Product overview: Asset Management

Description

Sensoneo **Asset Management solution** enables you to **digitize your waste infrastructure.** It combines Smart Bin Tags (RFID tags), Smart Waste Management System, the powerful cloud-based platform on Microsoft Azure, Citizen App, and Watchdog, ultimate tracking device for waste collection vehicles.

By tagging all bins and containers you **identify and record all assets in a digital inventory in the Smart Waste Management System (Asset Management module).** The solution simplifies bin tracking, communication and invoicing, and restrains unauthorized use of bins. A clear and accurate overview of all bin assets is the key and the very first step leading towards smart waste management.

Asset Management module offers bin inventory, a digital interactive map, tools for qualitative analysis of your waste infrastructure (bin distribution, capacity), **maintenance records, collection records, and an overview of citizen feedback.**

Asset Management Tools

1. Smart Bin Tags

Smart Bin Tags provide uniques identification for e very bin (or other asset). Bin Tags enables you to identify (barcode, numerical code or RFID feature) and record all bin assets, simplify tracking, communication and invoicing, and restrains unauthorized use of bins.

Sensoneo offers **3 types of bin tags**:

- Smart Bin Tag
- Smart Bin Sticker
- Transponder (plug)

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All tags have RFID features that ensure **automatic service verification and contactless bin recognition** providing access to bin details in the database using **Watchdog**, vehicle reader.

A citizen can identify bins visually via a numerical code, bar code, or QR code on the Smart Bin Tag and Smart Bin Sticker. By **scanning the bar / QR code with a smartphone** you can access bin details via **Citizen App.** For signed users, Citizen App offers features for **asset mapping, manual service verification, and requests for collection or maintenance.** We also offer basic stickers without RFID and with QR / bar / numerical code for bins and trash bags.

2. Watchdog RFID reader

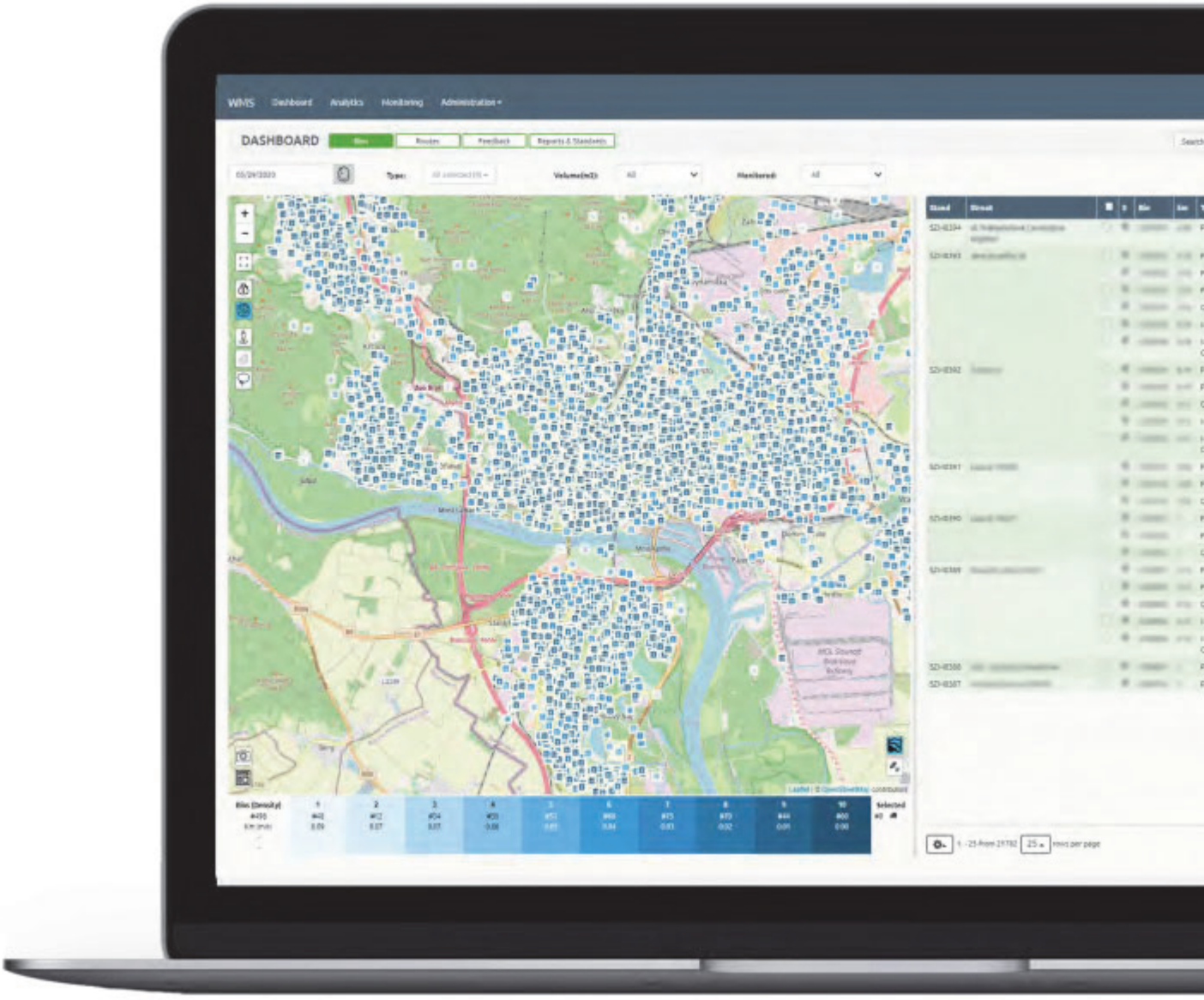
Automatic service verification is available for all tagged bins using an RFID vehicle reader Watchdog. The main features are:

- Service verification
- Fraud Prevention
- High-precision GPS tracking with dead-reckoning functionality
- Short and Long range RFID tagging via customized RFID antennas
- Automatic Bin Inventory Update
- Complete Fleet Management

We offer also a handheld RFID reader. RFID readers provide contactless access to bin details and allow for pickup recording. All data is sent to the Sensoneo backend.

3. Smart Waste Management System – Asset Management module

All data are available in Smart Waste Management System, powerful a cloud-based platform on MS Azure, that assists Operator on daily waste
management tasks.



Digital interactive map
The operator sees the whole infrastructure on an interactive map, he can visit each stand/bin at any time via the Street View feature from Google. You can filter bins by trash type, capacity, pricing, and collection interval. The digital map provides a big picture and spatial awareness.

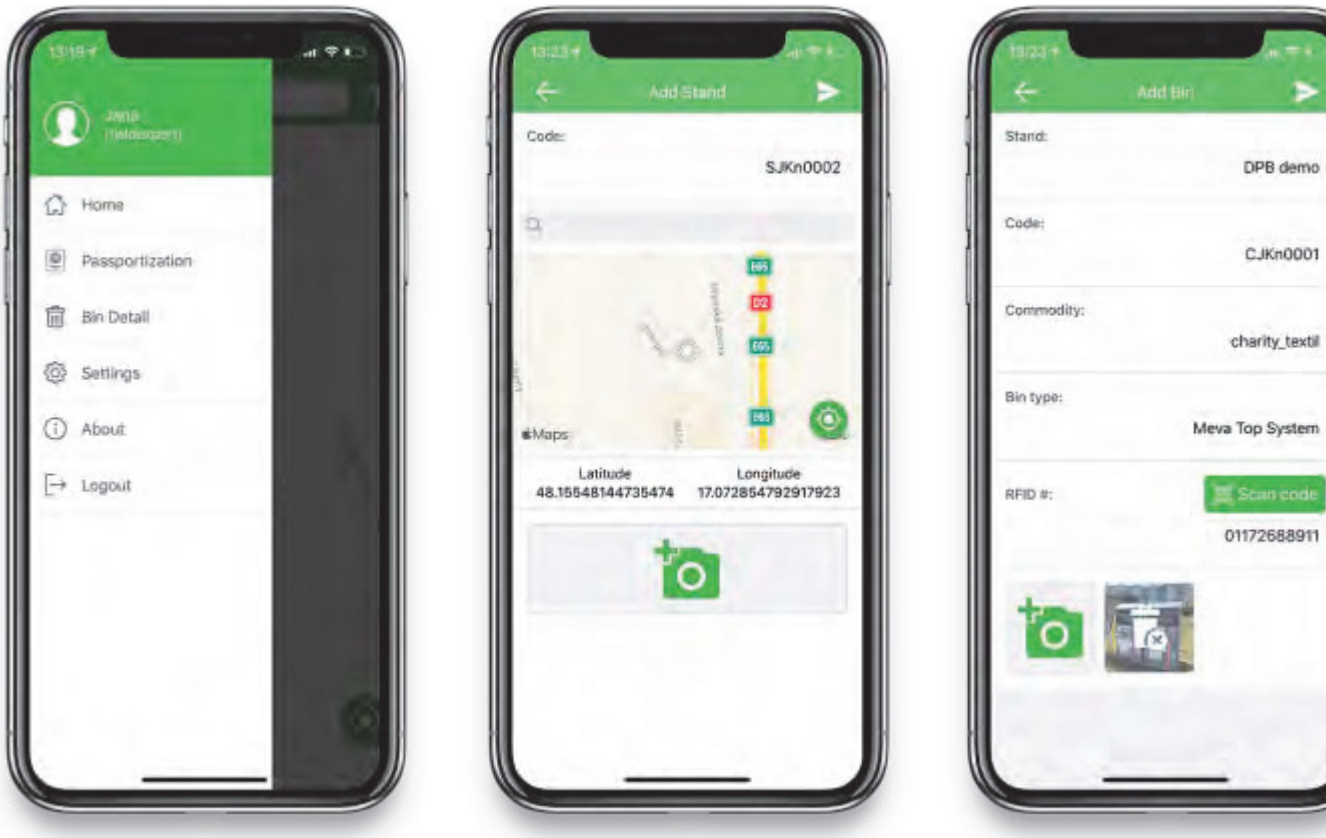
Detailed bin inventory
Thousands of bins with relevant information stored in one database you can work with. Use the data you have to your advantage. You can see bin details such as stand, street, bin code, trash type, capacity, collection schedule,

last emptying, maintenance reports, and more.

4. Waste monitoring Citizen App

Sensoneo's Asset Management **solution is unique** as it offers simple access to information to the public as well. Other RFID solutions are only compatible with RFID readers. **Numerical, bar or QR code on the bin tag offers easy access to bin details for the public.** Simply **scan the code via camera to the Citizen app** and you immediately get the available public details. It is up to you to decide what bin details are available to the public and what is restricted to logged users. Available for **Android and iOS.**

Easy bin identification allows the public to access bin details, report real-time feedback or request pickup and maintenance.



Category

1. Software

Date Created
January 2019

((SENSONEO))

Smart Waste Management

User manual 2019
www.sensoneo.com/knowledge

OVERVIEW

Sensoneo Smart Waste Management System is powerful enterprise grade cloud based management and provisioning platform enabling end customers to monitor, manage and configure their daily business and also enables the partners to manage and configure all the data for their customers. Smart WMS offers unlimited storage for customer data. Data are storaged for 10 years.

Smart Waste Management System modules:

- Dashboard
- Analytics (History, Pickups)
- Monitoring (Measurements, SMS, IoT messages, IoT downlink, Sensor, Warning)
- Administration (Stands, Routes, Users, Customers, Thresholds, Classifiers)

Monitoring and Administration modules are available only to users with the role Partner. Remaining modules are also available for customers with the role Operator.

DASHBOARD

Dashboard module offers a visualisation of the current data sent from the sensors.
Dashboard consists of the following Sub-modules:

- Bins (Default)
- Routes
- Feedback

1 Dashboard - > Bins

Bins module provides quick view on the actual situation presented on the map and table. Each mark on the map represents location with one or more containers refered as Stand. Red color stand represents at least one full bin on that location. Full container is considered bin above 85% (configurable). Green color stand represents all bins on that location are below 70% (configurable).

Basic fill level statistics

In order to highlight the bins with fullness above certain threshold (configurable) you can click on the statistics bar below the map. After the click the containers are selected and ready to be saved for itinerary planning.

