



# OnDynamic

MULTIMODAL TRAFFIC  
MONITORING SYSTEM

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# OnDynamic

## What is the OnDynamic?

**OnDynamic** (Multimodal Traffic Monitoring System) is an intelligent architecture of sensors and specialized software, which allows to gather and compute large quantities of various and scattered traffic data.

**OnDynamic** delivers following valuable data in real time, all day everyday:

- › travel time,
- › average speed,
- › traffic volume,
- › current traffic obstructions.

**OnDynamic** allows gathering and analysis of archive data.

**OnDynamic** delivers knowledge that can be effectively used by road and traffic administration in traffic engineering and traffic management.

**OnDynamic** is a tool that delivers data necessary for road users to make decisions.

**OnDynamic** is solution that allows to use data existing in public space in effective traffic management.

**OnDynamic** is a result of APM PRO research & development works, it was created with the help of Silesian University of Technology from the National Centre for Research and Development.

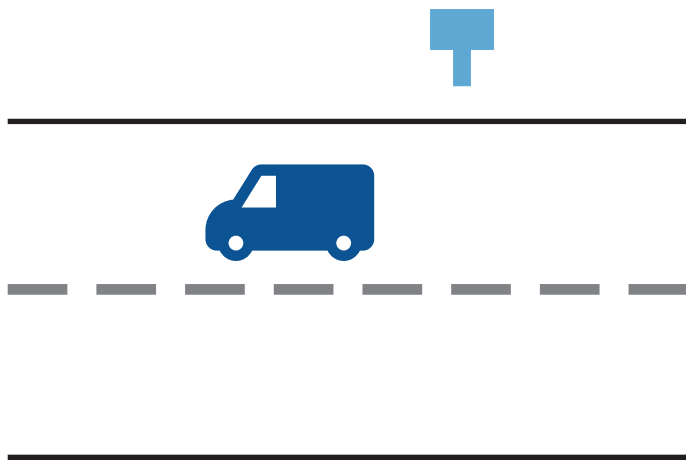




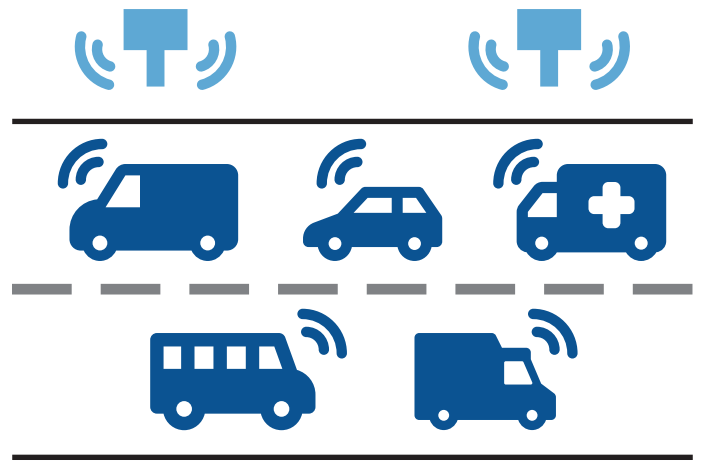
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## How does OnDynamic work?

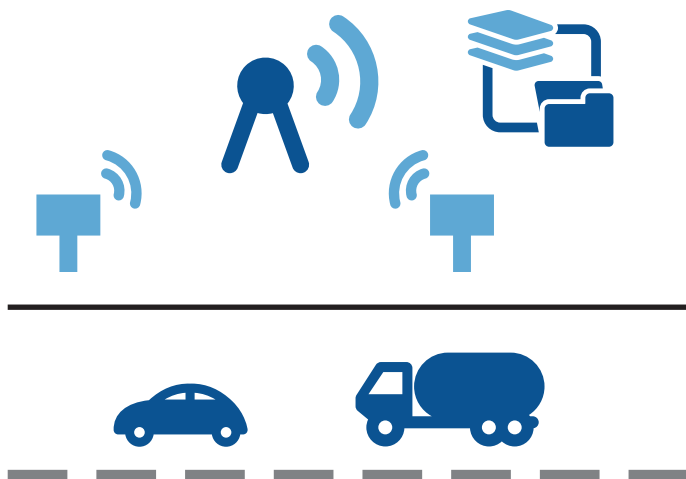


Very easy in installation, maintenance-free OnDynamic sensors can be placed at road intersections or on sections between intersections.



OnDynamic sensors identify active Bluetooth devices mounted in passing vehicles.

Data are anonymized, processed in such a way that prevents identification of the sources.



The acquired data are filtered, analysed and interpreted by specialized algorithm system.

