

Perfect IoT solutions for business use cases



ginstr beacon network

proximity and metering solutions for businesses

■ The ginstr beacon network [p.2](#)

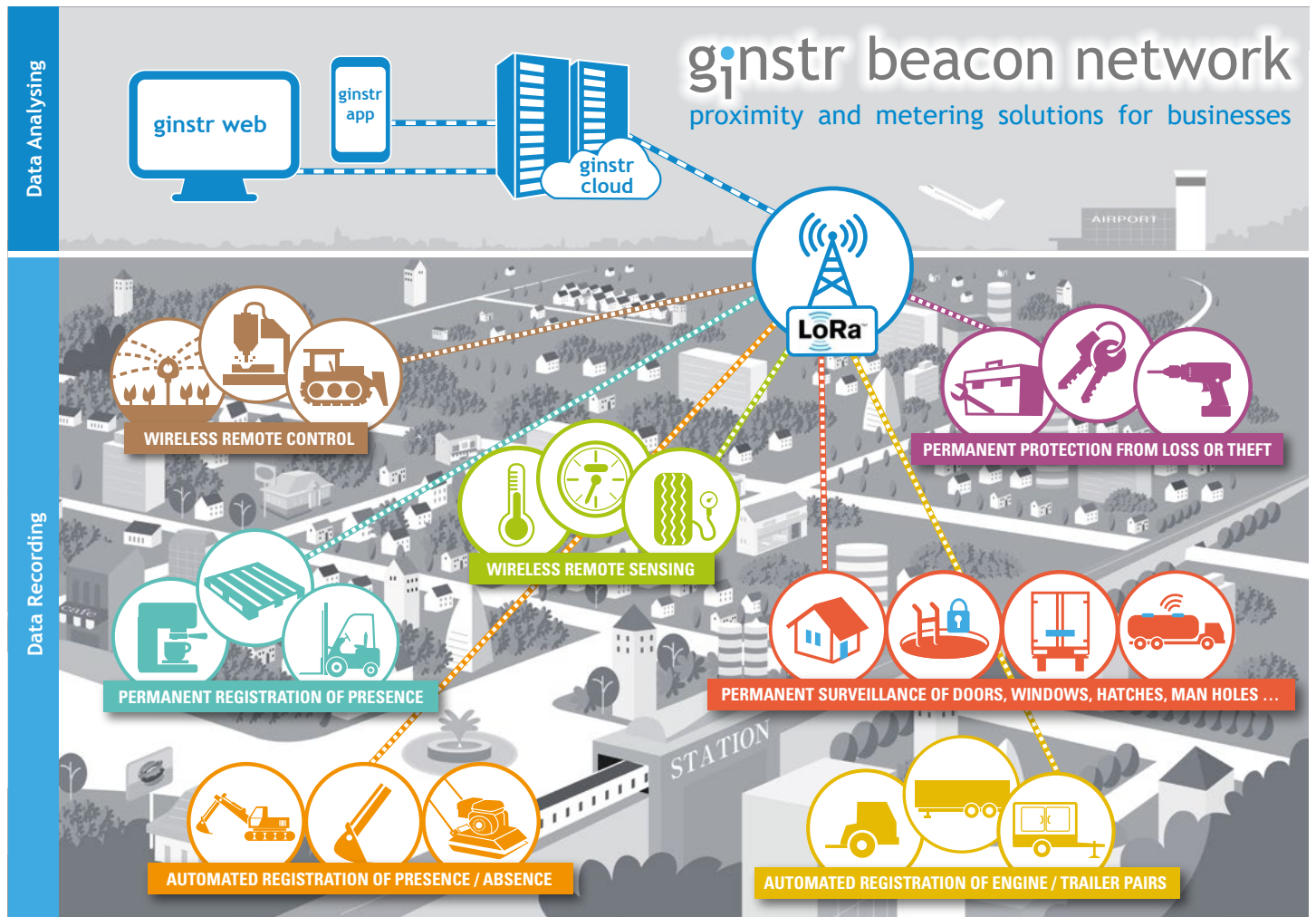
■ IoT use cases [p.6](#)

- Registration of presence / absence
- Protection from loss or theft
- Wireless remote sensing
- Wireless remote control
- More use cases

■ Devices and software [p.10](#)

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The ginstr beacon network allows you to connect all types of equipment to the internet easily and cheaply. They then become part of the Internet of Things (IoT). Once connected to the internet, they can be monitored, controlled and regulated from any internet-enabled device.

Many of our devices work for years on a single small battery.

So things that are not connected to the power supply themselves can be connected to the internet, for example, important keys, drills, tool boxes, sensors, door and window contacts, containers, animals, trailers, irrigation systems and much more.

This presents companies from all sectors with endless new possibilities for products, services, process optimisation, savings and more - the only limit is your own imagination!

In this brochure, you will find all the important facts about this new technology and the possible ways it can be put to use.

We hope you enjoy reading it!

In-house and outdoor tracking of assets - IoT at its best for professional users

The internet of things (IoT) offers its users new options for carrying out their day-to-day work more efficiently and comfortably.

It completely changes the user experience because in many cases IoT technology supports the user effortlessly by allowing connected devices to exchange data without human-to-human or human-to-computer interaction.

IoT technology extends the known internet by adding more and more intelligent features, which allows new processes to be created, existing processes to be improved, and even new business models to be developed.

This more direct integration between the physical world and computer-based systems results in improved efficiency, accuracy and economic benefit.

