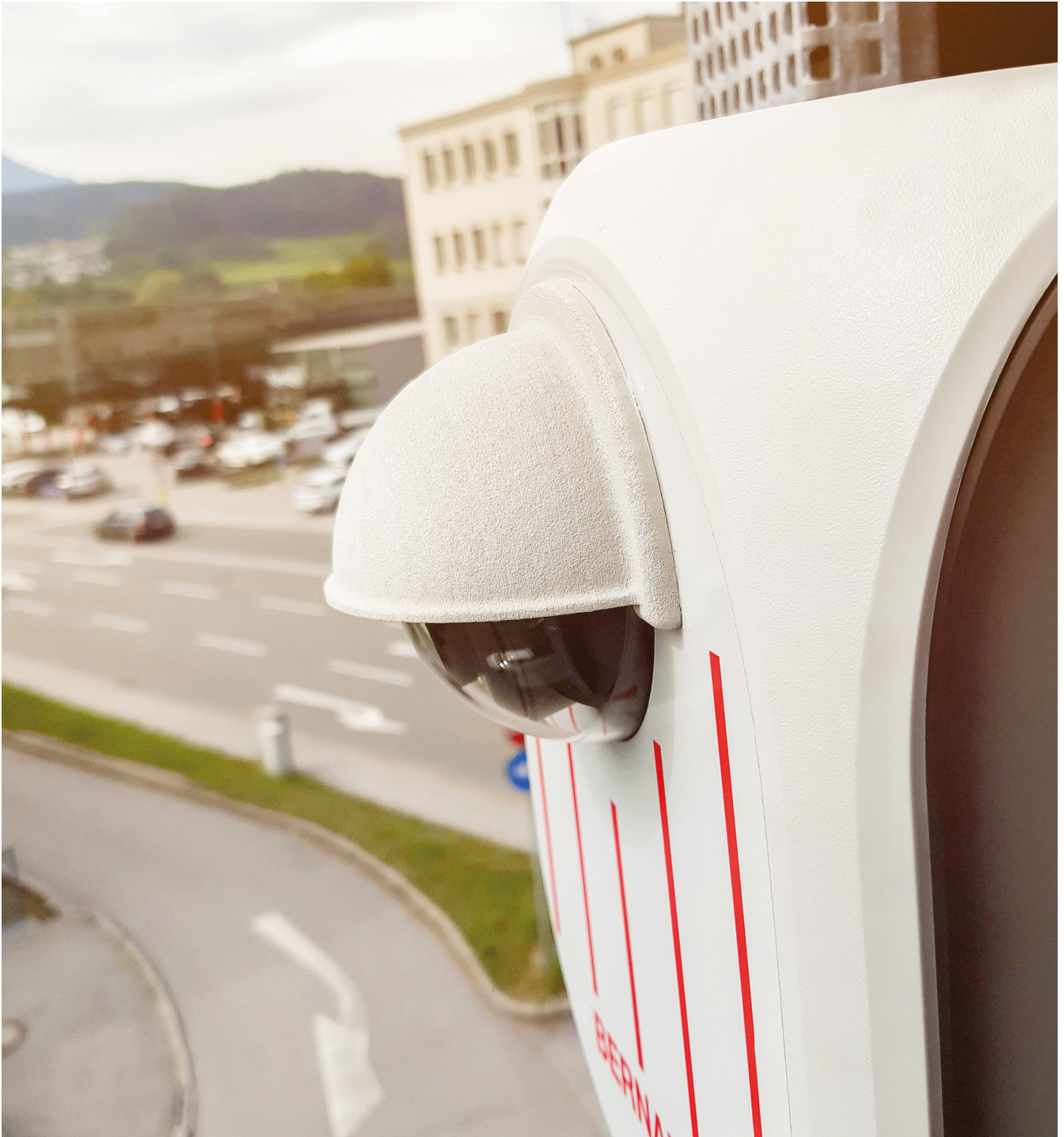


■ BERNARD Mobility Analyser



BERNARD Mobility Analyser

Integrated mobility planning is indispensable in the face of increasing traffic volumes. It is a key tool for achieving overall goals such as improving environmental conditions and increasing operational efficiency in public spaces and industrial areas. Efficient data collection, including traffic volumes and types of road users, is always a prerequisite for proper planning.