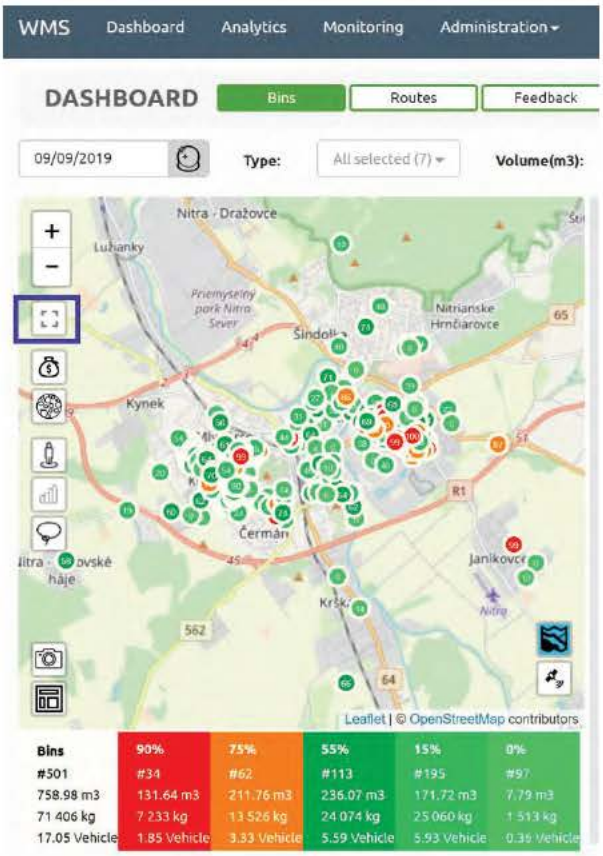
Basic statistics provide an **immediate overview of the fill level situation in the area**.
You see:

- how many bins are full
- what is the **total volume** of waste in these bins
- **length of the collection route** to collect all these bins
- number of tours needed (**how many times you fill up the vehicle**)

Map icons

Full-screen map

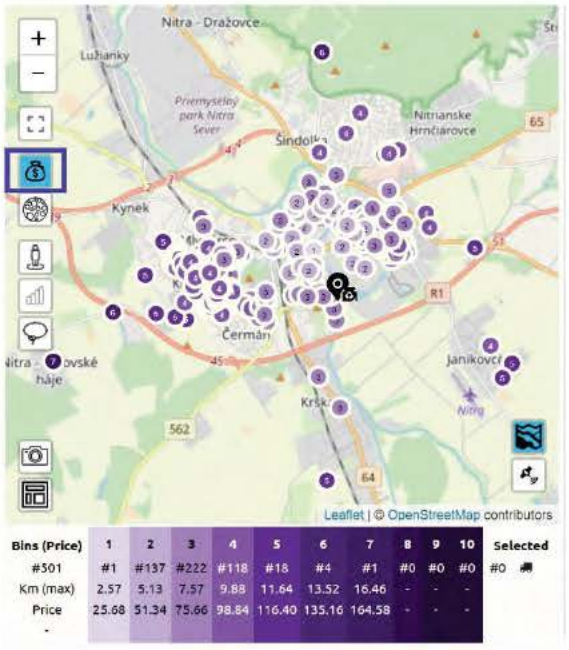
There is an icon on the map that allows you to **maximize the map on the full screen**.



Price map

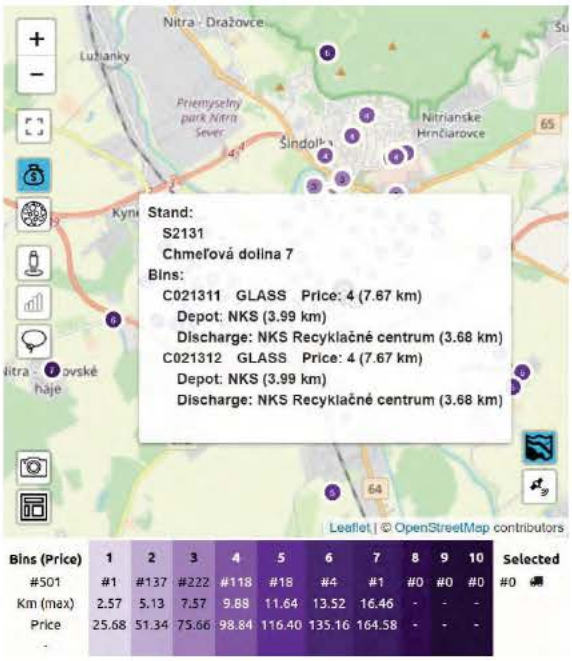
We help you **identify bins that drive up your collection costs.** The tool calculates a **rating for each bin in terms of collection costs**. The tool considers average distance from the nearest depo and back to discharge for every single bin. Bins are then divided into the cost classes (10- most expensive class).

Click on the icon and turn on the tool. **Now you see the rating in bin icon.**



Rating is 1 (cheapest) to 10 (most expensive).

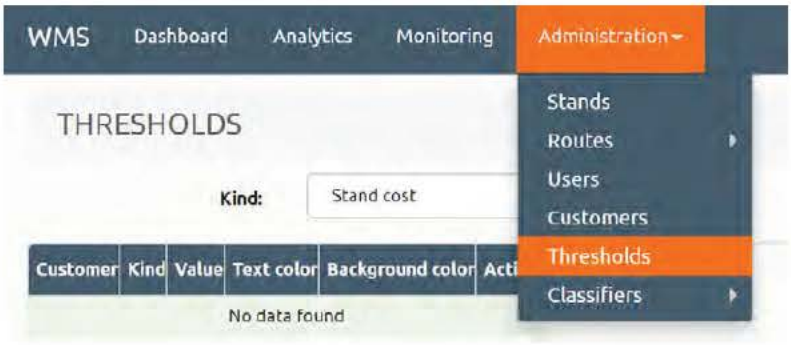
Move cursor above the bin and see details – For each bin you see **Price rating and distance from depo-bin-discharge.**



For example (picture) – Bin C05187 for glass has price class 4 and the distance a vehicle has to drive from depo to bin and then back to discharge is 7,67 km.

Set thresholds for price map

Based on the price rating, each bin has a color.
You can adjust thresholds in **Administration> Thresholds > Stand cost**



Here you can set up colors and thresholds (price rating) based on your preferences.

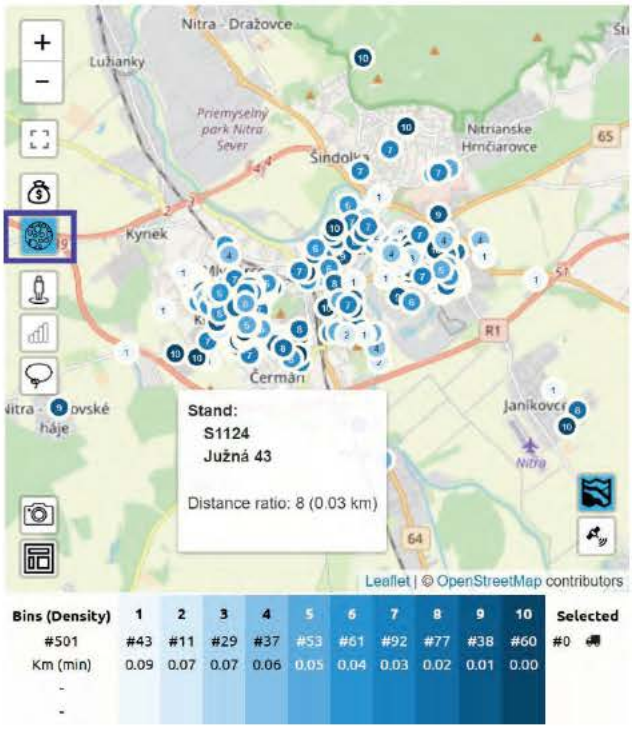
Bin density analytics on the map

Besides Price rating, Street view or Graph, you now also see Bin density. **We analyze distributions (distance) of your bins**, identify high-density locations and low-density locations.

This feature allows you to identify locations where you might reconsider bin capacity or location.

If there are too many bins close together, you might consider deploying large capacity bins to save public space or save waste collection costs.

Bins get a rating from 1 to 10, 10 being most dense locations.



This feature is available for Smart waste management as well as Bin management.

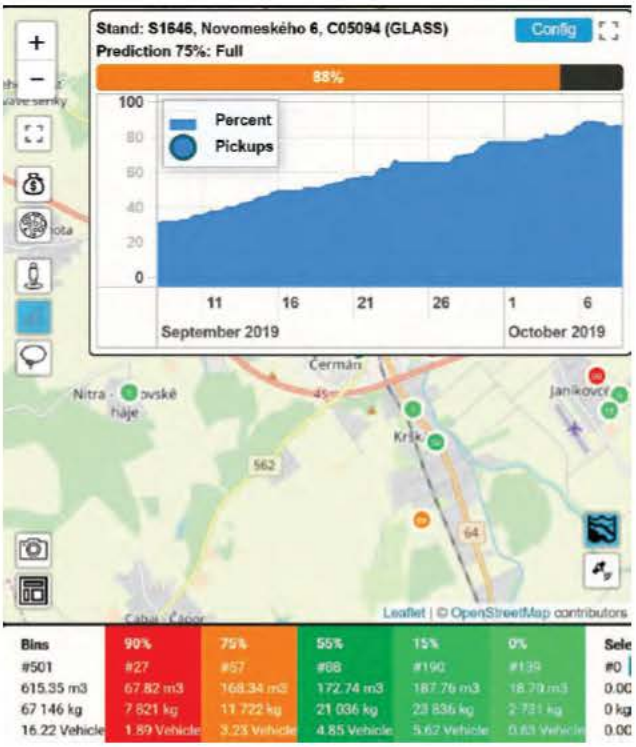
Under the map, you see **Basic statistics** – Number of bins per category and min. distance between bins in kilometres. **Click on the category to highlight these bins on the map.**

Google street view

Everywhere you see a map, click on the icon to switch on the street view. Then choose container on the map that you want to see or choose a street you want to see.

Graph icon

By clicking on **Graph icon** you can display the development chart of given container. You can see, zoom and look backward at the waste level in the container, as well as to see the predicted date of achieving 75% of its capacity.



Lasso tool on the map

Choose bins via Lasso tool on the dashboard map. Circle bins you want to select, you can circle several bins at once. Lasso tool is available in **dashboard Bins a dashboard Pickups.**

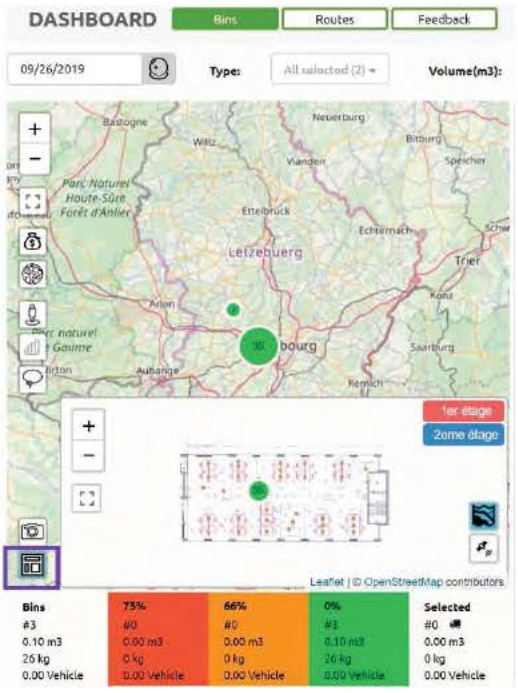
Turn on the **Lasso tool** by clicking the **Lasso icon** on the map – left upper corner. To deselect the bins, click **Eraser icon** on the map – right below the **Lasso icon**.

Lasso icon turns blue when turned on.

Layout feature

Layout feature provides a floor plan for a stand or for a building. It provides a better understanding of where is the bin located within stand or building.