IoT LoRa enabled tags and gateways

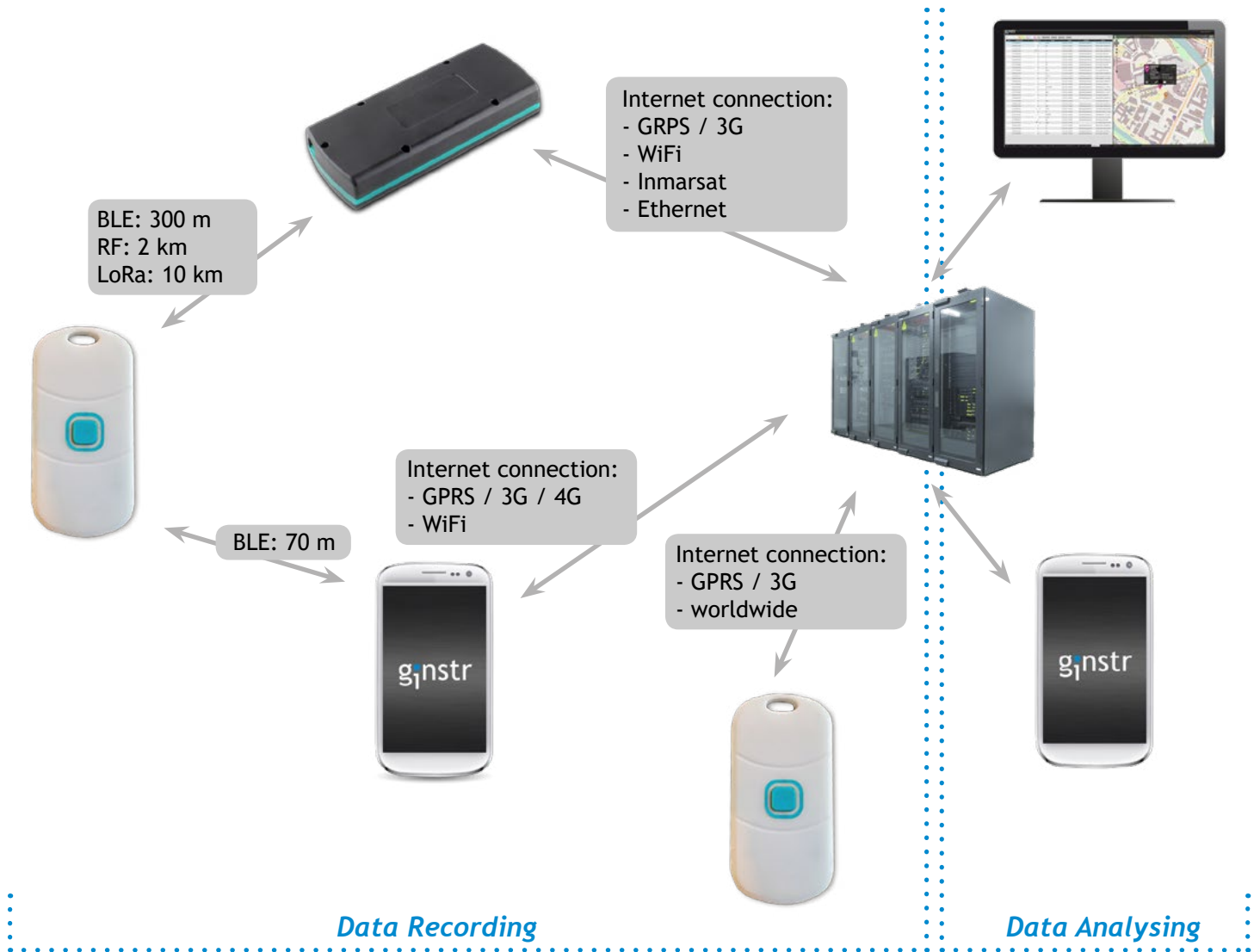
LoRa is a new radio technology available since spring of 2015, allowing wireless products to be created for:

- proximity related solutions
- wireless surveillance devices
- wireless metering devices
- wireless remote control devices

LoRa allows data to be transmitted up to 10 km at line-of-sight, which means that in many applications neither a SIM card nor a GSM modem is required. This has reduced the cost of ownership for these devices significantly.

On top of that, LoRa consumes 10 x - 100 x less power than GSM, which means that the devices can be operated for several years with one standard AAA battery.

Typical ginstr beacon network - set up



What is the ginstr beacon network?

ginstr is one of the first companies worldwide providing a complete set of LoRa / BLE based components including:

- **ginstr tags with LoRa / BLE / iBeacon / GSM and other radio technologies**
can be used for metering, identification, proximity based use cases, remote control and much more
- **ginstr gateways**
used for uploading the ginstr tag data to the web, into the ginstr cloud
- **ginstr cloud**
highly secure web servers based in two different data centres in Germany
- **ginstr web**
sophisticated and easy-to-use web based software for further processing of such data
- **ginstr apps**
smartphone apps allowing the data provided by the ginstr tags to be used for any use cases, as well as allowing communication in both directions with the ginstr tags and the ginstr gateways

This combination of ginstr components is called the [ginstr beacon network](#).

ginstr beacon network benefits

The ginstr beacon network is the perfect solution for in-house and outdoor nearby object tracking and asset protection.