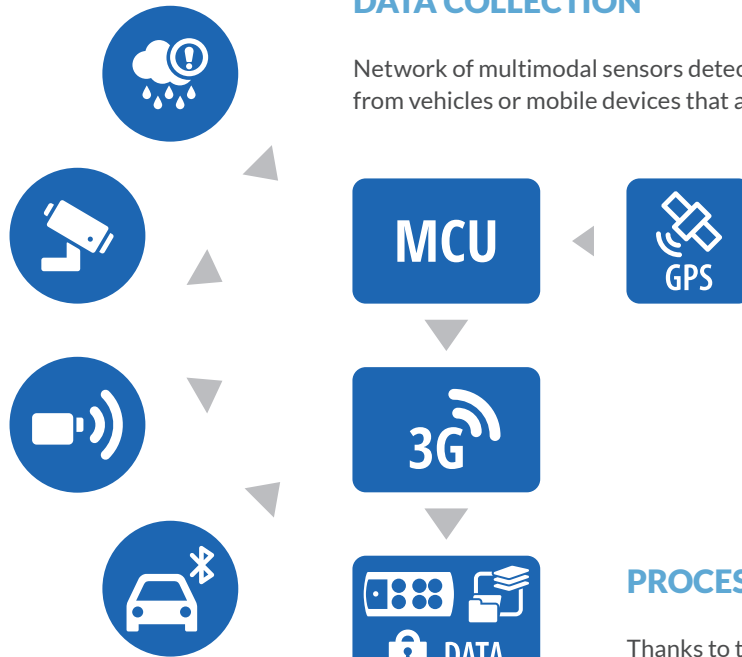


Appropriately processed information about current traffic are presented by graphic interface. Archive data can also be processed.

# OnDynamic

## DATA COLLECTION

Network of multimodal sensors detects Bluetooth signals from vehicles or mobile devices that are in range.



## PROCESSING

Thanks to the advanced, inbuilt algorithms and other improvements (cloud computing), OnDynamic is an advanced and automated environment and is an extremely efficient tool.

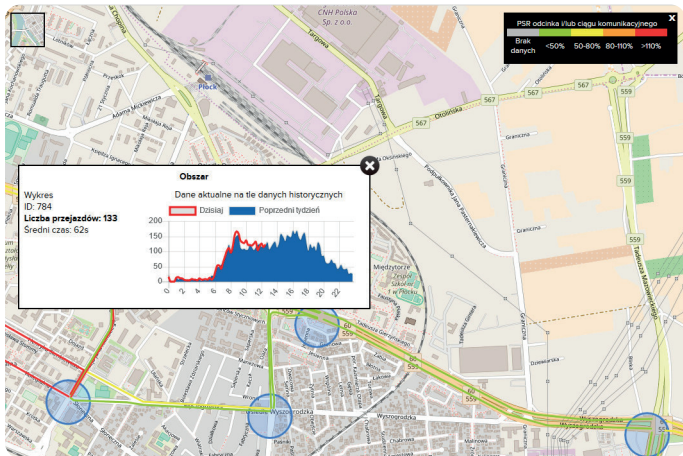
## VISUALIZATION

Friendly interface suited to client needs presents processed output data regarding average speed, travel time, traffic fluency, Source-Destination Matrix and possible incidents/events.

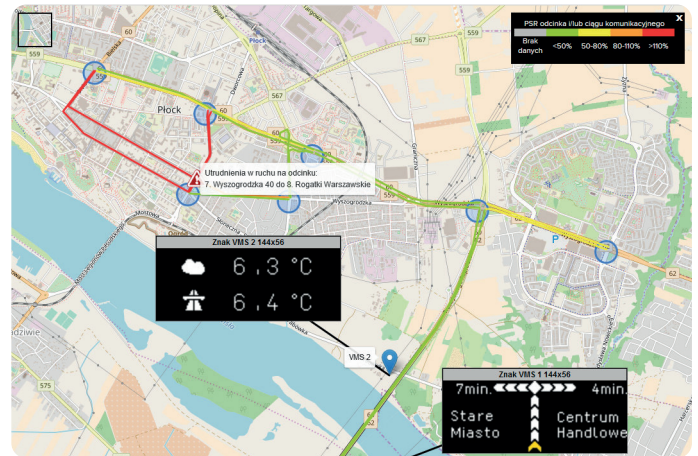




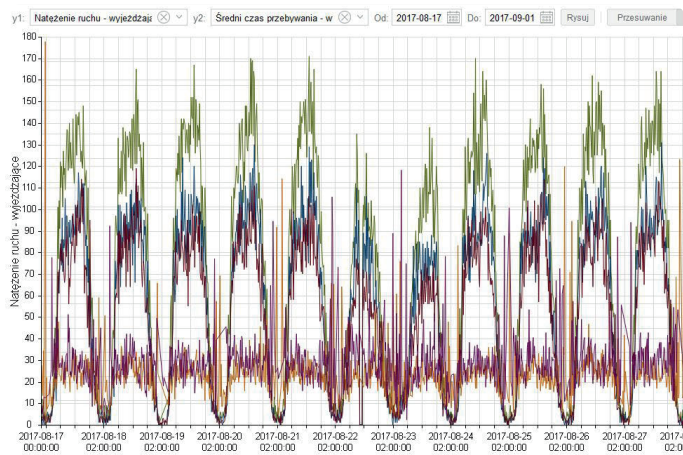
# Exemplary effects of OnDynamic data processing