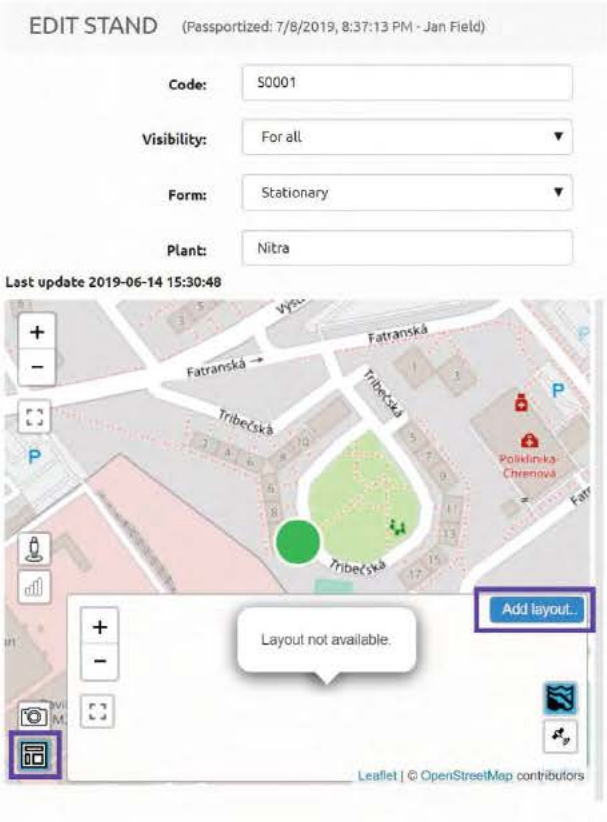
To see the Layout, open Dashboard and find Layout icon in the bottom left corner of the map. It works the same as Street view or Price map. First, choose the bin/stand and then click on the Layout icon to see the layout.



Upload new layout

Go to Administration > Stan and on the map click **"Add layout"**. Upload layout in SVG format.

Then drag and drop bins and place them on the layout to reflect reality.



Edit existing layout

Go to Administration > Stand and on the map click **"Edit layout"**. Then drag and drop bins and place them on the layout to reflect reality.

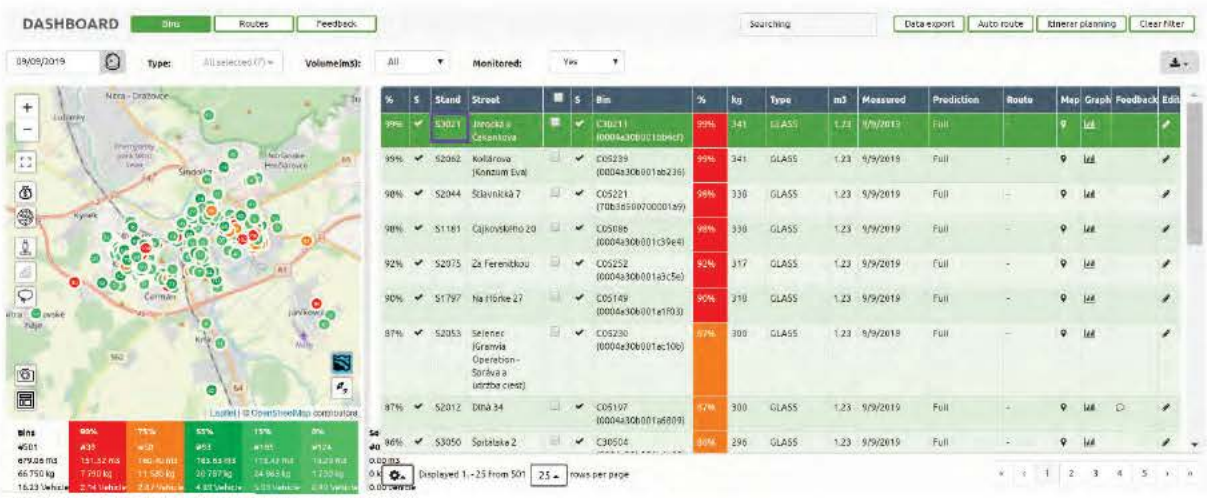
Table Functions

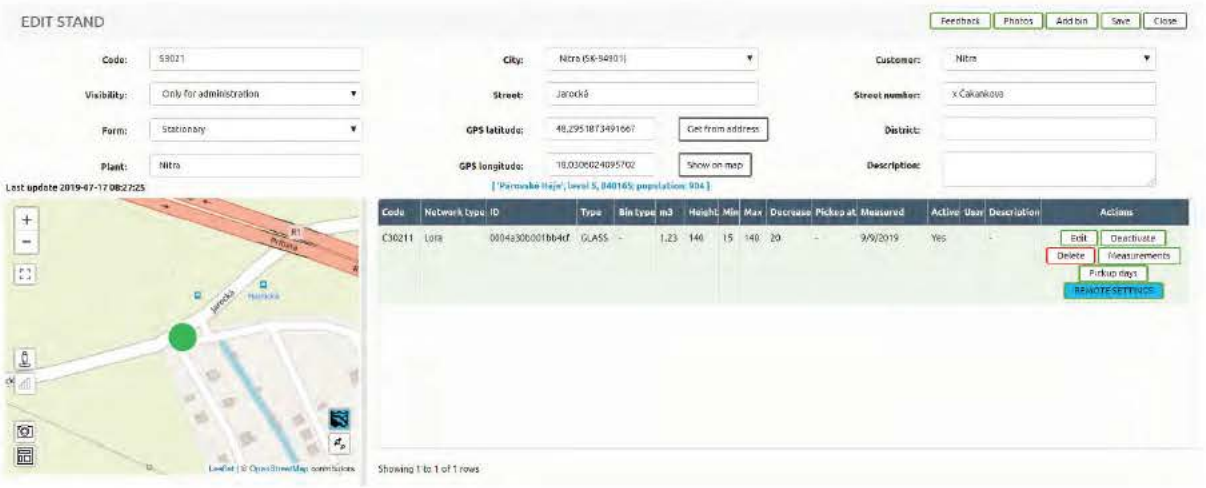
Stands

A **Stand** is another word for a place, where one or more containers are located. Usually, municipalities use to have different types of containers (plastic, paper, general waste etc.) within few meters range. This place we call a Stand and consists of those key parameters:

- Stand code (name of the stand, usually some code according to certain rules)
- Address
- GPS Location (editable manually or via function "Get from address")

By clicking on the Stand code you can edit stand.

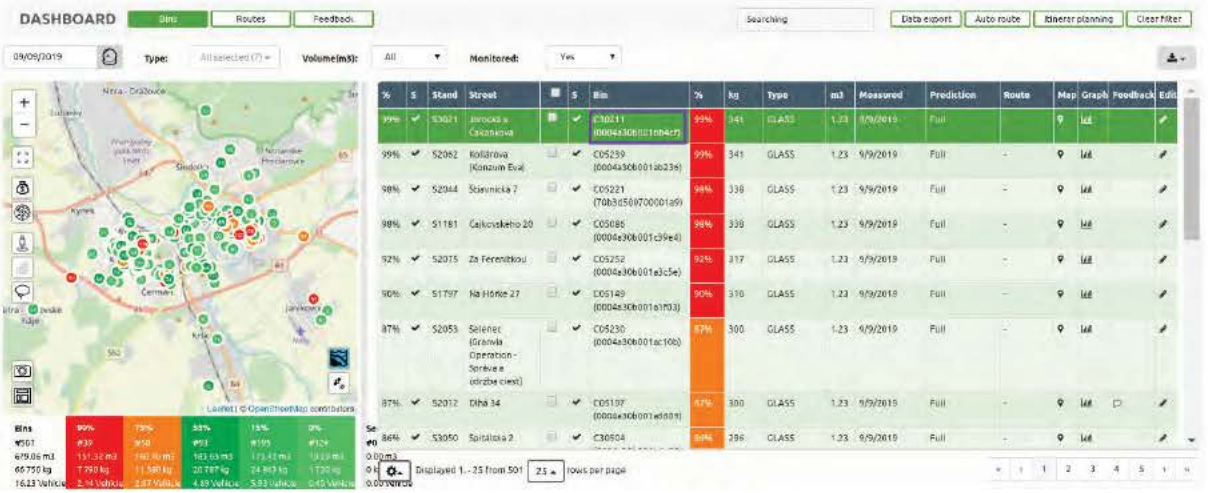




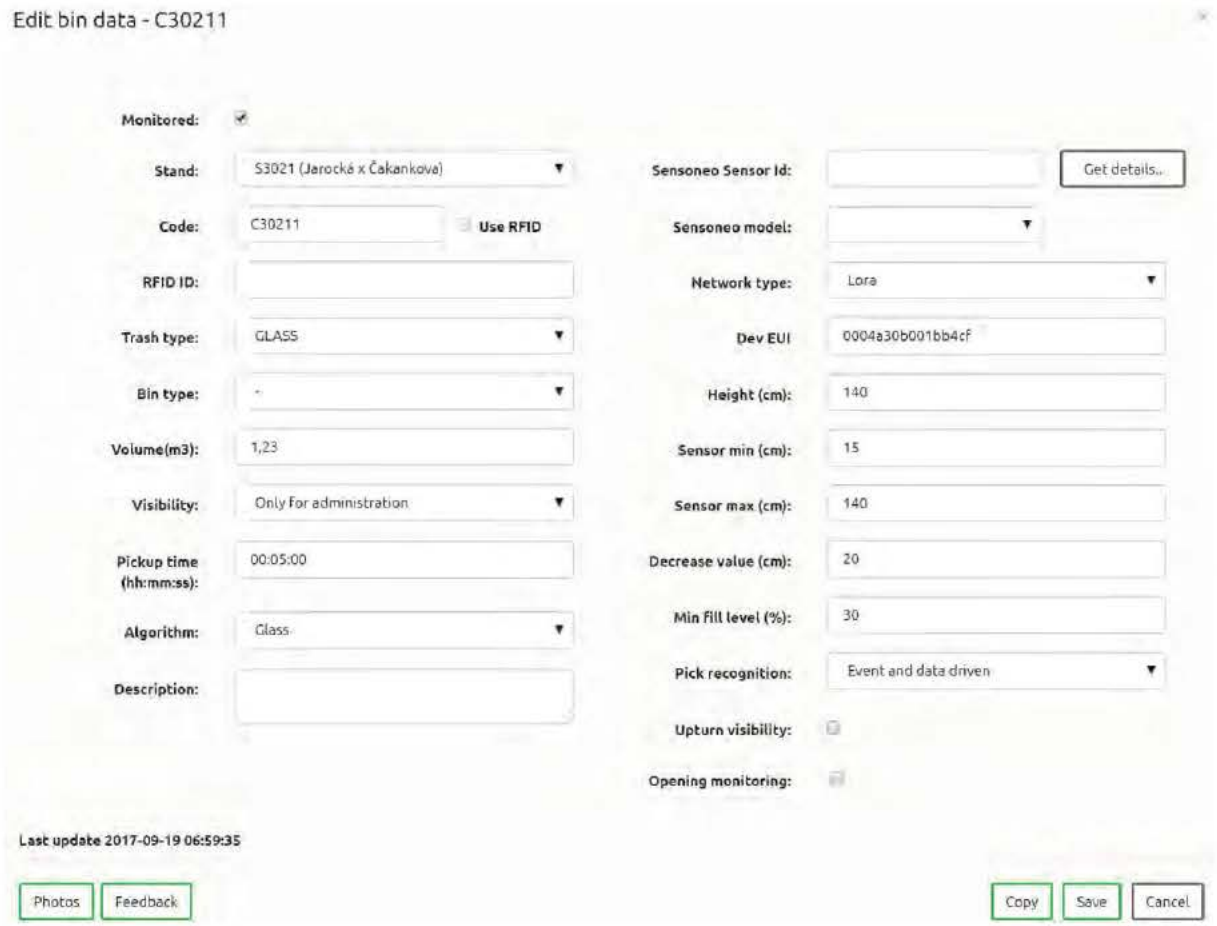
Containers

The container is a bin within a **Stand**. You can have one or more containers in one Stand (with the same Stand code, Address, GPS position). In a mobile application or in the Dashboard Map, the whole Stand is displayed by one map spot.

By clicking on the **Container code** you can **edit container data.** You have to set up correctly basic information about Bin and Sensor (network).



- **BIN/Container setup**: Code, Trash type, Volume, Visibility, Pickup time etc.



When creating **new container or editing existing** one, you can see a **checkbox "Monitored"**. If there is a sensor in the bin, make sure it is checked.

If the checkbox **"Monitored" is not checked**, you see 2 more fields to fill in: **Pricing and collection interval.**
It is relevant information for **offline bins** (as a part of Sensoneo Asset management):
Pricing = price per pick
Collection interval = No. of picks per year

<u>Another setup:</u>

- Height - is the height of the Container
- Sensor min - is the distance between the Sensor and the top of the waste when bin is full (recommended minimum 15 cm)
- Sensor max - is distance between the Sensor and the bottom of the bin (empty bin)
- Decrease value - speed of natural decrease of the waste thanks to the gravitation (in cm per day). Recommended 20 cm.