By means of the BERNARD Mobility Analyser (BMA), the requirement of high data quality combined with rapid data availability can be met. The BMA consists of an intelligent optical system for collecting mobility data such as number of road

users, vehicle categories, movement direction detection, as well as distance and speed measurements. The information is provided directly on site - no videos and no personal data are stored. The evaluation of images and of anonymized data is carried out directly in the camera system.

The BERNARD Mobility Analyser is available as mobile or stationary system. On request, an individual data evaluation and presentation up to an entire transport planning concept can be provided.

Applications

- Traffic survey
- Parking space analysis
- Dynamic control
- Pedestrian flow detection

Advantages

- On-chip data evaluation
- Simple implementation
- Low memory requirements
- Anonymous evaluation
- Real-time information

Contact



Dipl.-Ing. Dr. Stefan Schwarz
Managing Director

stefan.schwarz@bernard-gruppe.com
T +49 151 12551521

IP65 Plastic housing

4MP Fixed dome
Network camera

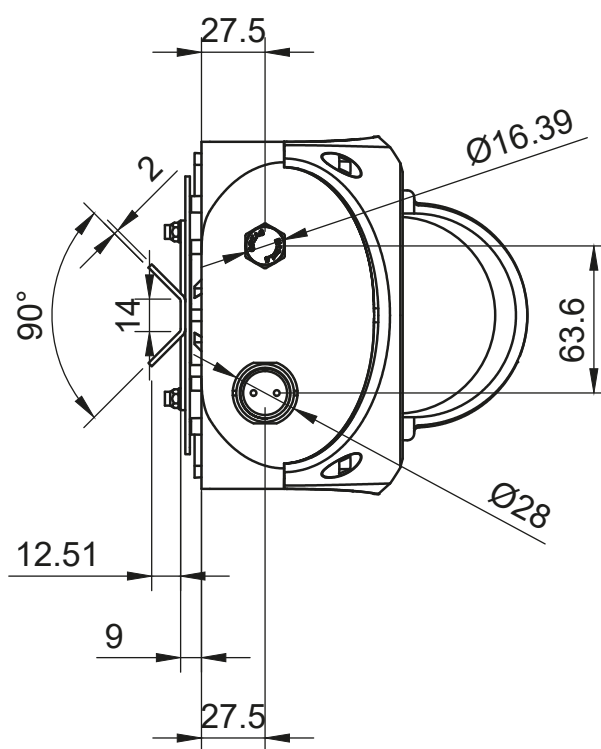
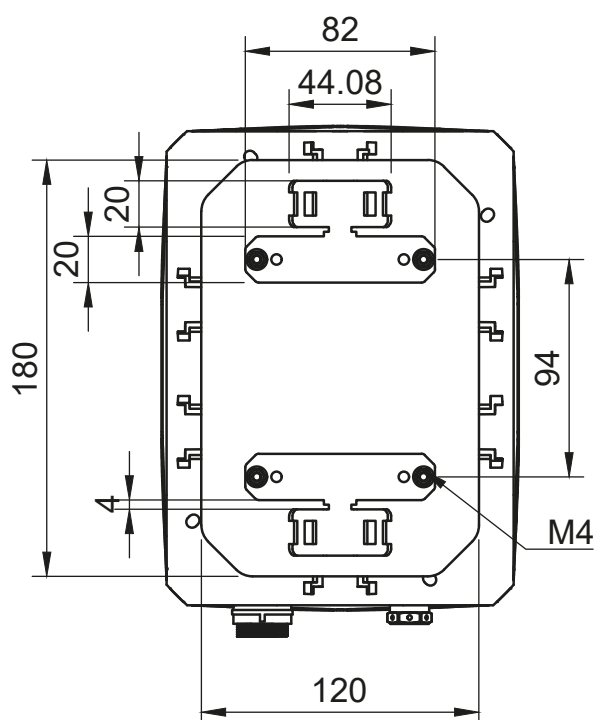
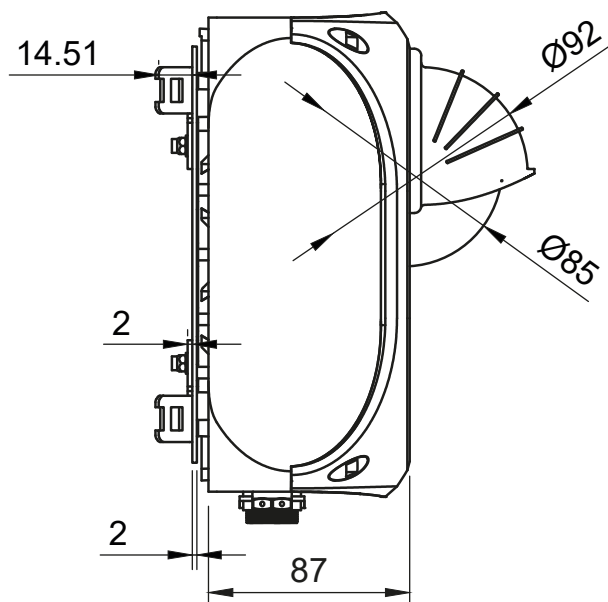
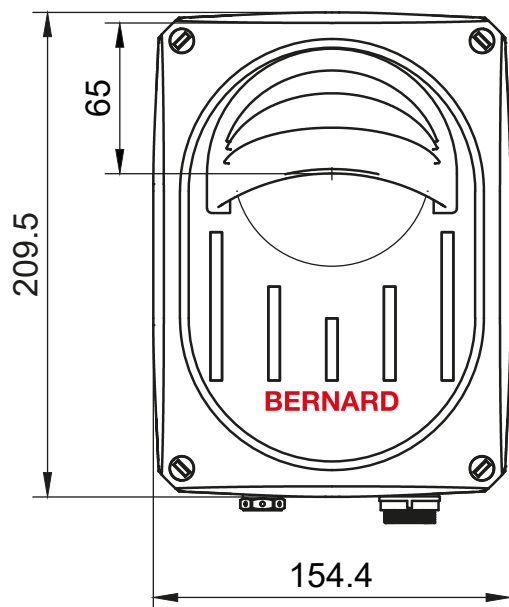
Weather shield
(fixed dome)