This technology is significantly cheaper than typical GPS / GPRS tracking devices in regard to the purchase price of the hardware and the total costs of ownership:

- Small batteries in the ginstr tags last several years without needing to be replaced
- No SIM cards are required to track assets

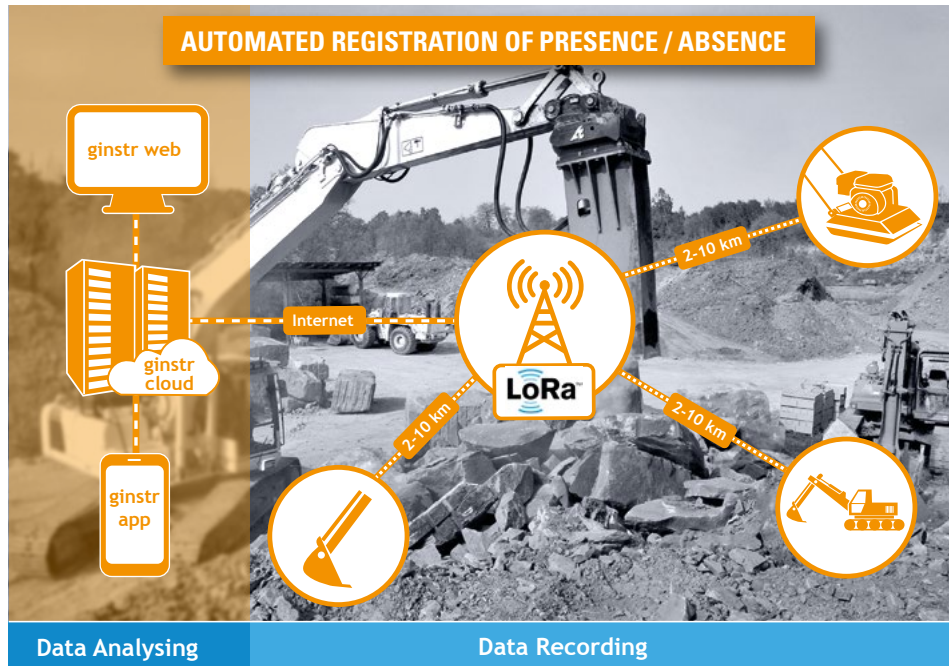
- One single ginstr gateway can cover up to 300 km² in suburban areas and up to 12 km² in dense urban areas (4 km - 20 km diameter)
- Each ginstr gateway can handle several hundred ginstr tags at the same time.

On top of that, all ginstr beacon network components can be used in-house whereas GPS based tracking devices normally do not work in-house (due to unavailability of a GPS signal).

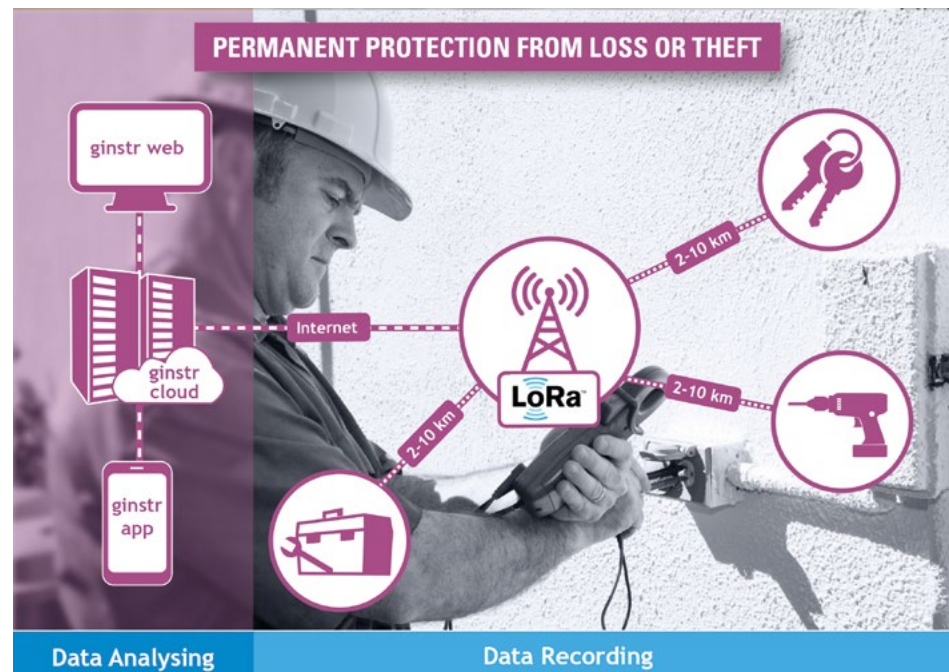
Selected real-time use cases

The ways in which you can combine the different ginstr beacon network components with added intelligence from software is literally unlimited.

Some examples are:



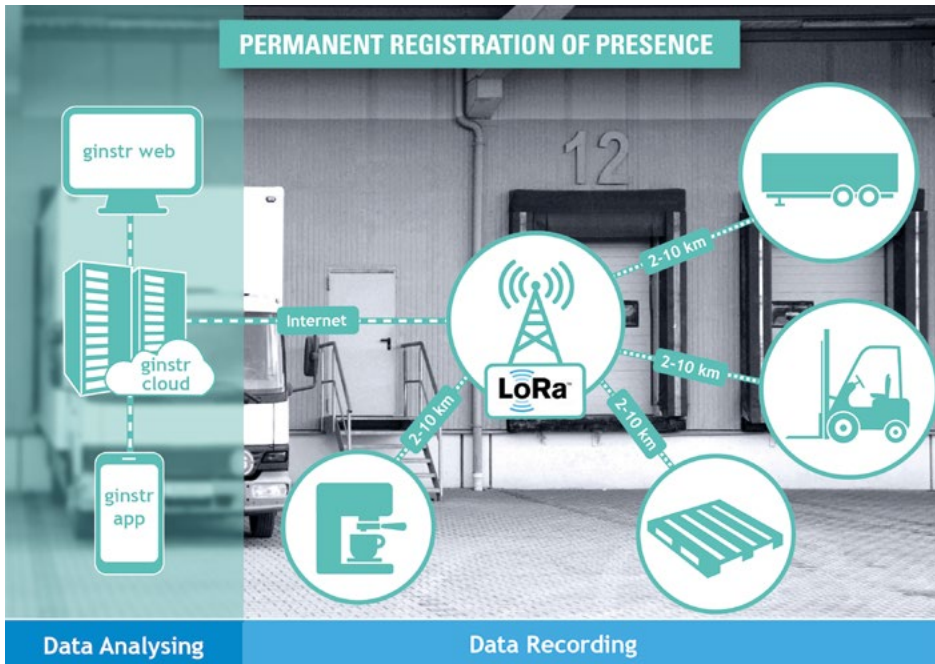
Automated registration of presence / absence of assets on construction sites, in mines etc. (e.g. construction machinery accessory equipment such as excavator shovels, expensive drilling machines, tool boxes etc.)