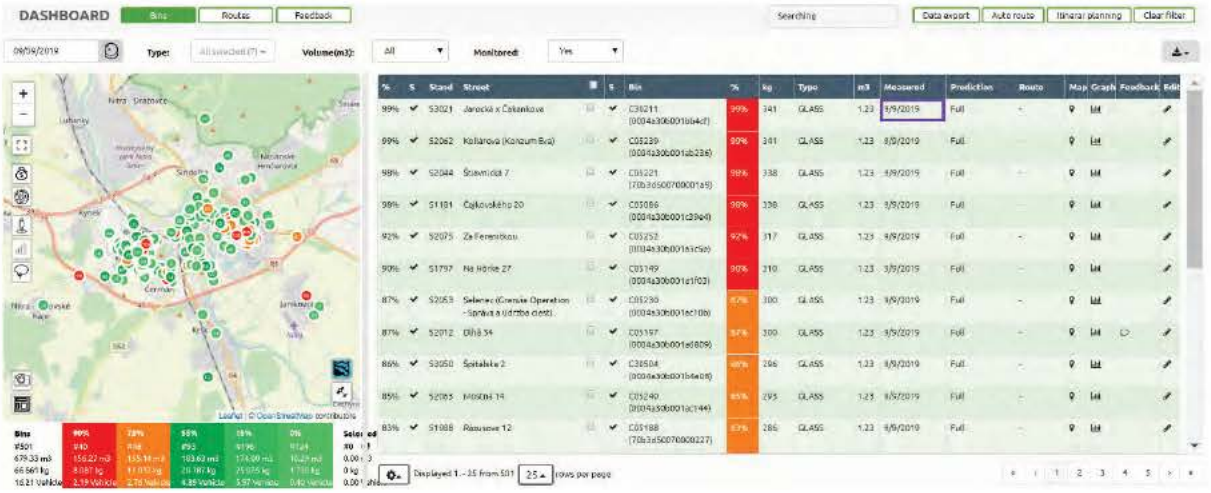
- Master/Phone No. - if the network is set to GSM, each Standalone or Master device has its own SIM card; enter the phone number here
- Dev EUI - if the network is set to LoRaWAN, Sigfox or NBIoT, each device has its own LoRa ID or Sigfox ID or GPRS/NBIoT/CATM1 ICCID.

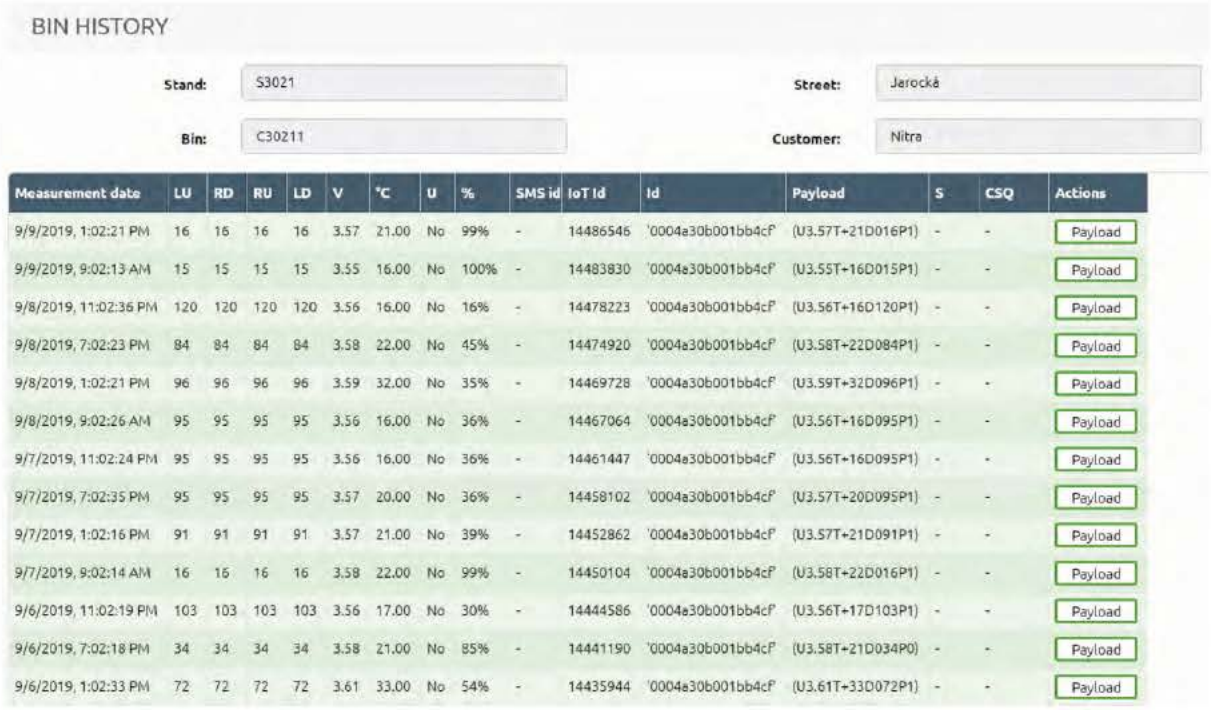
Measurement time change

Every sensor may measure in predefined measurement times. The limit of daily measurement times is described in datasheet of every type of Sensor. In the table of Containers you click on the action "Measurements".

The dialog will allow you to write down the **measurement times based on CET time zone.** For example 6 new measurement times should be written as 03:00, 06:00, 07:00, 10:00, 14:00, 17:00. After saving of the setting the configuration will be sent to sensor. Sensor will consume the configuration and will set the new measurement times in the next measurement for itself and if it is MESH type also for its Slaves. It means that it will take next one measurements until the new times will get scheduled.

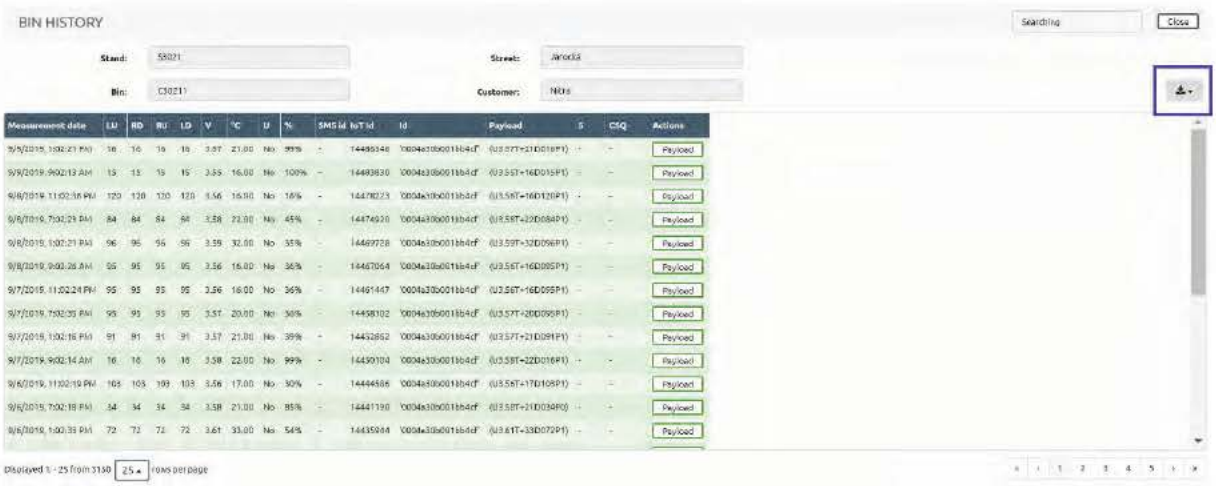
By clicking on the date in column **Measured** you are able to see the **Bin history**.





Measurement date	LU	RD	RU	LD	V	°C	U	%	SMS id	IoT Id	Id	Payload	S	CSQ	Actions
9/9/2019, 1:02:21 PM	16	16	16	16	3.57	21.00	No	99%	-	14486546	'0004a30b001bb4cf'	(U3.57T+21D016P1)	-	-	Payload
9/9/2019, 9:02:13 AM	15	15	15	15	3.55	16.00	No	100%	-	14483830	'0004a30b001bb4cf'	(U3.55T+16D015P1)	-	-	Payload
9/8/2019, 11:02:36 PM	120	120	120	120	3.56	16.00	No	16%	-	14478223	'0004a30b001bb4cf'	(U3.56T+16D120P1)	-	-	Payload
9/8/2019, 7:02:23 PM	84	84	84	84	3.58	22.00	No	45%	-	14474920	'0004a30b001bb4cf'	(U3.58T+22D084P1)	-	-	Payload
9/8/2019, 1:02:21 PM	96	96	96	96	3.59	32.00	No	35%	-	14469728	'0004a30b001bb4cf'	(U3.59T+32D096P1)	-	-	Payload
9/8/2019, 9:02:26 AM	95	95	95	95	3.56	16.00	No	36%	-	14467064	'0004a30b001bb4cf'	(U3.56T+16D095P1)	-	-	Payload
9/7/2019, 11:02:24 PM	95	95	95	95	3.56	16.00	No	36%	-	14461447	'0004a30b001bb4cf'	(U3.56T+16D095P1)	-	-	Payload
9/7/2019, 7:02:35 PM	95	95	95	95	3.57	20.00	No	36%	-	14458102	'0004a30b001bb4cf'	(U3.57T+20D095P1)	-	-	Payload
9/7/2019, 1:02:16 PM	91	91	91	91	3.57	21.00	No	39%	-	14452862	'0004a30b001bb4cf'	(U3.57T+21D091P1)	-	-	Payload
9/7/2019, 9:02:14 AM	16	16	16	16	3.58	22.00	No	99%	-	14450104	'0004a30b001bb4cf'	(U3.58T+22D016P1)	-	-	Payload
9/6/2019, 11:02:19 PM	103	103	103	103	3.56	17.00	No	30%	-	14444586	'0004a30b001bb4cf'	(U3.56T+17D103P1)	-	-	Payload
9/6/2019, 7:02:18 PM	34	34	34	34	3.58	21.00	No	85%	-	14441190	'0004a30b001bb4cf'	(U3.58T+21D034P0)	-	-	Payload
9/6/2019, 1:02:33 PM	72	72	72	72	3.61	33.00	No	54%	-	14435944	'0004a30b001bb4cf'	(U3.61T+33D072P1)	-	-	Payload

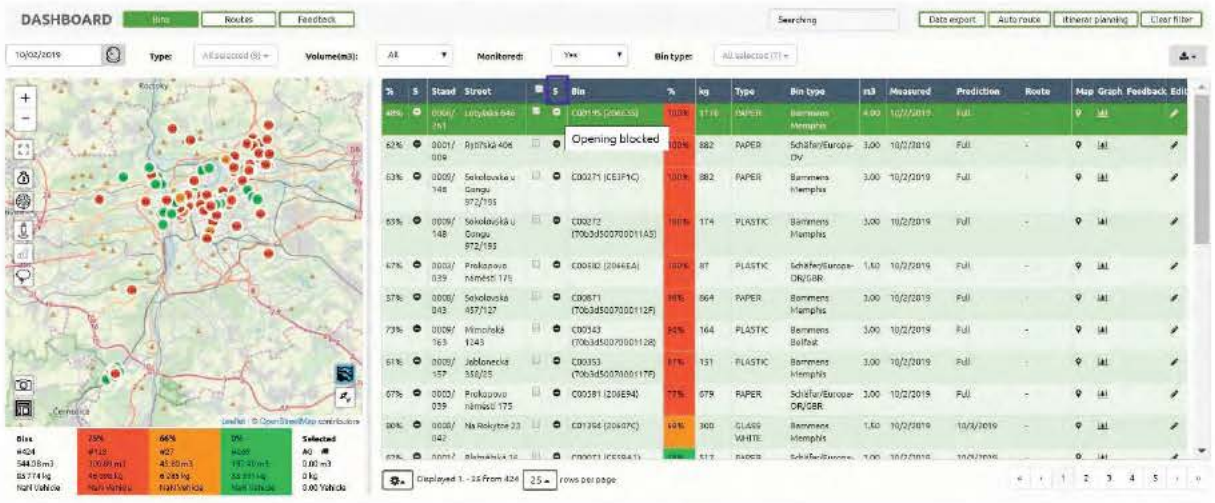
For **export data**, click on the icon in the top right corner.