pressure compensation
element

Power supply

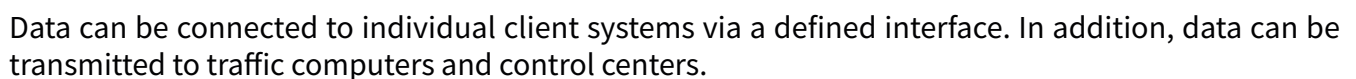
Dimensions



Dimensions in mm

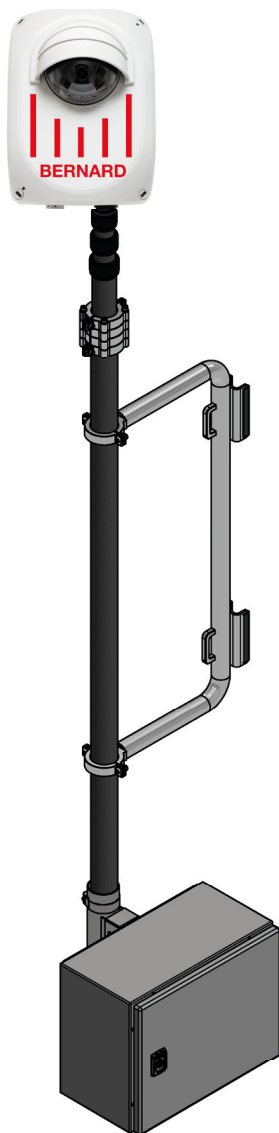
- Device management
- Configuration interface
- Live function check

- Live data display
- Historical data as bar chart
- Client-specific configuration



Mobile system

- Telescopic pole for installation on existing infrastructure
- 12 V battery operation
- Client-specific usage
- Self-sufficient supply via photovoltaics or rechargeable battery
- Battery with charge controller for mounting on light pole