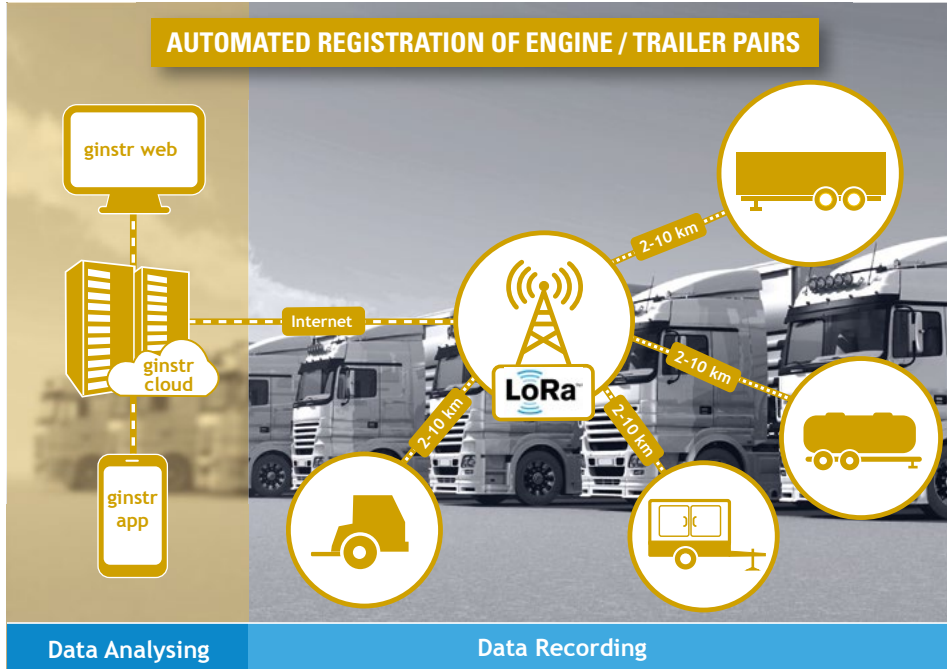
Permanent protection of door keys or expensive tools from being lost by permanently checking if they are near by



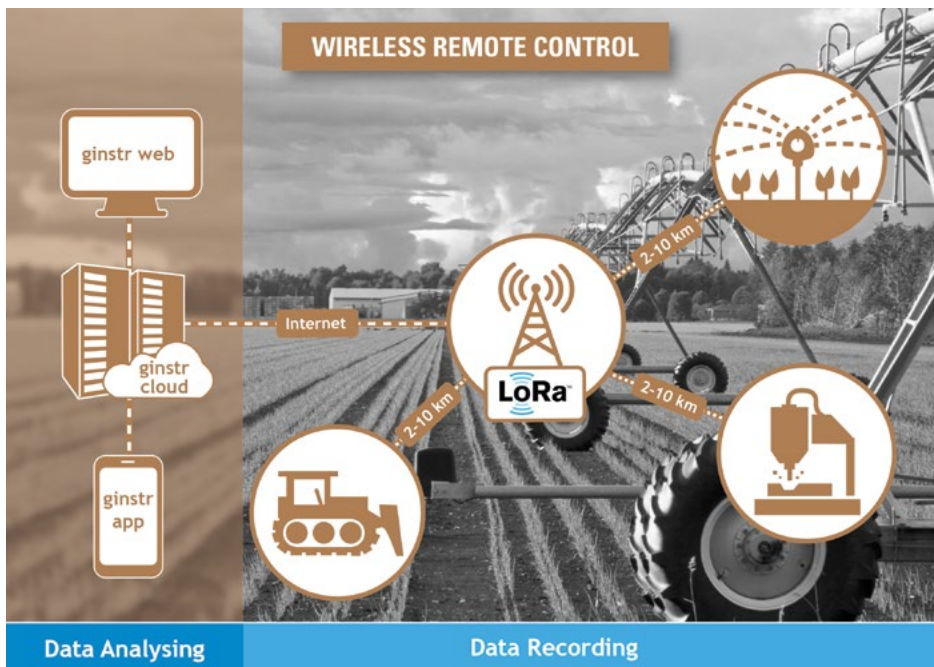
Wireless remote sensing (e.g. tire pressure, temperature in truck compartments, container doors, operating hours of machines, energy consumption of heating systems etc.)



