Truck parking information system
Sitraffic Conduct+
Precise occupancy information for truck drivers and the parking guidance center
Two sensor systems at the entrance and exit give high measurement accuracy. The laser scanner scans the height and width profiles, the ground sensors detect the speed of the passing vehicles.

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Truck parking is a rare commodity. Sitraffic Conduct+ ensures its efficient use.

Currently, there is a shortage of about 7,000 truck parking spaces along German motorways. It would be very useful if truck drivers, long before the end of their driving time, could query the availability of free parking spaces at the various rest areas along their route. This would make rest periods easier to plan and optimize the utilization of individual truck parking facilities. These needs can now be easily met, using the Sitraffic® Conduct+ truck parking information system.

The system accurately records the occupancy in the various parking areas and automatically feeds the occupancy data via outstations into the central system. From there, the data can be made available to a wide variety of information platforms. In addition, the operators at the center can intervene at any time and trigger specific actions.

A low-cost solution, even for large truck parks, thanks to indirect occupancy measurement

With the Sitraffic Conduct+ truck parking information system, vehicles are counted and classified as they enter and exit the truck park. Using a so-called 'difference method', the parking space occupancy can be calculated indirectly from the difference between the number of entrances and exits. Thanks to the high detection accuracy, the system works with just a small number of detectors, which makes it very cost-effective to implement and operate.

Double sensors ensure high measurement accuracy, even in difficult conditions

Sitraffic Conduct+ uses a combination of ground sensors and additional laser scanners at the entrances and exits of the parking area to achieve the high accuracy needed for the difference method. The laser scanners measure the height and width of the passing vehicles while the ground sensors detect the speed.

Even in difficult detection conditions, for instance in case of congestion, low speeds, small distances between vehicles, or vehicles maneuvering in the measurement area, the Sitraffic Conduct+ truck parking information system provides precise measurements. Intelligent algorithms automatically check and correct the calculated occupancy status.

Perfect overview thanks to a clear layout of the GIS map display

The truck parking information system continuously transmits the occupancy data of all connected truck parking areas to the parking guidance center. All parking areas are displayed on the GIS map. For each parking facility, the information systems stores detailed information, which can be accessed at the click of a mouse.

Easy-to use driver information thanks to data export to public services and the mobility data market

The occupancy data of the connected truck parking areas are transmitted to different information platforms, using the DATEX II profile for parking that has been specially developed for this application. Almost all road users can receive the information via TCM. The mobility data market (MDM), which is part of an innovation initiative by the German Federal Government, provides private service providers with the relevant data. Truck drivers can easily check the parking situation along their route using multiple channels, such as:

• smartphone apps
• navigation systems in their trucks
• broadcast messages
• information kiosks at rest areas
Pilot project in Bavaria: The truck parking guidance system on the A9 motorway between Nuremberg and Munich

The screens show the layout of each parking facility and indicate its current occupancy status in a slider- or traffic-light-type display.

On the overview screen, the names of the rest areas are color-coded according to the current occupancy situation – for an immediate overview of the overall parking situation.
Together with Siemens Mobility and Logistics and VoLTRA Solutions, the Bavarian Highways Department has launched a pilot project that is unique in Europe – on behalf of the BMVI (the German Ministry of Transport and Digital Infrastructure) and with the support of the Center for Traffic Management. The truck parking guidance system Sitraffic Conduct+ is to be installed by December 2016 at 21 rest areas and gas stations on the A9 motorway between Nuremberg and Munich.

**Video cameras allow visual comparison**

As part of the pilot project, the installation of video cameras is planned for all 21 parking areas. In the parking guidance center, the displayed video images will allow for easy visual comparison. After completion of the pilot phase, the cameras will be used for monitoring the traffic situation.

The data will be passed to the Bavarian Traffic Information Agency (VIB)

Bavaria has one of the most highly developed traffic management systems in the world. The Bavarian Traffic Information Agency uses the information platform www.bayerninfo.de to support road users by providing information on roadworks, traffic flow and traffic incidents. Static information regarding parking availability is already available. Now the project will complement this information with online data. Anyone who does not have access to the Internet can use the special information kiosks at the rest areas, where touchscreen systems provide an overview of the occupancy situation in the parking areas.

In Bavaria, 21 parking and rest facilities on the A9 motorway between Nuremberg and Munich are to be equipped with the truck parking information system.
The current occupancy data of all connected parking and rest facilities are available in the parking guidance center.

Pinning guidance center:
- collects the occupancy data of all connected parking lots
- transmits information to the MDM and other platforms

Transmission of vehicle type and length

Difference calculations that take vehicle length into account

Information on parking space occupancy

Transmission of vehicle type and length

Detectors for counting and classification at the entrance

Detectors for counting and classification at the exit

ScanSens: Laser scanner to measure the height and width profiles

GroundSens: Radar sensor to detect the vehicles’ length and speed

The ‘difference method’ for calculating parking space occupancy on motorway rest areas.
## Technical specification

### General information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>–30 to +60 °C</td>
</tr>
<tr>
<td>Humidity</td>
<td>0 to 95 %, no condensation</td>
</tr>
</tbody>
</table>

### Laser scanner

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of measurement levels</td>
<td>4</td>
</tr>
<tr>
<td>Scan range</td>
<td>&gt; 95°</td>
</tr>
<tr>
<td>Power consumption</td>
<td>&lt; 5 W</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>14 x 14 x 8 cm</td>
</tr>
</tbody>
</table>

### Ground radar

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>24, 125 GHz</td>
</tr>
<tr>
<td>Speed range</td>
<td>0 to 250 km/h (155 mph)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>2 W</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Cross-section: 16.5 cm Height: 11 cm</td>
</tr>
</tbody>
</table>