Applications

- Parking data collection
- Traffic counting
- Dynamic traffic light control



Specification

Data transfer		
Data streaming protocol	MQTT	
Data encoding	JSON	
Data transfer	LTE	
General		
Operating conditions	-20° C to +50° C	
Item number	A10-00X	A11-00X
Power supply	220 - 240 V AC	12 / 24 V DC
Frequency range	47 - 63 Hz	N/A
Power consumption	230 V AC 50 Hz	14 W
Material	Housing: Polycarbonate rain cover: Polycarbonate 3D printing	
Protection class	IP65	
Dimensions	210 x 155 x 140 mm (L x W x H)	
Weight	2000 g	
Mounting method	Pole mounting, clamping range 60 - 150 mm	
Certification		
GDPR compliant	Yes	

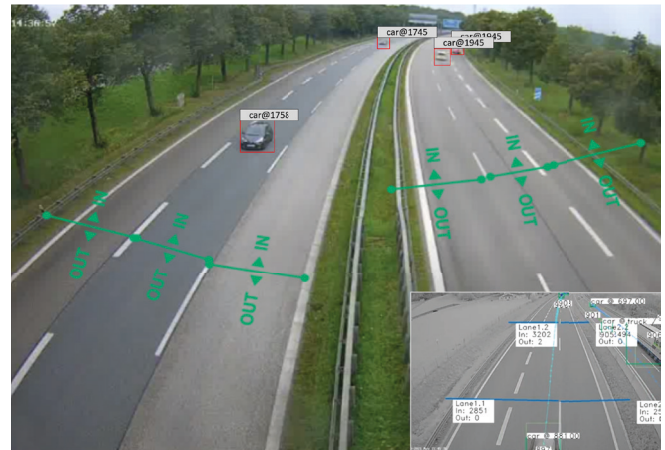
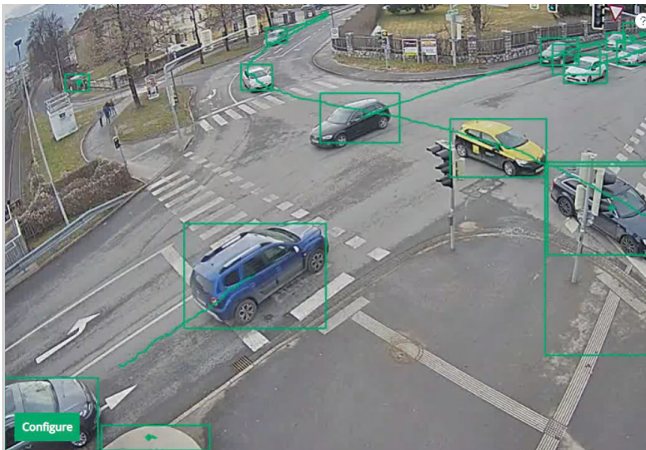
Privacy and security

The BMA processes personal data only vaguely, without storing it and only for the purpose of anonymization. This is done on the basis of Art. 6 para. 1 f) GDPR, namely in the legitimate interest of the operator. Only the anonymous data is then used for traffic control measures.

The BMA complies with the Low Voltage Directive 2014/35/EU and the Electromagnetic Compatibility Directive 2014/30/EU. Th compliance has resulted in the CE certification attached to the bottom of the device.

