected as it passes.

Transponders are automatically recognized with a direct line of sight up to **10 meters** away. Walls, doors etc. form a natural barrier for the UHF signal.

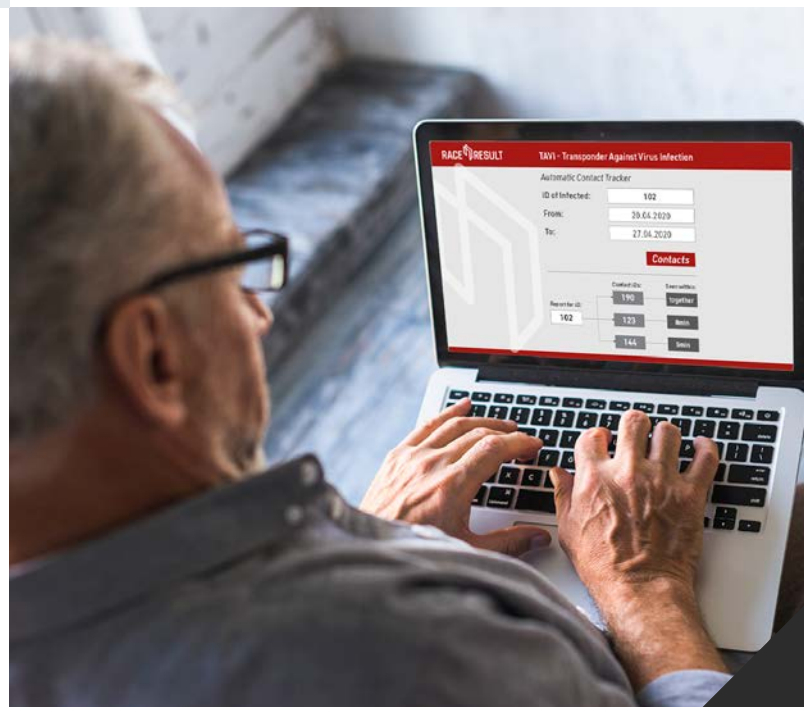
Installation and Maintenance

The **Track Boxes** are shipped pre-configured. They contain a SIM card and a power adapter. A hook in the wall and a socket are enough for the installation. The Track Box can run continuously. It is switched on at the push of a button and automatically connects to the data server. TAVI is extremely flexible. Boxes can be added, removed or repositioned at any time without any special effort.



The **transponders** come in bulk on rolls and are 1.5 mm thick stickers with a strong adhesive. They were developed for use at sporting events. That is why they are particularly robust.

All data is provided at <https://covid.raceresult.com> and is password-protected. You can filter by time period, contact duration and location. The system generates a list of transponder IDs that were in contact with the infected person's transponder. This query can be made at any time and without prior technical knowledge. It is also completely anonymous until the operator assigns an ID to a person.



Advantages of the TAVI System...

...for Care Home Operators

- + The system can be implemented quickly. You will receive the desired hardware within a few days of ordering
- + The installation of the Track Boxes is very easy. No external technician is required to enter the facility
- + No software training necessary
- + Online support for hardware and software included
- + Transponder distribution to employees, residents and visitors and can be done via a simple list, even on paper. No learning required
- + No disclosure of personal data to third parties. Lists with the assignment of the anonymous transponder code to the person remain in the facility



...for Employees, Residents and Visitors

- + The only requirement is to wear the transponder
- + The UHF technology works non-contact. Employees do not have to scan a chip card or manage lists
- + Hygienically safe
- + Transponders also work under protective equipment
- + No reliance on smartphones, GPS reception or battery life

Tracing and Data Protection

The tracking of employees, patients and visitors is a surveillance measure that is seen as controversial for a number of reasons. This is why we made data reduction and GDPR compliance one of the key design goals from the very start. We only save the unique, and initially, anonymous Transponder-ID as part of the data.

It is the responsibility of each controller to use the Transponder-ID as a pseudonym, which can be used for an assigning to individuals at a later date, once there has been confirmed contact to a known infected person. As the Transponder-ID is a simple alpha-numeric code, it can be easily stored in existing systems such as staff /

patient management logs or even a manually written visitor list.

Secure storage of personal information, access restrictions for de-pseudonymization of data and other necessary measures are thus easier and faster to implement.

Hereby the balancing of legitimate interests for the introduction of tracing is significantly simplified and the system can be implemented sooner without the need to meet complicated prerequisites.

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