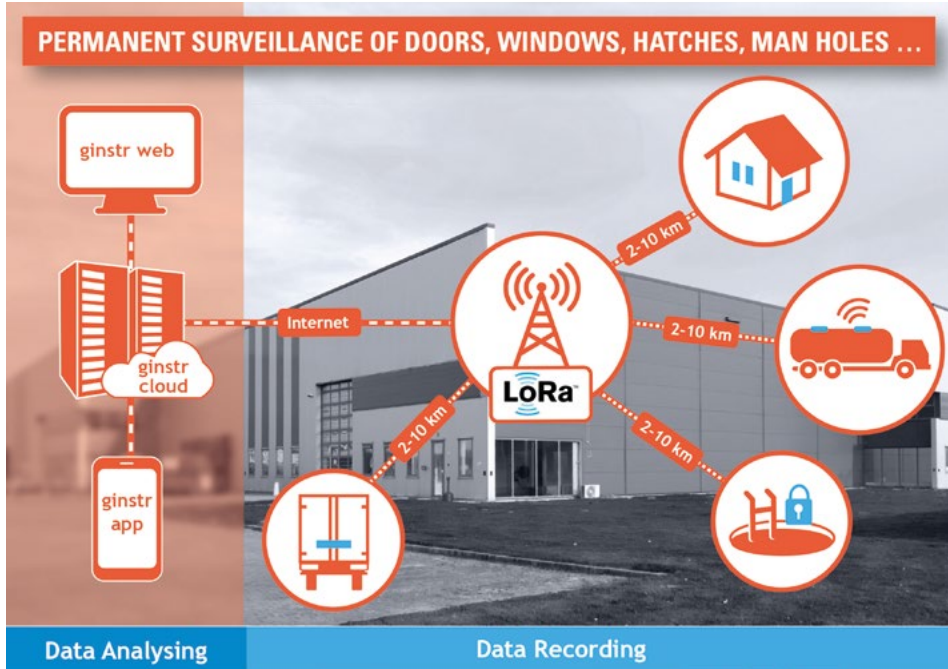
Permanent registration of presence / absence of vehicles, containers, trailers, pallets, coffee machines etc. on a company premises, in a city etc.



Automated registration of trailers connected to / disconnected from tractors



Wireless remote control (e.g. immobilization of construction machinery, activation/deactivation of sprinklers watering the fields etc.)



Permanent surveillance of doors, windows, man holes on trucks or in the street etc.

Maximum reading distances and power consumption

Radio	Maximum reading distance with line of sight	Max. power consumption per 100 byte payload
BLE / iBeacon	300 m @ 1 Mbit/sec.	0.03 μ Ah
ANT / ANT+	300 m @ 1 Mbit/sec.	0.03 μ Ah
RF	300 m @ 1 Mbit/sec. 2 km @ 0.25 Mbit/sec.	0.03 μ Ah 0.12 μ Ah
LoRa	10 km @ 0.3 kbit - 50 kbit/sec.	0.01 mAh - 0.1 mAh
GPRS	Worldwide as long as GSM networks with GPRS are available	0.2 mAh

ginstr beacon network elements

The ginstr beacon network can comprise the following components:

ginstr tags



The ginstr tags are the elements of the ginstr beacon network in which the identification, sensing or control is undertaken.

They are normally remotely located. All tags have a worldwide unique ID, which allows seamless identification of each asset / sensor / person etc.

ginstr tags can exchange data with gateways and smartphones via the following types of connection: LoRa, Bluetooth low energy (BLE), RF, iBeacon, ANT/ANT+, GPRS

Almost all iBeacons available on the market are compatible with the ginstr beacon network.

ginstr gateways



ginstr gateways communicate with ginstr tags and smartphones and then transfer data to the web based ginstr cloud.

Communication with the ginstr cloud can take place through WiFi, Ethernet, cellular or Inmarsat.

GPS is recommended for gateways, for both localization and timestamp reference. For immobile base stations without GPS the position can be configured manually in the device.

ginstr gateways sometimes combine the features of ginstr tags and internet communication.

In most cases ginstr gateways are connected to a permanent power source. Powering the gateways using

solar panels or batteries is also possible.

If only short range radio is available as a transmission medium in the gateway device (e.g. for low cost fixed reference points), then the gateway has no direct internet access. It is still possible to access the internet by forwarding the information to another ginstr gateway via short range radio.

Specifications for tags and gateways partially overlap. Depending on the application, gateways can simultaneously be used as tags. In certain setups, an Android smartphone with an appropriate ginstr app can also be used as a substitute for a ginstr gateway.

ginstr cloud



The servers in the ginstr cloud manage the network and store the data. The network servers act to eliminate duplicate packets, schedule acknowledgements, and adapt data rates.

All ginstr cloud servers are located in professional data centres in Germany. Please note: Germany has some of the strictest privacy laws in the world. Because of this, it would be hard to find a safer place to store your data than in the ginstr cloud.

