

Success Story | IoT

PRS Parkraum Service GmbH



Digital parking management for greater transparency and efficiency

Networked systems create efficiency in parking space management and enable innovative parking space concepts.



Together we can
vodafone
business

“The use of networked sensors and license plate recognition systems is digitizing our business. This addresses current challenges and enables new business models.”

Ralph Kopschek, Project manager for digital parking management at PRS Parkraum Service GmbH

The client:

PRS Parkraum Service GmbH, based in Wickede/Ruhr, specializes in parking management solutions. Founded in 1996, the company is active throughout Germany and offers solutions for parking space management such as checking parking times, parking space management, for example through the use of parking machines, digital parking permits or individual parking space registration, parking space control on private and public properties as well as support in the development of parking space concepts as part of municipal traffic planning. PRS Parkraum Service GmbH acts as a comprehensive service provider which, in addition to monitoring and enforcing parking regulations and authorizations, also handles the collection of corresponding contractual penalties, for example. The company is guided by the conviction that fair treatment achieves the greatest possible customer satisfaction.



PRS Parkraum Service GmbH

INDUSTRY: Parking management

Employees: über 350

VODAFONE SOLUTIONS: Vodafone mobile radio network, IoT (Narrowband-IoT and LTE-M)

www.parkraumservice.de

Cover image PRS Parkraum Service GmbH

The challenge:

The traditional implementation of parking management using controllers is increasingly reaching its limits in view of the shortage of skilled workers. In addition, beyond the mere control and enforcement of parking rules and authorizations, PRS Parkraum Service GmbH's customers are increasingly demanding digital, data-based solutions - such as support in reducing parking search traffic or optimizing the use of parking spaces in commercial and residential areas. Digitalization is the inevitable answer to all these challenges. At the same time, it creates more transparency and thus answers questions such as the actual utilization of a parking space or the more efficient use of parking areas or e-charging stations.

In order to consistently leverage the advantages of data-driven parking management solutions for itself and its customers, the company uses various solutions, such as floor or ceiling sensors to detect the occupancy of individual parking spaces or license plate recognition systems that register entry and exit in a parking garage or parking lot. In addition, there are other components such as the control of information displays or the evaluation of the recorded data, for example by building owners or users, operators of charging infrastructure or other interested parties. When looking for a partner for the connectivity of the technical solutions described above, PRS Parkraum Service GmbH opted for Vodafone Business.

“ WE ARE EXTREMELY SATISFIED WITH OUR COOPERATION WITH VODAFONE BUSINESS. THE RELIABLE CONNECTIVITY IS AN IMPORTANT BASIS FOR OUR SOLUTIONS AND BUSINESS MODELS. OUR EXCHANGES ARE ALWAYS TRUSTWORTHY AND ALL ISSUES CAN BE RESOLVED THROUGH SHORT SERVICE CHANNELS.

Ralph Kopschek, Project manager for digital parking management at PRS Parkraum Service GmbH

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The solution:

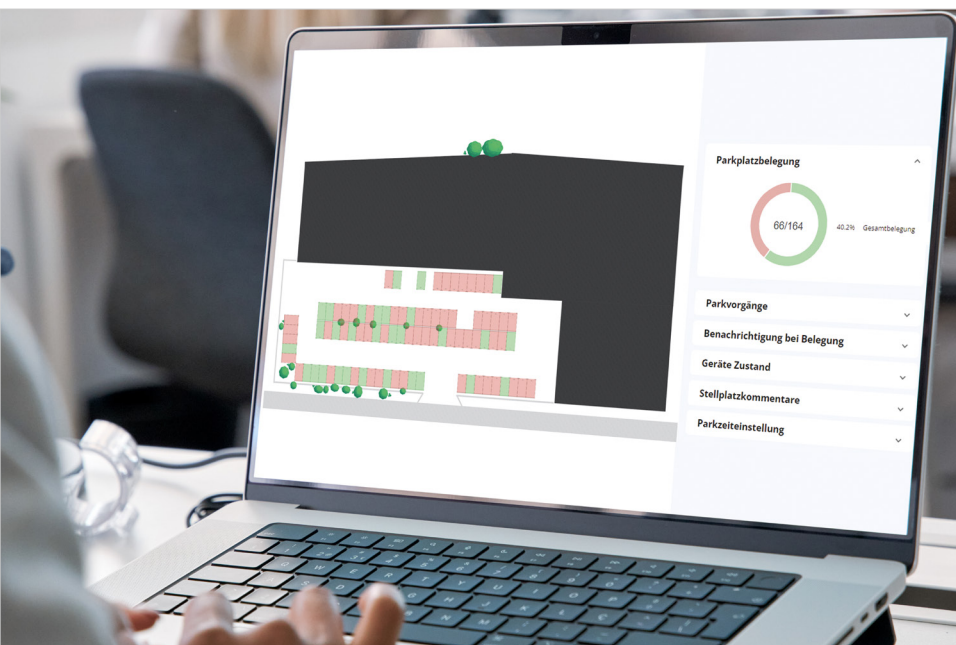
Transparent, sustainable, customer-friendly