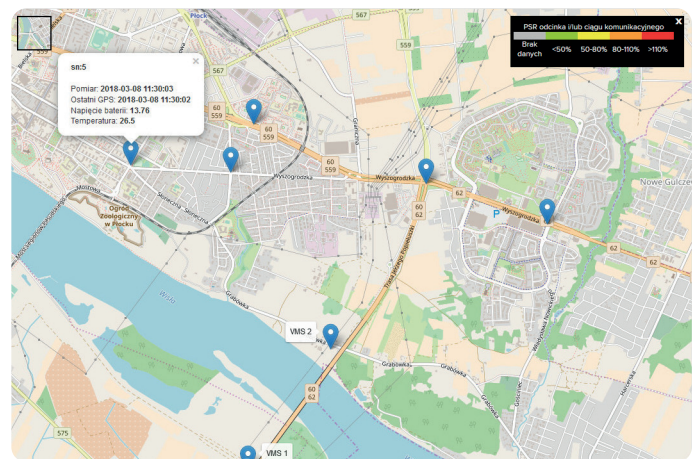
Presentation of the **vehicle amount** in sections between sensor areas along with the **current travel time** against the background of the archive data for the given week day.



Display of **occurred incidents**.



Diagrams of **vehicle volume** and the average time of presence within the given area in the given time interval.



Visualization of **sensors location** with the maintenance data.



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## Benefits of introducing the OnDynamic system

- **Gathering data and presenting information** acquired from multimodal sensors **in real time, 24/7** regarding: travel time, average speed on the given section, traffic intensity and current traffic obstructions/incidents.
- **Delivery of traffic data** that can supply traffic models implemented in cities for planning.
- **Precise and full data.** The precise and reliable knowledge is gained, due to the special processing algorithms, created by scientists.
- **Safety of Data.** The gathered data are anonymized, processed in such a way that prevents identification of the sources.
- The **OnDynamic** system registers and processes data regardless of the weather conditions.
- **Use of the multimodal sensors** – Bluetooth, GPS, GSM, BT Beacons.
- **Accessibility of the Solutions.** Thanks to the original concept based on multimodal sensors, costs of implementing the OnDynamic system are much lower than for alternative traffic information gathering technologies. **OnDynamic** system sensors may be powered from the power network constantly or through a buffer power supply, including the renewable energy sources.
- **Quick and easy mounting and simple implementation.** OnDynamic sensors can be installed in locations within the intersection or on the sections between junctions. Mounting the OnDynamic sensors is easy and does not require specialized equipment. In addition, our team will advise an optimal setting of the measuring system.
- **Full mobility** of the **OnDynamic** data gathering system allows quick changes in locations of the measuring sensors. Effect of these changes is instantly seen on the user interface.
- **Scalability.** The system allows to implement additional data on the information gathering level (multimodal sensors), processing (efficient algorithms) and data presentation. OnDynamic can be easily integrated with supervision system and MARWIS weather protection system.
- **Flexibility.** OnDynamic allows the use of individual solutions (personalize) in functionality and data visualization.
- **Reliability and Efficiency.** The OnDynamic project was created as part of the „INNOTECH” programme in the „HI-TECH” programme path with the help of the Silesian University of Technology.



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## Technical information

### ONDYNAMIC SENSOR TECHNICAL PARAMETERS

Cabinet Size	W 330 mm; H 250 mm; D 140 mm
Supply voltage	from ~90 VAC to ~264 VAC 50 Hz
Rated power input	5 W
Battery capacity	9 Ah
Work duration on battery	~24 H at ambient temperature 20°C
Measurement of the battery voltage	Yes
Measurement of the internal temperature	Yes
Measurement of the ambient temperature	Optional
Sun radiation measurement <sup>1</sup>	Optional
Ingress Protection	IP 64
Operating temperature range	-20°C to 50°C
Location via the GPS	Yes
Data transfer interface	3G, GSM or Ethernet
Antennas operating frequency	2,4 GHz-2,5 GHz
Antenna energy gain	12 dBi
Antenna dimensions	W 110 mm; H 110 mm; D 30 mm
Antenna impedance	50 Ω

<sup>1</sup>There is a possibility to add noise and acoustic climate, air pollution, weather conditions, surface condition sensors.





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