Applications

Traffic counting



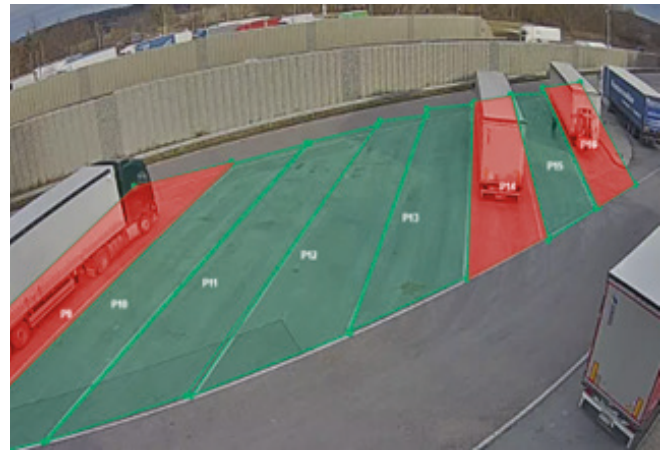
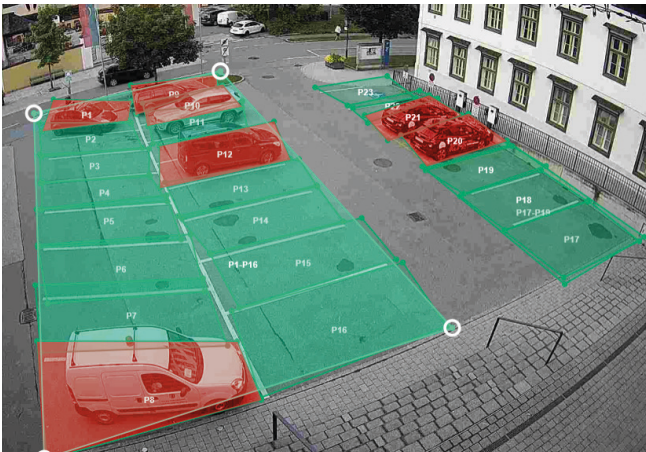
Suitable for both temporary and permanent traffic surveys. Road users are recorded by automatic object detection. After having been detected, road users are automatically classified directly in the camera processor into the categories pedestrians, cyclists, motorcyclists, passenger cars, passenger cars with trailer, vans up to 3.5 tons, buses, trucks, trucks with trailer and tractor-trailers, trams and scooters.

By assessing the trajectories of road users it is possible to indicate source and destination relationships. As a result, cross-sections, intersections and traffic circles can be surveyed. By calibrating the measuring system the average speed can be indicated. Subsequent data processing produces a daily hydrograph and a time-resolved junction load graph.

Services

- Traffic data assessment and classification according to TLS 8+1 (German technical supply conditions for roadway station units)
- Assessment of pedestrian and bicycle traffic
- Individual measurement intervals
- Recording of the trajectories of individual road users

Parking space analysis



Real-time parking data collection by using an entry-exit-counting system or by single parking space detection. Similarly to traffic surveys, an entry-exit-counting system counts entries and exits to determine the current parking utilization through the difference between them. As an alternative, the utilization can be determined by recording the individual parking spaces. The image material is evaluated and vacant and occupied parking spaces are identified.

The system detects the size of vacant parking spaces and can determine the available capacity. Information about vacant parking spaces is available in real time and can be transmitted to dashboards, traffic computers, and digital and on-street dynamic parking guidance systems. In this way, vacant parking spaces can be accessed in a targeted manner to reduce parking search traffic. By measuring the number of occupied parking spaces, the parking duration and parking turnover rate can be evaluated simultaneously.

Services

- Vehicle counting for entries and exits
- Single parking space recording
- Display of real-time data
- Data hosting
- Vacant parking spaces / on-street parking
- Connection to parking guidance systems