PRS is working with the company Smart City System Parking Solutions (SCS) on the technical implementation of the parking space monitoring system. This company emerged as a start-up from the Vodafone innovation funding program UPLIFT. SCS is the technical supplier for the sensors used and the systems used for evaluation, while PRS focuses on parking space management. Which recording systems are used depends on the specific task: if the focus is on the use of each individual parking space, ceiling or floor sensors are used to record the occupancy status of the parking space. The information from these local sensors is usually collected by a gateway, which then sends the combined information to the backend system via the Vodafone mobile network. There it is analyzed whether and in which parking spaces vehicles exceed the maximum permitted parking time, for example. This ensures that the conditions of use specified by the parking lot operators and therefore the clients of PRS are adhered to. By processing the data in the backend, PRS employees can track parking time violations, for example, and thus efficiently visit the required locations to carry out appropriate checks.

In cases where the focus is on the utilization of an entire parking lot or parking area, camera-based license plate recognition systems are used. These send the image data of the vehicles entering and leaving the parking lot to the backend via the Vodafone mobile network. Granular settings can also

be made for the time recording implemented in this way, such as the time period within which an exit and re-entry is recorded as continuous parking. Stand-alone sensors can also be installed for special tasks such as monitoring disabled parking spaces or charging stations. They have an eSIM and transmit the data via narrowband IoT or LTE-M in the Vodafone network. The collected data is made available on a dashboard both for PRS employees and - depending on the focus of the solution - for their clients. Connection to smartphone apps or reservation systems is also possible.

“We are extremely satisfied with the collaboration with Vodafone Business,” reports Ralph Kopschek, project manager for digital parking management at PRS Parkraum Service GmbH. “Reliable connectivity is an important basis for our solutions and business models. Our exchanges are always based on trust and all issues can be resolved quickly.” In addition to enforcing parking times, the solutions offer many other advantages and possible applications - for example, they can support municipalities in urban development, control traffic flows and enable innovative parking concepts. In particular, this also helps to reduce CO2 emissions and thus protect the environment.