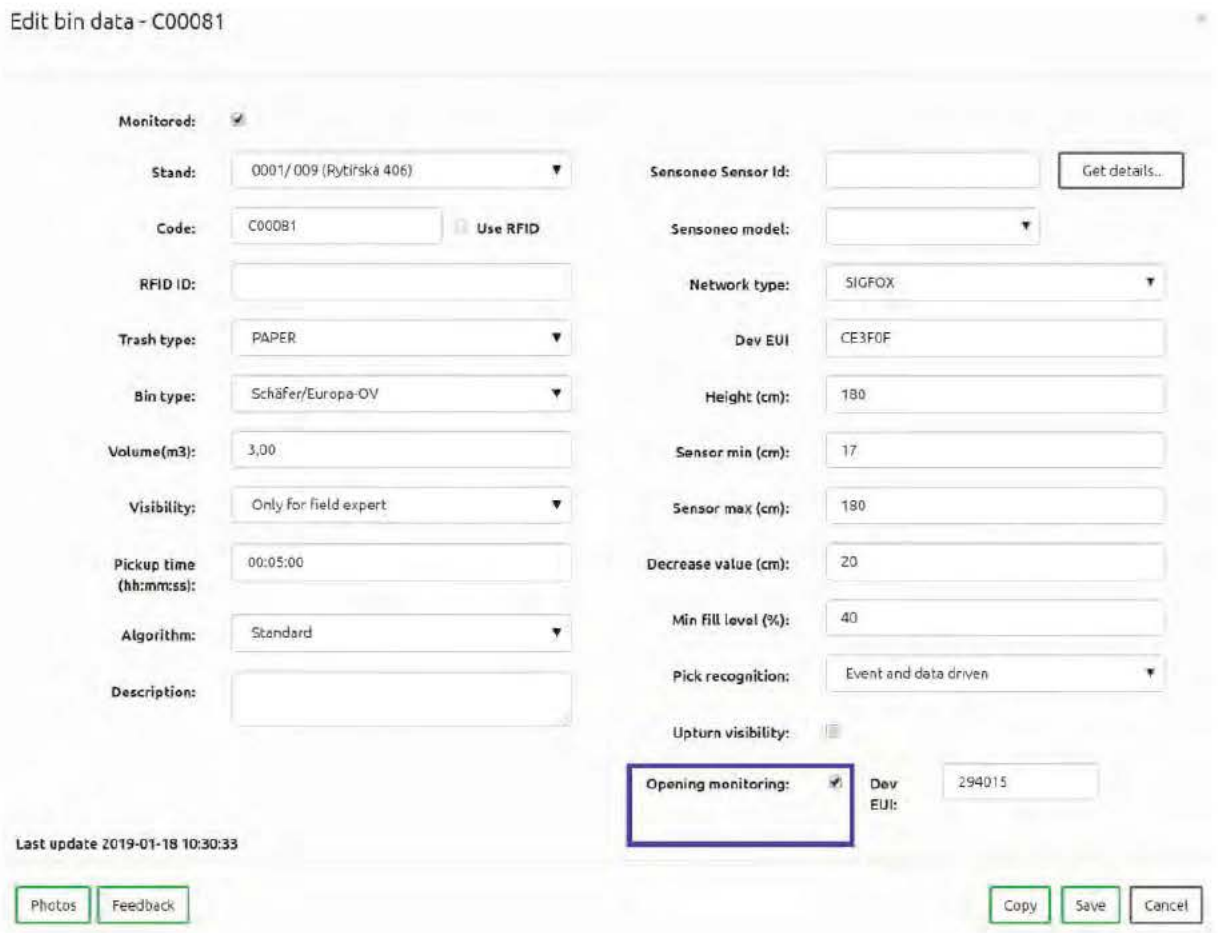
Detection of congestion of ball-of-insert chambers

If customer wants this functionality, besides Sensoneo sensors for monitoring the fill level of the waste, he needs another **sensor for detection of congestion of ball-of-insert chambers**.

To filter sensors with blocked opening, go to Dashboard, click on the Status („S") twice and you will see those sensors which have blocked opening detected.



To set this functionality up go to Dashboard > Edit bin data, mark the checkbox Opening monitoring and fill out Dev EUI of sensor for opening detection.



Predictions

Sensoneo Dashboard offers 2 types of predictions.

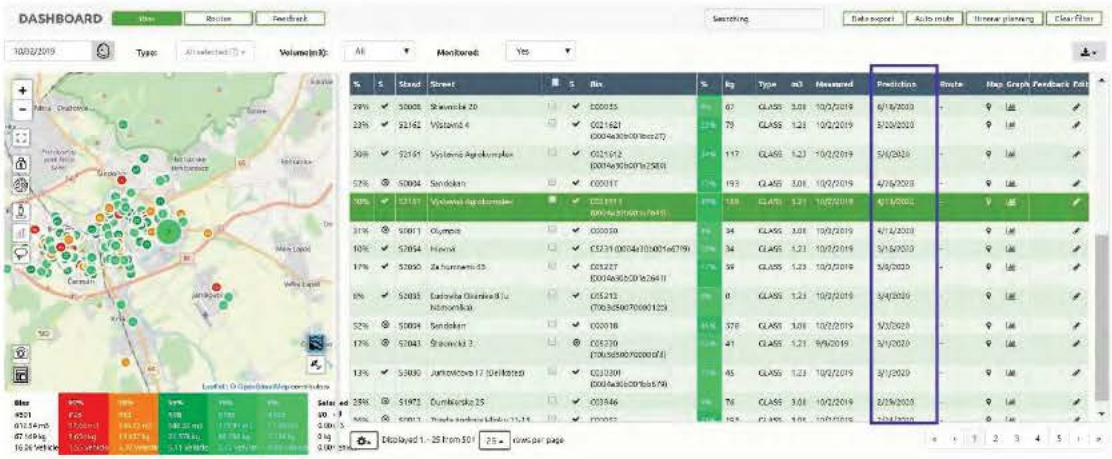
Predictions for monitored bins

This prediction is only for **monitored bins** equipped with sensors.

Percentages are calculated predictably since the last measurement, it means, if the last measurement came 4 hours ago, the last measurement value and the last 4 hours prediction is displayed.

E.g. last measurement is from 8 AM and it shows 60 % bin fullness. Based on customer data or historical measurement data we knows, the bin is filling 10 % per hour. Prediction is, the bin will be 100 % at 12 PM.

In Dashboard > Prediction you can see the estimated date, when the bin will be 100 % full.



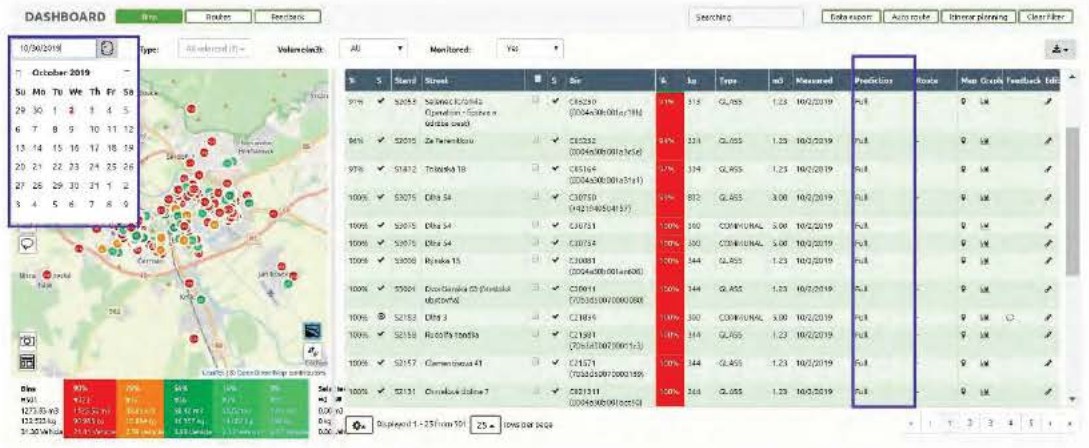
Look into the future – Crystal ball

See how full will your bins be tomorrow, next Monday or in a month.

Go to Dashboard and click calendar feature in the **top left corner**. Choose a date and see what changes on the map and in the table. Use this feature to plan your routes.

This prediction is only for **not monitored bins** = if the customer has only Bin management module of Smart Waste Management System.

If the bin is included in the route and route is approved, the prediction is calculated from 0 from the date of the planned collection route, not from the actual filling.



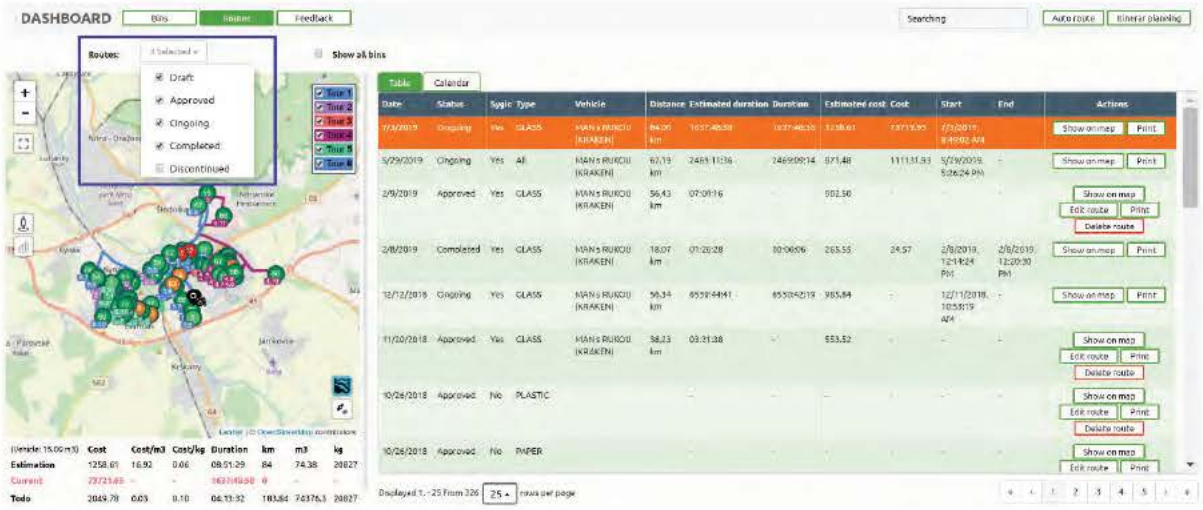
2 Dashboard - > Routes

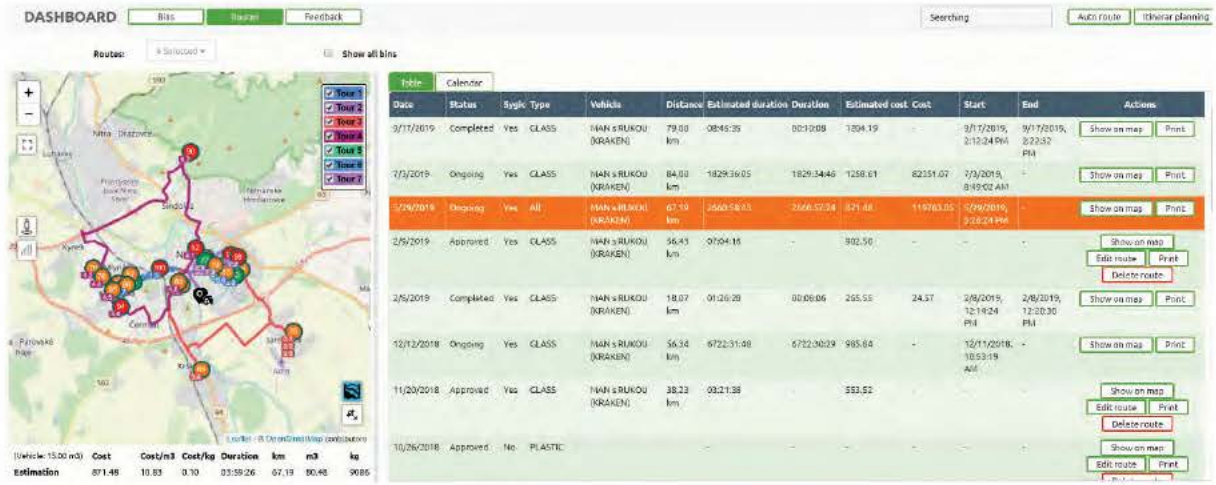
See your bins on the map, configure planned routes and more.