ginstr apps



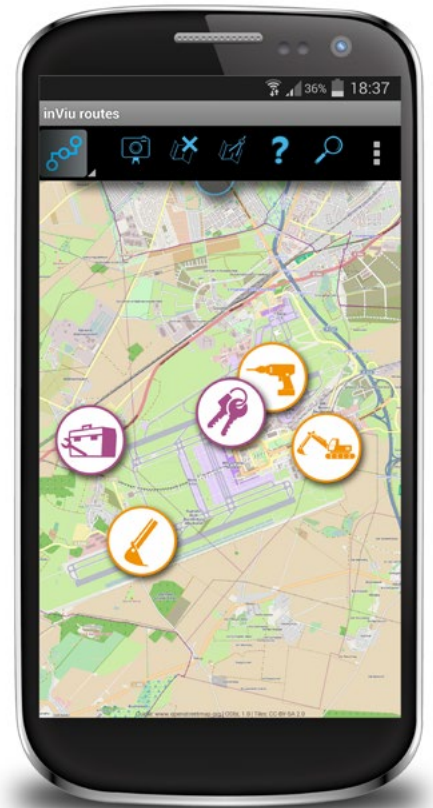
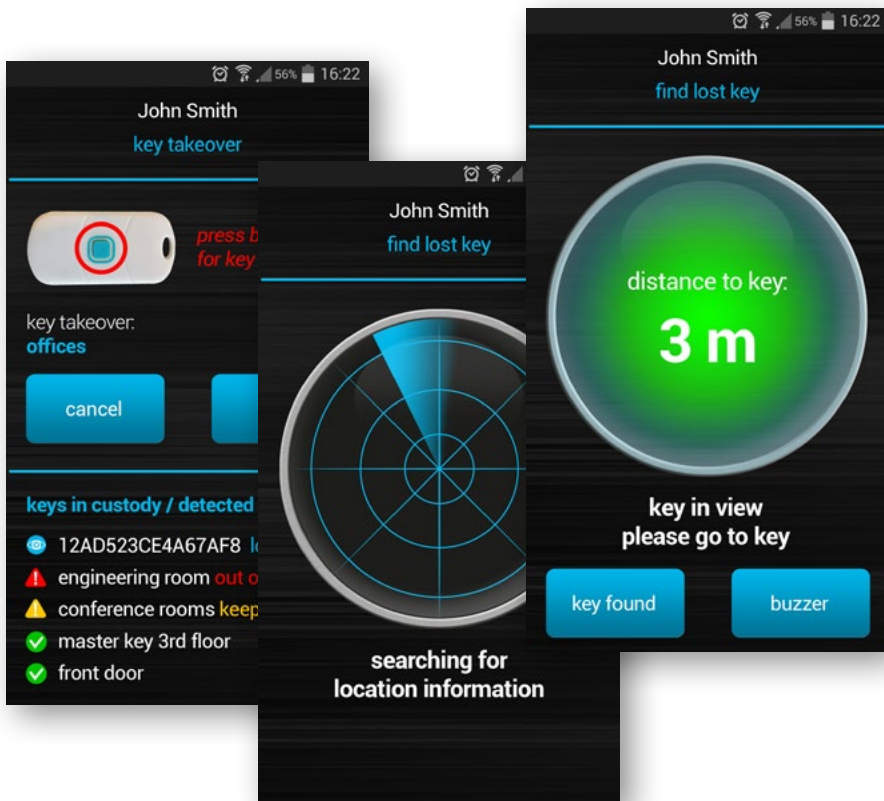
ginstr apps are Android smartphone apps.

ginstr apps can make use of the information provided by the ginstr tags.

For example: this allows you to see on a smartphone which assets are on which construction site or which heating temperature sensor is reporting

which value. A multitude of apps already exists and more apps are constantly being added. Please search Google Play for 'ginstr gmbh' or browse the ginstr app store at <http://www.ginstr.com/app-store/>

And even a tailor-made ginstr app is not expensive: for just € 799 we create any ginstr app for you.



ginstr web



ginstr web is the web based office application that can run on PCs in offices, on tablets or on smartphones.

The ginstr web software controls the actions of the ginstr tags or collects data from them - the ginstr beacon network being almost transparent.

On top of that, ginstr web provides a multitude of features for examining and aggregating the data.

The ginstr web platform facilitates:

- searching by keyword
- filtering data
- sorting data
- creating and editing tables
- viewing data on maps
- storage of pictures, videos, signatures, voice notes, and much more.

action	employee number	given name	family name	hourly rate	hire on	street address	GPS	department
	2553418	Mike	Green	9.56	19.11.2008	St Stephens St	52.4493, 12.48377	Operations
	3719978	John	Gilmore	13.61			51.449258, 2.5967537	Marketing
	8795642	Victoria	Filmer	10.93			51.5153531, -0.1410485	Marketing
	5965554	Martin	Morley	6.7			48.40037, 2.2132718	Maintenance
	8751867	Nancy	Phillips				51.4075, 1.88486...	IT
	4264112	Ramesh	Kumar				51.4075, 1.88486...	IT
	6785244	Anita	Harbert				51.4075, 1.88486...	HR
	4658124	Jeremy	Wilson				51.4075, 1.88486...	Accounting
	2975421	Deborah	Obourne				51.4075, 1.88486...	Accounting
	8856123	Nick	Harris				51.4075, 1.88486...	Accounting

action	company	employee number	datetime	signature
	Next Generation	9683	07072014, 10:52:00	(i)
	Market Research	1174	07072014, 07:59:00	(i)
	Mainstays	8719	07072014, 11:44:00	(i)
	Moets Valley	2173	07072014, 15:18:00	(i)
	Network Zone	4771	07072014, 15:32:00	(i)
	West Bond Security	1100	07072014, 09:58:00	(i)
	Shields	1442	07072014, 16:20:00	(i)
	Fire	1035	07072014, 08:30:00	(i)
	Fire	1035	07072014, 10:35:00	(i)
	Fire	1035	07072014, 11:47:00	(i)
	Fire	1035	07072014, 16:19:00	(i)

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 uploaded by 124843

Key features of the ginstr beacon network hardware components

ginstr tag-01

iBeacon tag for proximity and sensor applications, for the identification of assets and for monitoring their attendance.

Availability: immediately



Communication	Other features
<ul style="list-style-type: none"> • iBeacon 	<ul style="list-style-type: none"> • Size 40 x 40 x 14 mm • Lithium battery coin cell CR2032 running time: 1 - 2 years

ginstr tag-02

Autonomous LoRA / BLE / iBeacon tag for proximity and sensor applications with a running time of up to 10 years.