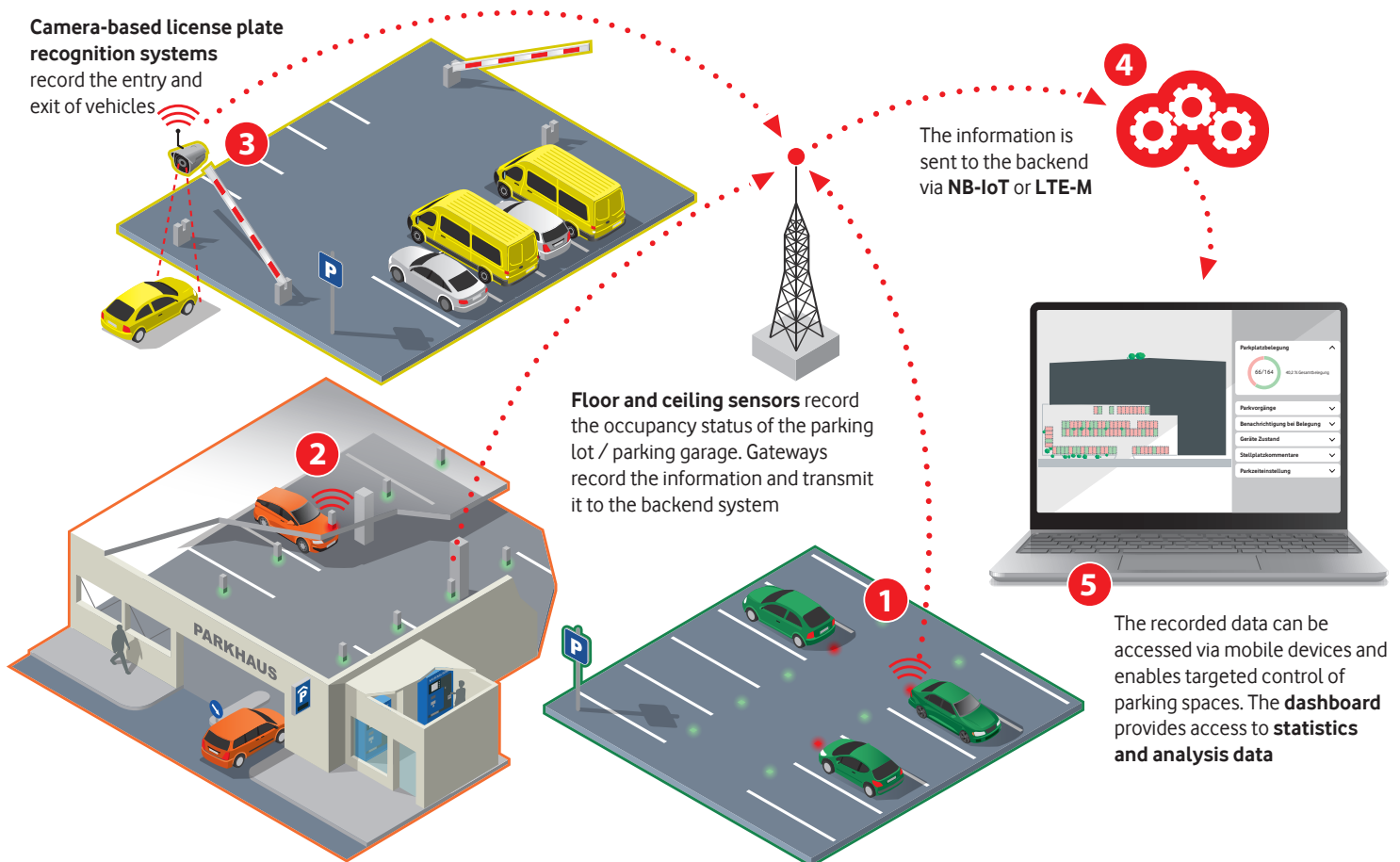


The sensor data collected on site can be clearly displayed on the Smart City System dashboard. Other analyses, such as capacity utilization or the recording of traffic flows based on the aggregated data, can also be clearly displayed here.

In one picture:

Parking management with networked sensors

Floor or ceiling sensors detect whether a parking space is occupied. This information is aggregated by a gateway and transmitted from there to the backend of PRS Parkraum Service GmbH via the Vodafone mobile network. A dashboard gives employees and, if necessary, their clients an overview of the current situation at all times and, if necessary, they can initiate reactions such as sending an inspector to the site. In addition, the data collected almost in real time forms the basis for further evaluations, for example for efficiency analyses or for the development of parking concepts.



FIVE QUESTIONS FOR RALPH KOPSCHEK



As project manager for digital parking management at PRS Parkraum Service GmbH, Ralph Kopschek is responsible for all networking issues - from sensors to license plate scanners.

What are the advantages of digital parking management?

The shortage of skilled workers places clear limits on the traditional monitoring of compliance with parking regulations by enforcement officers on site. Digitalization is therefore a basic prerequisite for us to be able to continue our business and expand it even further in the future. As an extremely welcome side effect, networked solutions also bring more transparency - and thus the prerequisite for being able to offer our customers more insight into capacity utilization and efficiency. This applies to corporate customers such as food retailers, hospitals, exhibition centers, airports or theme parks as well as private parking spaces and parking garages, tenant or employee parking spaces or, last but not least, municipal clients.