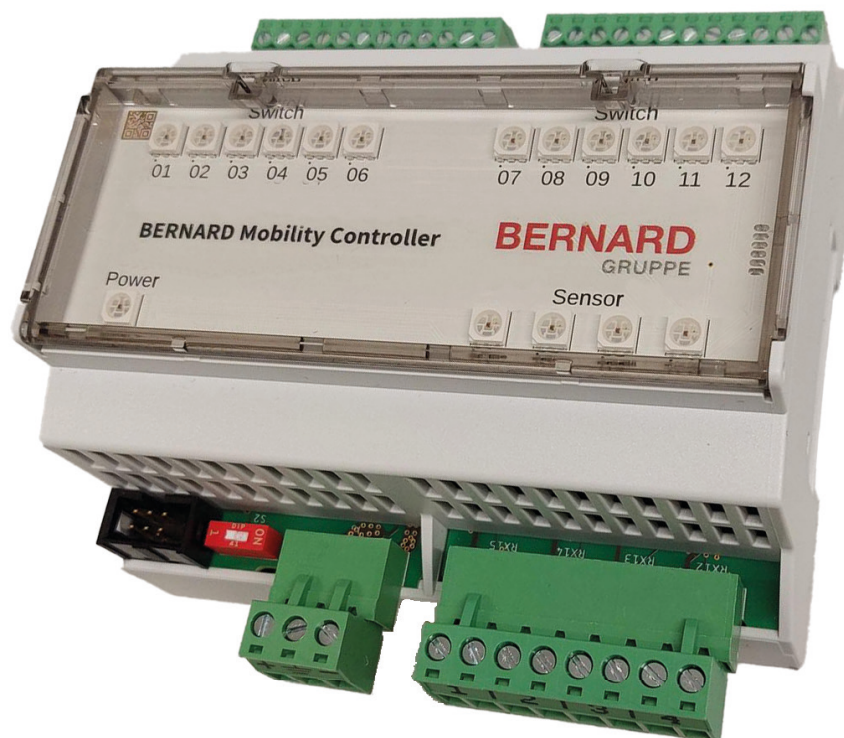
Control of traffic light systems

The BERNARD Mobility Analyser supports all current options/ types of video detection equipment.

This includes flexible features when defining the detection fields and evaluating their occupancy status. The unique selling point compared to conventional detectors is the possibility distinguish by vehicle categories.

Services

- Dynamic control for individual vehicle classes
- Dynamic dimensioning of release times
- Implementation of environmentally sensitive control systems
- Green wave for cyclists
- Bus and train detection to register public transport for priority



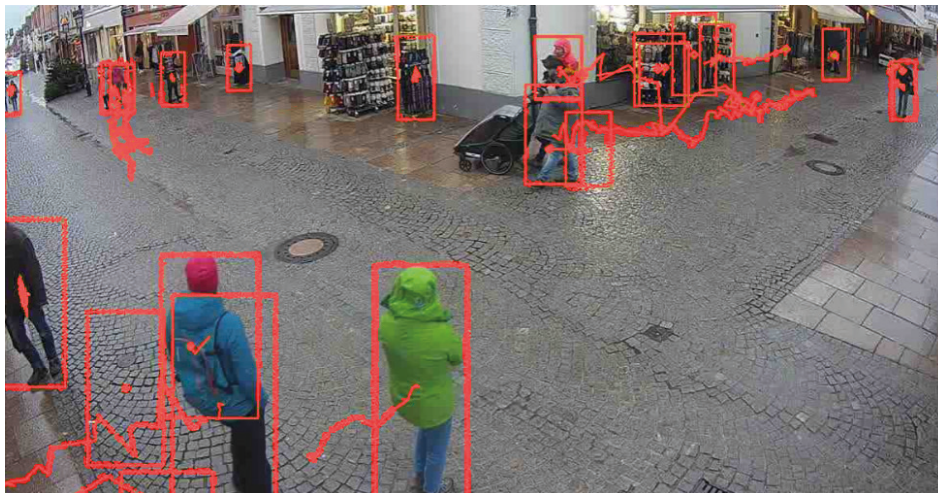
Pedestrian flow detection

With the BERNARD Mobility Analyser, pedestrian flows can be recorded and actively controlled in public places, on weekly and Christmas markets, as well as in shopping streets and malls. In addition to people counting, there are other evaluation methods available.

Heatmaps visualize the dwell time, so that at an early stage crowd formations can be detected and indicated. The data is made available via a dashboard or via a defined interface. In addition, dynamic display elements can be controlled, for example to indicate the current number of people.

Services

- Pedestrian flow detection
- Assessment of the current number of people
- Automatic warning when limit value is exceeded



BERNARD Gruppe

Germany

Elsenheimerstrasse 45 • 80687 Munich
T +49 89 2000149 0 • F +49 89 2000149 20
info@bernard-gruppe.com

Austria

Bahnhofstrasse 19 • 6060 Hall in Tyrol
T +43 5223 5840 0 • F +43 5223 5840 201
info@bernard-gruppe.com