Suitable for the identification and monitoring of the attendance as well as for measuring accelerations and temperatures.

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • LoRa • iBeacon • Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • Integrated antennas 	<ul style="list-style-type: none"> • Sensors <ul style="list-style-type: none"> - acceleration - temperature • 1 push button • 2 LEDs • Running time depending on use case up to 10 years without exchange of battery • Primary lithium battery AAA 750 mAh • Waterproof housing IP67 • Micro USB connector (internal) for external power supply; if connected primary cell is used as backup battery • Size 69 x 33 x 13 mm 	<ul style="list-style-type: none"> • Buzzer 78 dBA @ 10 cm • GPS • Rechargeable batteries • Charger for rechargeable battery • Solar panel

ginstr tag-03

LoRa / BLE / iBeacon tag with a running time of up to 10 years and a connection to external sensors (f.e. proximity sensor, pressure sensor, reed relay and thousands of other sensors) and to external power.

Suitable for the identification and monitoring of the attendance as well as for measuring acceleration, temperature, and any other measured values.

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • LoRa • iBeacon • Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • Integrated antennas 	<ul style="list-style-type: none"> • Internal sensors <ul style="list-style-type: none"> - acceleration - temperature • 1 digital input <ul style="list-style-type: none"> - open collector - for connection of <ul style="list-style-type: none"> - PIR sensor 10 m - reed relay - etc. • 1 analogue input • 1 digital output for connecting <ul style="list-style-type: none"> - a buzzer - a remote shutoff relay - etc. • Connector for external power supply • Buzzer 78 dBA @ 10 cm • 2 LEDs • Running time depending on use case up to 10 years without exchange of battery • Primary lithium battery AA 2,600 mAh • Waterproof housing IP67 • Size 120 x 53 x 23 mm 	<ul style="list-style-type: none"> • GPS • Rechargeable batteries • Charger for rechargeable battery • Solar panel

ginstr tag-04

LoRa / BLE / iBeacon / GPRS / GPS tag with a connection to external sensors (f.e. proximity sensor, pressure sensor, reed relay and thousand of other sensors) and external power.

Suitable for the identification, for monitoring of the attendance as well as for measuring acceleration, temperature, and any other measured values.

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • LoRa • iBeacon • Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • ANT / ANT+ • GPRS • Integrated antennas 	<ul style="list-style-type: none"> • Internal sensors <ul style="list-style-type: none"> - acceleration - temperature • 1 digital input <ul style="list-style-type: none"> - open collector - for connection of <ul style="list-style-type: none"> - PIR sensor 10 m - reed relay - etc. • 1 analogue input • 1 digital output for connecting <ul style="list-style-type: none"> - a buzzer - a remote shutoff relay - etc. • Connector for external power supply • Buzzer 78 dBA @ 10 cm • GPS • 2 LEDs • Primary lithium battery AA 2,600 mAh • Waterproof housing IP67 • Size 120 x 53 x 23 mm 	<ul style="list-style-type: none"> • Solar panel • 3G modem • Rechargeable batteries • Charger for rechargeable battery

ginstr gateway-01

This is the standard ginstr beacon network gateway for most use cases. It can handle hundreds of ginstr tags simultaneously.

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • LoRa • iBeacon • Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • GPRS • Integrated antennas 	<ul style="list-style-type: none"> • GPS for time synchronization • 2 LEDs • 220 V wall plug • Backup lithium AA battery 2,600 mAh • Waterproof housing IP67 • Size 120 x 53 x 23 mm 	<ul style="list-style-type: none"> • 5 V output 0.5 - 2.0 A • 3G modem • Buzzer 78 dBA @ 10 cm • Solar panel

ginstr gateway-02

ginstr beacon network gateway with fully redundant hardware for high availability. It can handle up to 2,000 ginstr tags simultaneously.

Based on 2 x ginstr gateway-01 in one housing, connected to each other, with special setup for serving as many different LoRa speeds and frequencies as possible.

This setup improves the availability of the gateway, and at the same time it can reduce the power consumption of the ginstr tags with LoRa significantly.

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • 2 x LoRa • 2 x iBeacon • 2 x Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • 2 x RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • 2 x GPRS • Integrated antennas 	<ul style="list-style-type: none"> • 2 x GPS for time synchronization • 2 x 2 LEDs • 2 x 220 V wall plug • 2 x Backup lithium AA battery 2,600 mAh • Waterproof housing IP67 • Size 120 x 53 x 23 mm 	<ul style="list-style-type: none"> • 2 x 5 V output 0.5 - 2.0 A • 2 x 3G modem • 2 x Buzzer 78 dBA @ 10 cm • 2 x Solar panel

ENAIK00N locate-20

Full featured telematics unit for vehicles and construction machinery

Availability: immediately



Communication	Other features	Optional
<ul style="list-style-type: none"> • LoRa • iBeacon • Bluetooth low energy (BLE) <ul style="list-style-type: none"> - compatible with Android devices since version 4.0 - with power amplifier 10 mW → 100 mW • RF 2,400 - 2,500 MHz <ul style="list-style-type: none"> - native protocol - it allows different bitrates allowing different speeds and ranges - the RF signal can realize a range up to 2 km in open field - the RF cannot be received by a smartphone • GPRS • Integrated antennas 	<ul style="list-style-type: none"> • GPS for time synchronization • 2 LEDs • 220 V wall plug • connector for <ul style="list-style-type: none"> - 1x digital input - 1x analog input - 1 x digital output - external power 6 - 31 V • Rechargeable backup battery 3.6 V, 650 mAh • compatible with all ginstr tags • compatible with inViu pro • compatible with inViu web • Waterproof housing IP67 • Size 120 x 53 x 23 mm 	<ul style="list-style-type: none"> • 5 V output 0.5 - 2.0 A