With PRS, SCS and Vodafone, three partners are involved in the overall solution. What are the advantages of this?

SCS takes on the role of technical system supplier. We obtain the necessary sensors, detection systems and gateways from them, as well as the backend and the smartphone app. This means we can rely on these systems being coordinated end-to-end and functioning smoothly. Vodafone contributes its extensive experience in providing connectivity. We ourselves manage the parking spaces and, with the help of our employees, enforce the rules defined by the operators.

When are digital parking management solutions economical?

When considering this, the costs of conventional solutions should always be taken into account. For example, a conventional barrier system costs around 30,000 euros plus ongoing maintenance costs. Not to mention the repair costs if a vehicle crashes into it.

Do they also have advantages in terms of sustainability?

This is clearly the case, for example, when it is possible to reduce traffic searching for parking spaces. Parking space is a scarce and therefore expensive commodity, especially in urban environments. Our solutions therefore also contribute to greater fairness and transparency.

What developments do you see for the future?

I think that innovative parking concepts for neighborhoods in particular will play an increasingly important role - smart parking will become an important building block in urban development and similar topics.

FIVE QUESTIONS FOR RENÉ BÜTTNER



What role does Smart City System play in the PRS offer digital parking space management?

SCS sees itself as a full-service provider for digital parking. To this end, we offer our customers and project partners such as PRS easy-to-install sensor technology and software which, incidentally, was developed in Germany. Our vision is to implement innovative mobility solutions and parking concepts based on real-time data. With this in mind, we supply PRS with proven solutions from the sensor to the backend and smartphone app.

What does the process of digitizing a parking space look like?

It starts with an analysis of the use case - for example, parking space control, parking space management or municipal traffic flow control - and what the structural requirements are on site. On this basis, we decide which data is required and how it should be processed and evaluated. Based on these key points, the sensor system to be used, the required data flows and the overall solution design can then be determined.

What criteria determine which technology is actually used?

The optimum technical solution depends on the specific task. Individual sensors provide information about the occupancy of a single parking space, for example in supermarkets or company parking lots. License plate recognition systems make sense if the period of use of an entire facility such as a multi-storey parking lot or parking area is to be monitored and, if necessary, billed.

How can digital parking management help local authorities? Digital parking guidance systems show where parking spaces are still available. This reduces traffic searching for parking spaces, can direct traffic flows - and also makes the search for a parking space less stressful and time-saving for each individual driver. So everyone involved wins.

What other benefits does the collected data have?

For example, it also allows long-term analyses to be carried out in order to efficiently control the use of parking space by looking at historical parking data - and, if necessary, to support the planning of new parking facilities. The expansion of charging infrastructure for e-mobility or intermodality in local public transport also benefit from transparent data.



René Büttner is Customer Success Manager at Smart City System. He works with SCS's customers and clients to define the best technical solution for each digital parking management task.

At a glance:

“ The use of networked sensors and license plate recognition systems is digitizing our business. This answers current challenges and enables new business models. ”

Ralph Kopschek, Project manager for digital parking management at PRS Parkraum Service GmbH

- **More efficient and reliable parking management** with less manpower
- **Usage and efficiency analyses** based on data provided almost in real time
- **Extensive analyses and further processing** of aggregated data possible
- **Parking data** forms the basis for more complex projects such as parking concepts for municipal traffic planning
- Simple and cost-effective installation and networking of **sensors and license plate scanners**
- **Simple management of SIM cards and eSIMs** via a convenient management platform
- Everything from a single source, **central contact for all matters** at Vodafone



The two LPWA (Low-Power Wide-Area) technologies Narrowband IoT and LTE-M are both based on 4G/LTE and 5G.

They offer excellent building penetration, have very low energy requirements, can connect several hundred thousand devices in a radio cell if necessary, ensure the best possible security during data transmission and can be implemented cost-efficiently.

More information about Narrowband-IoT and LTE-M from Vodafone can be found [here](#).

As one of the IoT world market leaders, we support you every step of the way with your IoT solution. From defining your use case, procuring hardware, setting up and providing the right network through to continuous development and optimization. You can find more information about our smart parking solution [here](#).

Get free advice now on **0800/172 12 34** or arrange a callback [here](#).