Route planning module consists of two parts. First is the fleet management where the user can manage his fleet, depots, and discharges. The second part is focused on planned and executed collection routes which can be triggered from the Dashboard toolbar.

If you have activated **Smart Route Planning** function (menu flag Job Dispatch in customer settings), you have broader options for route planning. More details are available in the Smart Route Planning – User manual.

Now you can see **all the routes: draft, approved, ongoing, completed and discontinued**. Filter what route you want to see.



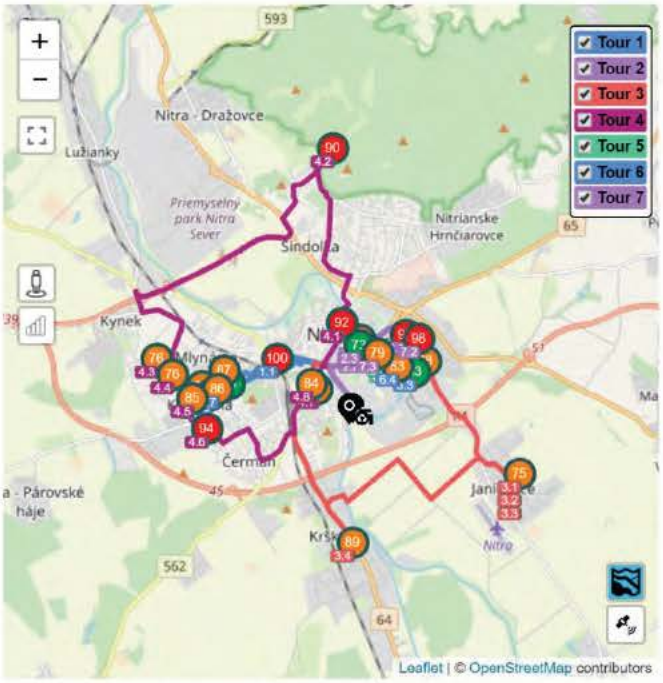


See all the bins on the map. **Choose a route from the list and see the route on the map**. All bins/stand to be picked are **highlighted.**

Adjust route by **adding or deleting bins from the route**. Click on the **bin you want to add**, it gets highlighted. Confirm edit by "Recalculate and save changes" button.

Click on the **bin you want to delete** from the route, it gets unhighlighted. Confirm edit by "Recalculate and save changes" button.

Bellow the map, you can see **Costs, Cost/m3, Cost/kg, Duration, Lenght km, Volume m3 and Weight kg.**



(Vehicle: 15.00 m3)	Cost	Cost/m3	Cost/kg	Duration	km	m3	kg
Estimation	871.48	10.83	0.10	03:59:26	67,19	80.48	9086
Current	119767.23	-	-	2661:03:06	0	-	-
Todo	5227.56	0.06	0.58	06:24:39	491.67	80477.62	9086

These are the **data for your route**. When you adjust route, they recalculate. For finished route, you see **Plan data and Real data.** For ongoing route, you see **Plan, Ongoing and To-go data.**

3 Dashboard – > Feedbacks

Report received from **Citizens** using **mobile application** Sensoneo (e.g. Bin damaged, Bin inaccessible, Bin site polluted etc.); Operator can manage those reports from local Citizens and change status of solution.


DASHBOARD
Bins
Routes
Feedback
Searching
Stand:
All stands
No photo available
Date
Stand
Address
Bin
Status
Feedback
Feedback Actions
Begin to process
Mark as solved

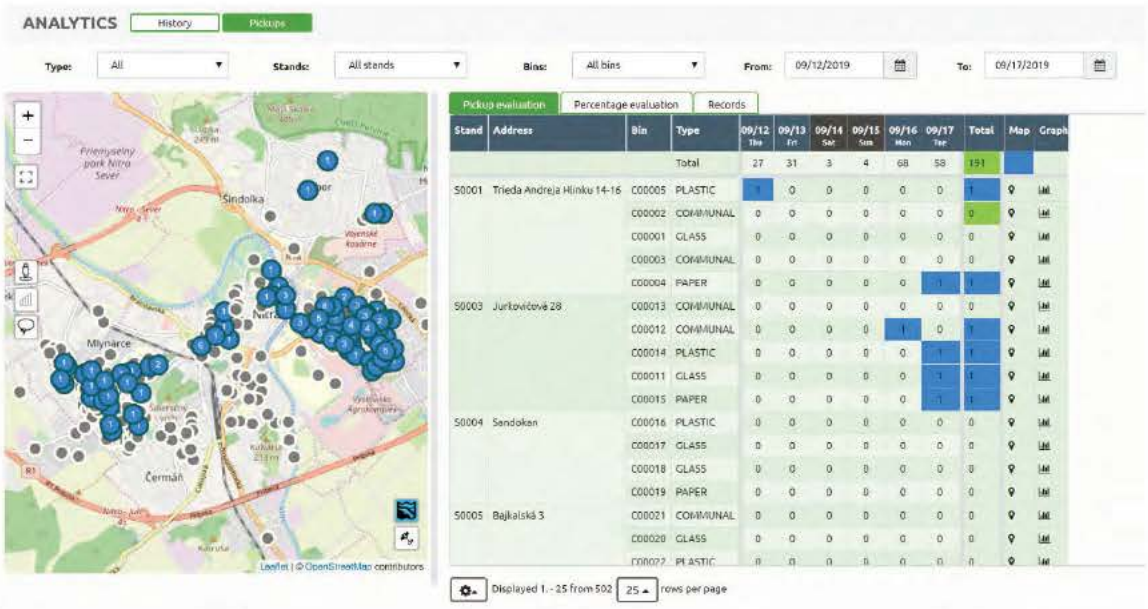
ANALYTICS

History

History tab provides the historical data presented in percentages from the containers and makes snapshot from each day at certain time configured in the "Time" field.

Pickups

Pickups analytics provides exact reports about the pickups during the timeframe selected by "From" and "To" dates. The number in "Pickup Evaluation" represents number of pickups on that day. "Percentage Evaluation" tab represents the actual fill level at the pickup event.

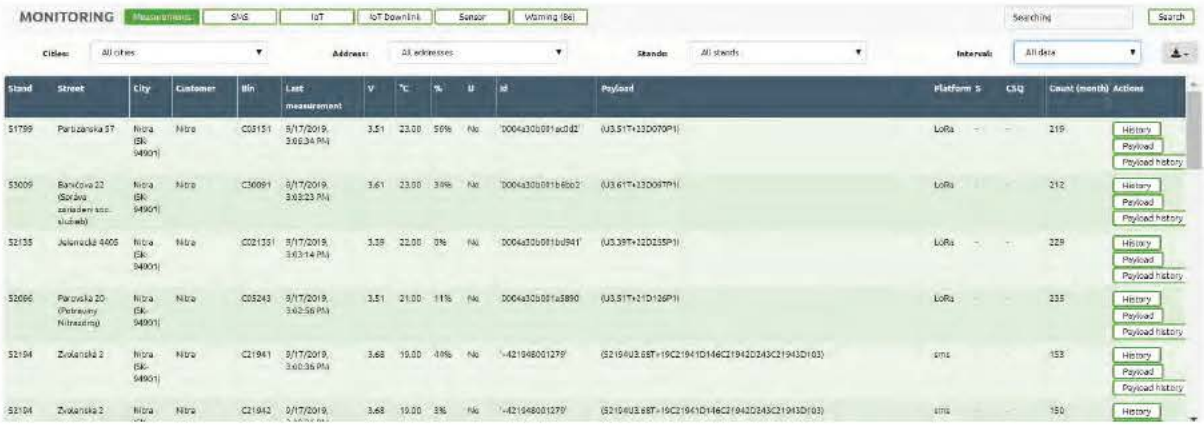


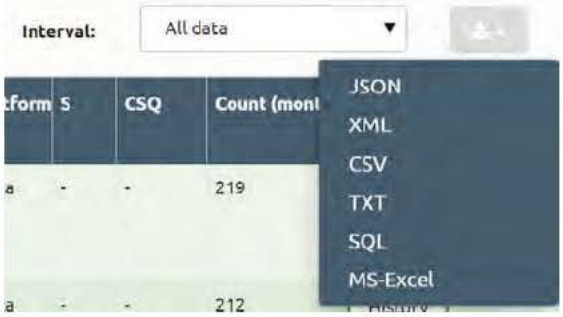
MONITORING (FOR PARTNERS ONLY)

The Monitoring module is a powerful module which allows Partner to make a **deep dive into measured data.**

1 Measurements

This window includes GSM measurements assigned to specific BINs.

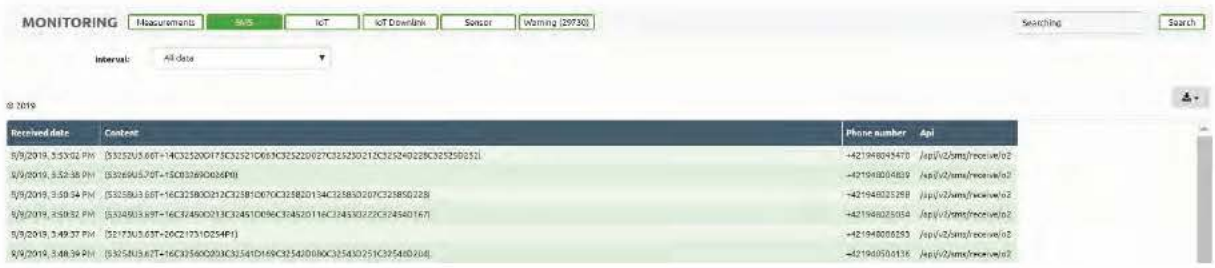




The user can export **Measurement** data in several formats.

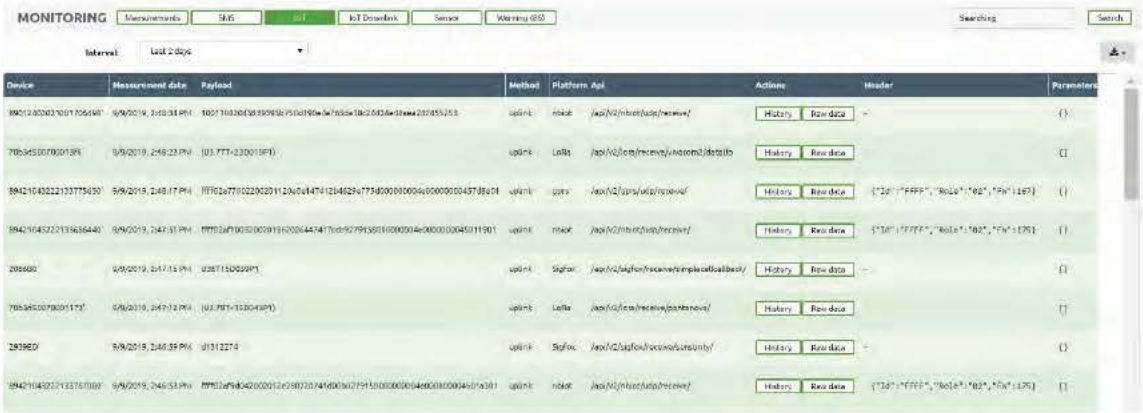
2 SMS

List the most recent **SMS received** in the Sensoneo systems is very useful to quickly **check the payloads from GSM/Mesh sensors**. In this section, SMS messages are visible independent if the Stand administration part is done or not. It is a very helpful tool for the first check of communication after the installation of a new sensor into the bin before you finalize the Stand administration part.