ginstr tags

Product	Part no.	Product description	Price / €				
			≥1000 pcs.	≥250 pcs.	≥100 pcs.	≥25 pcs.	≥1 pc.
ginstr tag-01	TAG-15-01	iBeacon tag - for proximity applications - coin cell battery for 1 - 2 years of operation	17,00	20,00	23,00	26,00	29,00
ginstr tag-02	TAG-15-02	BLE, iBeacon, LoRa, RF tag - IP67 housing - AAA lithium primary battery, 3.6 V, 750 mAh	33,00	36,00	51,00	59,00	89,00
ginstr tag-03	TAG-15-03	BLE, iBeacon, LoRa, RF Tag - IP67 housing - connector for - 1x digital input - 1x analog input - 1 x digital output - external power 5 V - AA lithium primary backup battery 3.6 V, 2,600 mAh - buzzer 78 dbA @ 10 cm	75,00	79,00	94,00	99,00	129,00
	PIR-15-10 RRL-15-01	OPTIONS: - PIR sensor 10 m - reed relay + magnet	37,00 8,90	39,00 10,70	43,00 12,60	47,00 14,90	69,00 19,90
ginstr tag-04	TAG-15-04	BLE, iBeacon, LoRa, RF, GPS, GPRS Tag - IP67 housing - connector for - 1x digital input - 1x analog input - 1 x digital output - external power 5 V - AA lithium primary backup battery 3.6 V, 2,600 mAh - buzzer 78 dbA @ 10 cm	89,00	94,00	99,00	105,00	159,00
	PIR-15-10 RRL-15-01	OPTIONS: - PIR sensor 10 m - reed relay + magnet	37,00 8,90	39,00 10,70	43,00 12,60	47,00 14,90	69,00 19,90
ginstr tag device setup	GGs-15-02	Device setup - configuration of the device - registration with ginstr cloud - full functional test of the device with ginstr web (must be ordered along with the device)					23,00

Gateways and accessories

Product	Part no.	Product description	Price / €		
			≥100 pcs.	≥25 pcs.	≥1 pc.
ginstr gateway-01	GAT-15-01	Full featured ginstr cloud gateway for stationary usage - incl. GPS, GPRS, LoRa, BLE, RF - can handle hundreds of ginstr tags simultaneously - compatible with all ginstr tags - 220 V wall plug - backup lithium battery AA, 3.6 V, 2,600 mAh	299,00	349,00	399,00
ginstr gateway-02	GAT-15-02	Full featured ginstr cloud gateway with fully redundant hardware for higher tag energy efficiency due to more different simultaneous speeds and frequencies - consists of 2 x ginstr gateway-01 in one housing with special cabling and set up - incl. each 2 x GPS, GPRS, LoRa, BLE, RF - can handle up to 2,000 ginstr tags simultaneously - compatible with all ginstr tags - 2 x 220 V wall plug - 2 x backup lithium battery AA, 3.6 V, 2,600 mAh	549,00	599,00	699,00
ginstr gateway device setup	GGG-15-01	Device setup - activation and unlocking of the SIM card - insertion of the SIM card into the device - configuration of the device - registration with ginstr cloud - full functional test of the device - full functional test with ginstr web (must be ordered along with the device)	49,00	59,00	69,00
ginstr pile-01	PIL-15-01	Carbon fibre pile, 8 m	299,00		

ginstr web service

Product	Part no.	Product description	Price / €		
			≥1000 per month per tag	100-999 per month per tag	<100 per month
ginstr tag monthly fee	GIN-15-48	Internet based software for the management and monitoring of ginstr tags <ul style="list-style-type: none"> • any time access to the ginstr web portal • establishment of main and sub-accounts with separate management • real time data update • report generator for evaluations • use of the ENAiK00N M2M-commserver minimum contractual duration: 48 months	4,90	5,90	590,00
	GIN-15-24	minimum contractual duration: 24 months	5,90	6,90	690,00

Telematics

Product	Part no.	Product description	Price / €		
			≥100 pcs.	≥25 pcs.	≥1 pc.
ENAiKOON locate-20	LOC-15-20	Full featured telematics unit for vehicles and construction machinery <ul style="list-style-type: none"> - including BLE, iBeacon, LoRa, RF, GPS, GPRS - IP67 housing - connector for <ul style="list-style-type: none"> - 1x digital input - 1x analog input - 1 x digital output - external power 6 - 31 V - rechargeable backup battery, 3.6 V, 650 mAh - compatible with all ginstr tags - compatible with inViu pro - compatible with inViu web 	149,00	179,00	199,00
ENAiKOON device setup	M2M-03-01	Device setup <ul style="list-style-type: none"> - device configuration according to customer needs - production of harness according to customer needs - device configuration - registration with the ENAiKOON M2M-commserver - registration with the Inmarsat server - registration with inViu pro / web - full functional test of the device - full functional test with inViu pro / web (must be ordered along with the device)	79,00	89,00	99,00
inViu pro web service	EFC-04-48	Internet based software for the management and monitoring of trackables <ul style="list-style-type: none"> - any time access to the web portal - OpenStreetMap© is used - establishment of main and sub-accounts with separate management - creation of geofences in main and sub-accounts - report generator for evaluations - detailed online manual - automatic sending of reports - use of the ENAiKOON M2M-commserver minimum contractual duration: 48 months	12,90	13,90	14,90
	EFC-04-24	minimum contractual duration: 24 months	19,90	22,90	24,90

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