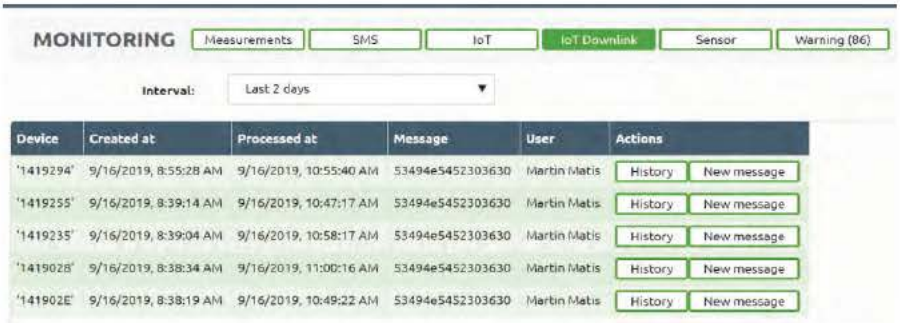
3 IoT

Adequately to SMS received section, this **IoT section is the list of all GPRS, LoRa, Sigfox, CATM1 and NBIoT payloads** received in the Sensoneo systems. Also, here IoT payloads are visible independent if the Stand administration part is done or not. It is a very helpful tool for the first check of communication after the installation of a new sensor into the bin before you finalize the Stand administration part.



4 IoT Downlink

This section allows you to view all **Downlink messages** sent to specific sensors.



5 Sensor

Sensor's **birth certificate** created during initial testing. It shows **all important settings of the sensor** (Firmware version, Network type, LoRa/Sigfox ID, Sim number, Gateway number, AppKey, NetKey etc.)

SIM number – the ICCID number of the SIM card installed in the sensor. This number is used as **DEV EUI** for the GPRS and NBIOT communication

AppKey – the LORA APP key for specific sensor if the LORA module is assembled

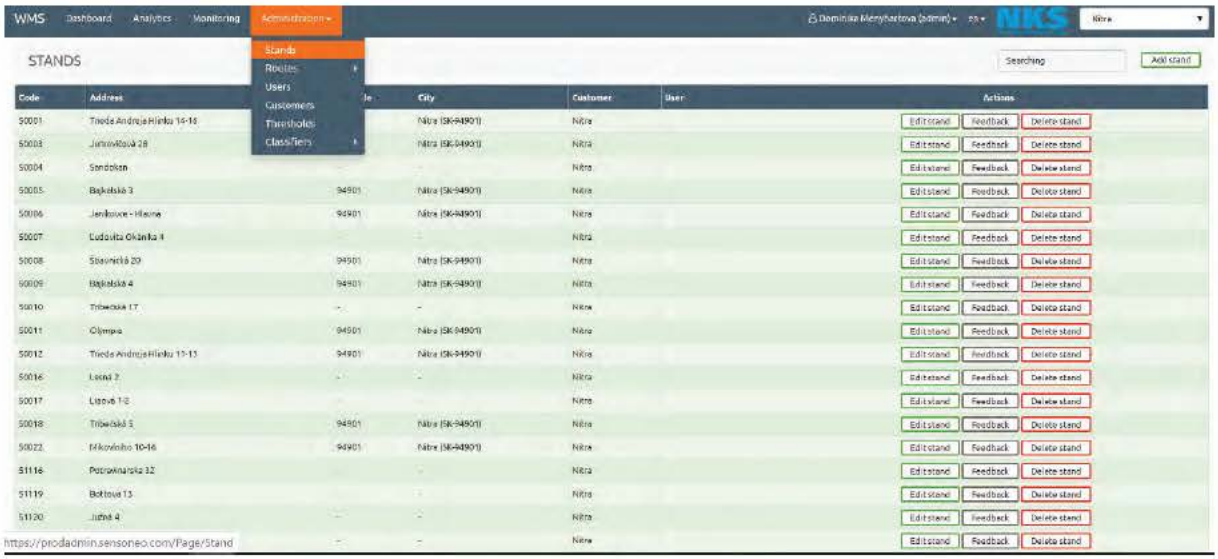
NetKey – the LORA NETWORK key for specific sensor if the LORA module is assembled

6 Warning

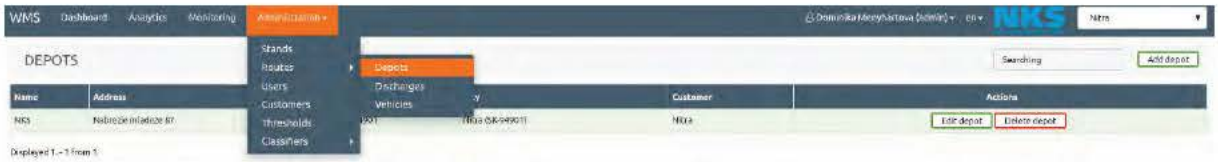
List of all **warnings** received from sensors. E.g. low battery.

ADMINISTRATION (FOR PARTNERS ONLY)

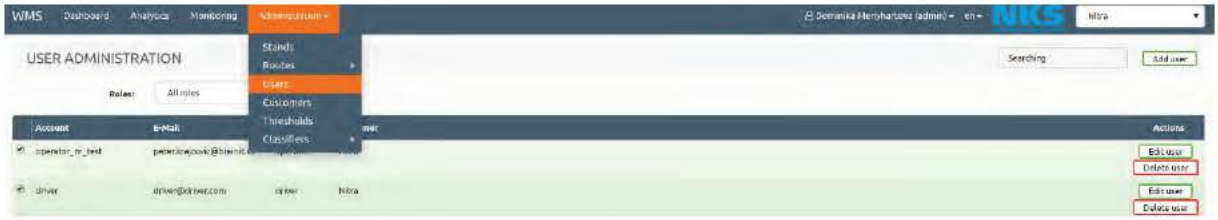
In the Administration, section **Stands**, partners can add, edit stands and see reports from Citizen App.



In the Administration, section **Routes,** partners can add, edit depots, discharges and vehicles.



In the Administration, section **Users**, partners can add and edit users assgined to specific customer.



User – User is a person or an account. You can have 6 profiles of users (Partners can have limited list of options):

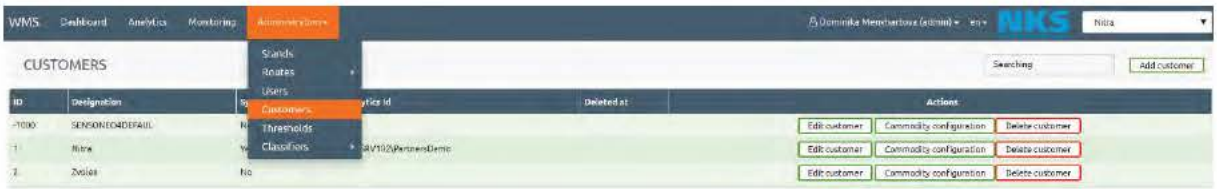
- **Administrator** – manages Partners, has the access to SMS/IoT payloads received to support the physical installation and troubleshooting

- **Operator** – manages containers of the Customer (Stand administration), is planning waste collection routes and monitoring the actual status of bins and its development in the Dashboard
- **Driver** – executes planned Drives, can be navigated from Stand to Stand with Sensoneo mobile application, can report a problem during executing the waste collection route
- **Partner** – manages his portfolio of Customers, has the access to SMS/IoT payloads received to support the physical installation and troubleshooting
- **Manufacturer** – manages Sensors in a pre-registered phase (before listed to a Stand of a Customer)
- **Field Expert** – has the access to SMS/IoT payloads received to realize the physical installation and troubleshooting

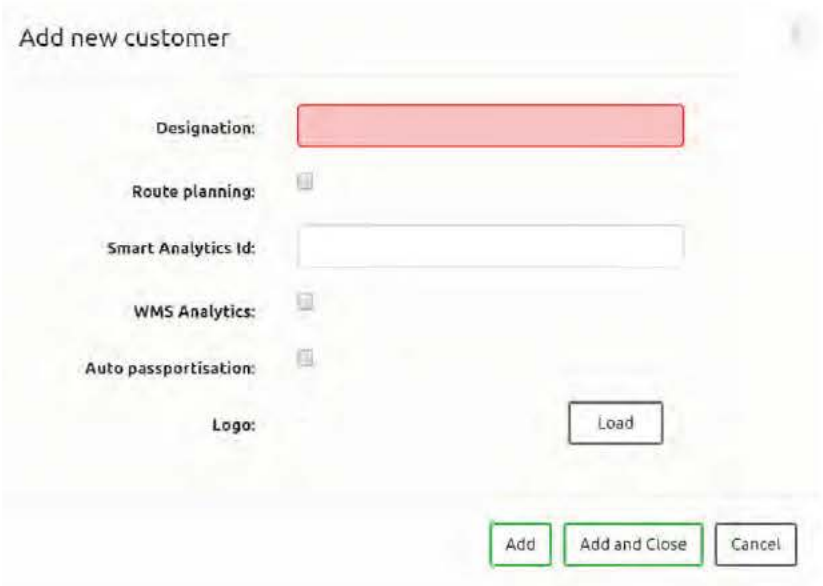
Daily report via email

Do you want to receive a daily pick or bin fill level report via email? Edit the preferences in Dashboard> Administration> Users> Edit user.

In the Administration, section **Customers**, partners can add and edit customers.

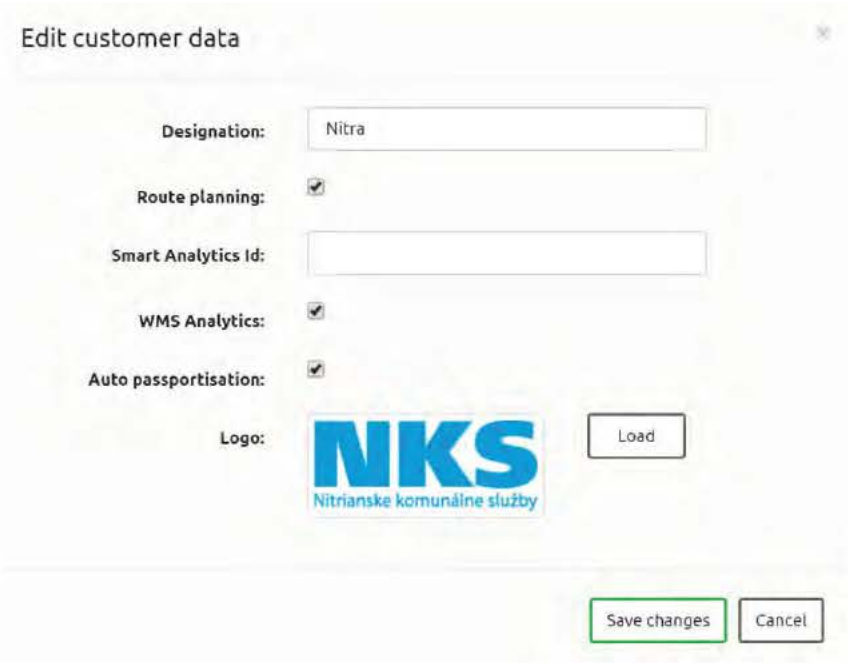


Enter the Customer name and if the Customer has a license to Smart Route Planning, mark a "**Sygic job dispatch**".

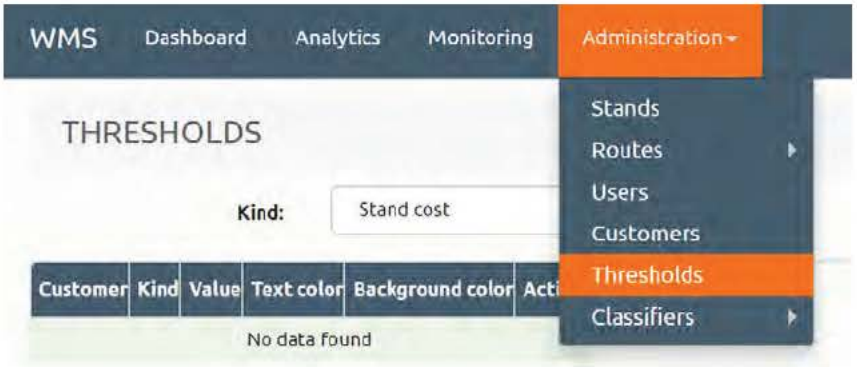


Smart Analytics integration

Connect your WMS account to Smart Analytics account. All new bins or stands you add to WMS will automatically be added to Smart Analytics account. **Dashboard> Administration> Customer> Edit user**



In the Administration, section **Thresholds** allows partners to choose their own colors and set their own thresholds.



Sensoneo enables a world that is green, clean and free of litter

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Bratislava, Slovakia

((SENSONEO))

RFID tags

Datasheet 2020

Asset management - RFID tags

Sensoneo Asset Management solution enables you to **digitize your waste infrastructure.** It combines **RFID tags, Smart Waste Management System and Citizen App.** By tagging all bins and containers you identify and record all assets in a digital inventory in the Smart Waste Management System (Asset Management module). The solution **simplifies bin tracking, communication and invoicing, and restrains unauthorized use of bins**. A clear and accurate overview of all bin assets is the key and the very first step leading towards smart waste management.

Sensoneo offers 3 types of bin tags - **Smart Bin Tag, Smart Bin Sticker and Transponder (Plug).** All tags have **RFID features** that ensure automatic **service verification and contactless bin recognition** providing access to bin details in the database using RFID reader.

Smart Bin Tag and Smart Bin Sticker provide also a visual identification by a **numerical code, bar code or QR code.** If you do not wish to use RFID reader or you do not have one (citizens) you can **access bin details via Citizen App** by scanning the code on the tag / sticker with a phone camera. For signed users, Citizen App offers features for asset mapping, manual service verification and requests for collection or maintenance. We also offer basic stickers without RFID and with QR / bar / numerical code for bins and trash bags.

Your waste infrastructure is digitalized in **Asset Management**, one of modules in the Smart Waste Management System, Sensoneo powerful cloud-based platform on MS Azure. Asset Management offers **bin inventory, a digital interactive map, tools for qualitative analysis of your waste infrastructure (bin distribution, capacity), maintenance records, collection records and an overview of citizen feedback.**

	RFID	Visual identification	Mounting
Smart Bin Tag	Yes	Numerical / Bar / QR code	3M Adhesive tape or riveting
Smart Bin Sticker	Yes	Numerical / Bar / QR code	Adhesive tape
Transponder (Plug)	Yes	/	Glued
Bin Sticker	/	Numerical / Bar / QR code	Adhesive tape
Trash Bag Sticker	/	Numerical / Bar / QR code	Adhesive tape

- **Smart bin tag**

The label is made of tough and durable plastic to withstand harsh conditions for several years. The chip can be attached to the container by sticking (the sticking mechanism is equipped with a label automatically) or by riveting, which ensures longer durability.

The barcode (or QR code) of the waste container is visibly located on the front of the chip. These codes will enable you to retrieve information from the database – container identification number, owner information, address where the container should be located, and a collection schedule – from any smart phone or tablet with an internet connection.

Simply scan the code into the Sensoneo application and you immediately get the available information. It is up to you to decide which information about the container is available to the public and which is restricted to "signed users only". The built-in RFID functionality allows automatic service verification on pick-up.

RFID FREQUENCY	**UHF 868 MHz**
RFID EPC CODE	**96 bit**
MODE	**READ (WRITE on demand)**
BAR CODE TYPE	**CODE 128**
SIZE	**100*25 mm*1.5 mm +hole 4 mm**
MATERIAL	**PVC plus lamination**
LOGO	**Customizable (+20 cents)**
ADHESIVE MOUNTING	**YES, 3 M**
RIVET MOUNTING	**YES**

Asset management - RFID tags

- **Transponder (plug)**

MATERIAL: **Nylon + Epoxy filling**
RFID FREQUENCY: **UHF 868MHz**
RFID EPC CODE: **96bit**
SIZE**: Dia 30 mm*15 mm, hole Dia: 5.5 mm**
MODE: **Read (WRITE on demand)**

- **Smart bin sticker**

MATERIAL: **white PET**
CHIP: **MONZA R6**
SIZE: **55 x 25 mm**
QR CODE: **unique QR code (by specified QR code range) printing**

Sensoneo enables a world that is green, clean and free of litter

Sensoneo
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HQ - SLOVAKIA
Stare Grunty 12
Bratislava, Slovakia

Datasheet: Handheld UHF RFID Reader

Description

Wireless Android 8.1 OS Handheld mobile UHF RFID reader with 4G/GPS/WiFi/Bluetooth & laser Barcode reading support.

Product feature

High-speed operation performance: With android 7.0 operating system, matching 64 bit quad core 1.3 GHz high speed processor with prefect compatibility and computing capability, high-speed operating efficiency is

suitable for strict application requirement.

Excellent identification ability: Fully support 1D and 2D barcode scanning, NFC (optional).

Convenient appearance design: Slim and ergonomics design, it is convenient and comfortable for holding and carrying. Work even with water or Gloves. Abundant means of data transportation (option) 2G, 3G, 4G, Wifi, Bluetooth, etc.

Industrial grade durability: IP66 industrial grade, solid and light body can bear the height of 1.2 m dropping and 1000 times tumbled within the scope of 0.5 m. Waterproof, dustproof provide long time using without fatiguet.

HD Camera: Postposition 8 mega pixel autofocus camera, is convenient for client to collect all kind of images and video.

Multiple extensions: Support GPS, AGPS and Beidou compass navigation.

Always-available wireless connection: Supports 802.11 a/b/g/n full-band wireless communications and maintains real-time connection with the system to ensure high efficient operation.


receiver
barcode scanner
RFID reader
camera
straps
Scanning button
Delete button
Home button
Custom button
Enter button
Return button
F1
F2
Power button
Menu button
Scanning button
Usb hole
Volume +
Volume -
Scanning button

STRUCTURAL PARAMETER

Dimensions	172mm(L) X 80mm(W) X 27mm(D)
Weight	<500g
Display Screen	12.7 cm IPS 720 * 1280 px with Multi-point touch capactive screen
Expand Port	SIM card, micro SD (TF) Card
Communication Interface	USB 2.0 Device
Input Mode	Standard Stylus, Handwriting, touching input or keyboard input
Battery Capacity	Rechargeable Li-polymer Battery 3.7 V 4800 mAh
Frequency	8ohm 1W speaker
Key	13 pcs soft silicon key

PERFORMANCE PARAMETER

OS	Android 8.1
CPU	ARM CORTEX-A53 64 bit Quad-Core 2.0 Ghz
RAM	2G RAM or supports 3GB or 4GB depending on quantity custermize
Flash ROM	Standard 16G NAND Flash Storage micro SD/TF port (Max up to 32G)

DATA COMMUNICATION

WI-FI	Support IEEE802.11 a/b/G/n protocol, it need effective wireless LAN signal cover
FDD/TDD-LTE 4G	TDD-LTE (B38,B39,B40,B41),FDD-LTE (B1,B3)
WCDMA 3G	B1,B2,B5,B8
GSM 2G	GSM/edge/GPRS (850,900,1800,1900MHz)
bt	Support bt 2.0+EDR/3.0+HS/4.1+HS, transmission distance is 5-10m

STANDARD MODULES

Camera	8MP autofocus camera with flash
GPS	Support A-GPS

OPERATING ENVIRONMENT

Operating	-20°C to 50°C
Storage Temperature	-25°C to 70°C
Environment Humidity	5%RH-95%RH(no condensation)

Drop Specifications	6 sides can bear impact from 1.5m drop to cement floor in the rangeof operating temperature
Roll Specifications	1000 times/0.5m, roll on 6 sides contact area
Sealed Environment	IP65

1D Laser Scanner (OPTIONAL)

1D Laser Scanner	Symbol 955, HoneywellN4313, Mingde966
Resolution	4Mil minimum width
Ambient Light	10000ft.candles (107640 lux)
Scanning Speed	104(±)12/sec (both way)
Scanning Angle	47o±35o (Standard) / 35o±3o (narrow angle)
Support Bar Code Type	UPC/EAN, Code128, Code39, Code93, Code11, Interleaved 2 of 5, Discrete 2 of 5, Chinese 2 of 5, Codabar, MSI, RSS

2D CMOS (OPTIONAL)

CMOS Scanner	Honeywell N6603, NewLand 3096
The Sensor Resolution	752 (level) ×480 (vertical) pels (gray level)
Ambient Light	All dark 9000ft.candles/96900 lux
focus element (VLD)	655nm ± 10nm
Support bar code type	PDF417,MicroPDF417,Composite, RSS,TLC-39, Datamatrix, QR code, micro QR code, Aztec, MaxiCode; Postal Codes: US PostNet,US Planet, UK Postal, Australian Postal, JapanPostal Dutch Postal (KIX)3

LF RFID Reader (Optional)

Frequency	125kHz, 134kHz (FDX-B / HDX)
Protocol	ISO11784/5, ISO18000-2
Range	3-8cm

HF RFID Reader (Optional)

Frequency	13.56MHz
Protocol	ISO14443A/B, ISO15693
Range	3-8cm

NFC Reader (Optional)

Frequency	13.56MHz
Protocol	ISO/IEC 18092 (ECMA 340)
Range	2-4cm

UHF RFID Reader (Optional)

Frequency (China)	865 – 868MHz / 920 – 925MHz
Frequency (America)	902 – 928MHz
Frequency (Europe)	865 – 868MHz (ETSI EN 302 208)
Frequency (Others)	Other countries for customisation
Protocol	EPC C1 GEN2 / ISO18000-6C
Antenna	Linear polarisation (1.8dBi) / Circular polarisation (2.5dBi)
Power	1W (typical 24dBm, +10dBm to +30dBm)
Range	>1.5m

Biometric Fingerprint (Optional)

Sensor	exiting fingerprint sensoreTCS2SS
Sensor type	Capacitive Sensor
Function	Enrollment, compare, deletion etc.
Resolution	508DPI
Memory	1,000 PCS fingerprints

https://sensoneo.com/knowledge/wp-content/uploads/2020/02/Handheld-UHF-RFID-Reader-Datasheet.pdf

Category

1. Datasheets

Date Created
February 2020

((SENSONEO))

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info@sensoneo.com

Declaration of Conformity
Radio Equipment Directive (RED)

Sensoneo j.s.a.

Residence: Kollárova 27
841 06 Bratislava

Declare under sole responsibility, that the product

Brand	Sensoneo
Product	Watchdog
Model	Watchdog (applies both for accessory version Double – two UHF antennas or Quatro – 4 UHF antennas, core device hardware is same)

Complies the requirements of the following documents: Radio Equipment Directive 2014/53/EU

The following standards were applied:

EN 62368-1:2014 **EN 62311:2008** **IEC 60950-1:2005 (2nd Edition) + A1:2009 + A2:2013** **IEC 62368-1:2014 (2nd Edition)** **EN 62479:2010**	**Safety & Health** (Article 3.1a)
EN 301 489-1 V2.2.0 **EN 301 489-52 V1.1.0** **EN 301 489-17 V3.1.1** **EN 301 489-19**	**EMC** (Article 3.1b)
EN 301 908-1 V13.1.1 **EN 301 908-13 V13.1.1** **EN 301 511 V12.5.1** **EN 300 328 V2.2.2** **EN 300 330 V2.1.1** **EN 303 413 V1.2.1 (2021-4)**	**Radio Spectrum Efficiency** (Article 3.2)

EN are valid harmonized standards.

In Bratislava 2021/07/01

[redacted]

Peter Knaz
director
Sensoneo j.s.a.

Příloha č. 3 – ROZPIS NABÍDKOVÉ CENY - ČÁST 1. VZ - RFID UHF

Název	počet ks	Cena za dodávku a instalaci 1 ks v kč bez DPH	Cena za 1 měsíc pronájmu a poskytování služby provozu a údržby 1 ks v kč bez DPH. **	Cena za deinstalaci a odvoz 1 ks v kč bez DPH
Prvky systému na svozovém vozidle*	2	70 000,00 CZK	1 000,00 CZK	1 000,00 CZK
RFID čip	500	70,00 CZK	5,00 CZK	100,00 CZK
QR kód	500	60,00 CZK	5,00 CZK	100,00 CZK
Ruční čtečka	1	1 000,00 CZK	10,00 CZK	1,00 CZK
SW zobrazující data o detekci svozů	1	X	5 000,00 CZK	X

Celková nabídková cena***	452 121,00 CZK

* v ceně za dodávku a instalaci budou zahrnuty rovněž náklady na zprovoznění datové komunikace pro účely zajištění přenosu dat do SW a dále zprovoznění API pro napojení do Datové platformy hl. m. Prahy (Golemio)

** v ceně pronájmu budou zahrnuty náklady na pronájem, provoz a údržbu. U SW zobrazujícího data o detekci svozů doplní dodavatel náklady na provoz a podporu za 1 měsíc

*** celková cena plnění zahrnuje veškeré náklady na dodávku a instalaci, pronájem, provoz a údržbu po dobu 12 měsíců, provoz a podporu SW zobrazujícího data o detekci svozů po dobu 12 měsíců a veškeré náklady na deinstalaci a odvoz