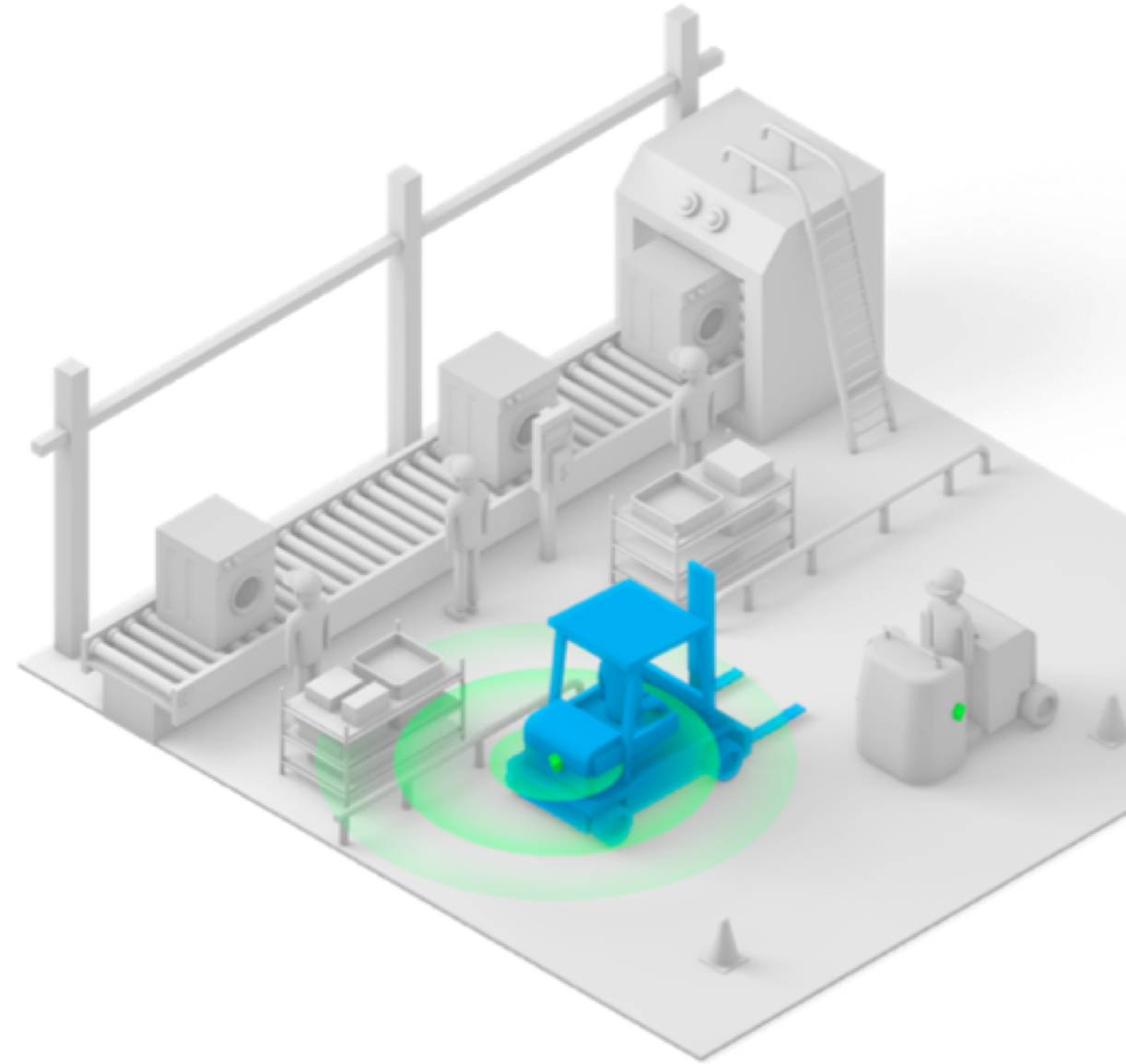




# Operational Excellence Based on Precise Indoor Location



# Indoorway for Industry 4.0

*Industrial companies operate in an increasingly challenging environment, where pressure from customers and competitors means everyone needs to raise the bar in terms of quality, productivity and customisation of products/ services.*

*The only way to keep up and gain competitive advantage is by incorporating new technologies to operations. The industry needs to leverage data it already has and start collecting new data from sensors. Thanks to IoT solutions and cloud computing it can become more data-driven and facilitate automation.*

*One of the key first steps is to have an overview of operations in real-time. Indoorway has created a system which, by using precise UWB location technology, allows monitoring of moving objects and people indoors. Thanks to accurate and consistent data our clients increase efficiency of operations, optimize utilization of assets and improve Health & Safety of their employees.*

*Please contact me if you would like to learn how Indoorway technology is used by companies in manufacturing and logistics and discuss how it can support your daily operations.*



Grzegorz Koblański  
COO, Indoorway

Indoorway system helps industrial companies increase productivity through automation, improved efficiency of processes and better utilization of assets



### **Automation of processes**

Adding automatic location context to existing processes can reduce the number of manual steps that employees have to remember to take, or improve efficiency of operations.



### **Lean manufacturing**

Management can remove waste and reduce inefficiencies only if they know the real data related to key manufacturing and intralogistics processes.



### **Asset utilization**

By monitoring movement of tools, components and forklifts in real-time, managers can assess their actual utilization in time, then compare the data between shifts, types of assets, or to KPIs.



### **Health & Safety**

Indoorway allows real-time tracking of employees and subcontractors. As a result management can e.g. receive location-based warnings for unauthorized entries, or detect dangerous zones where risk of accidents is the highest.

# Indoorway solution consists of three main components: Hubs, Tags, and a Client Dashboard

## Client Dashboard

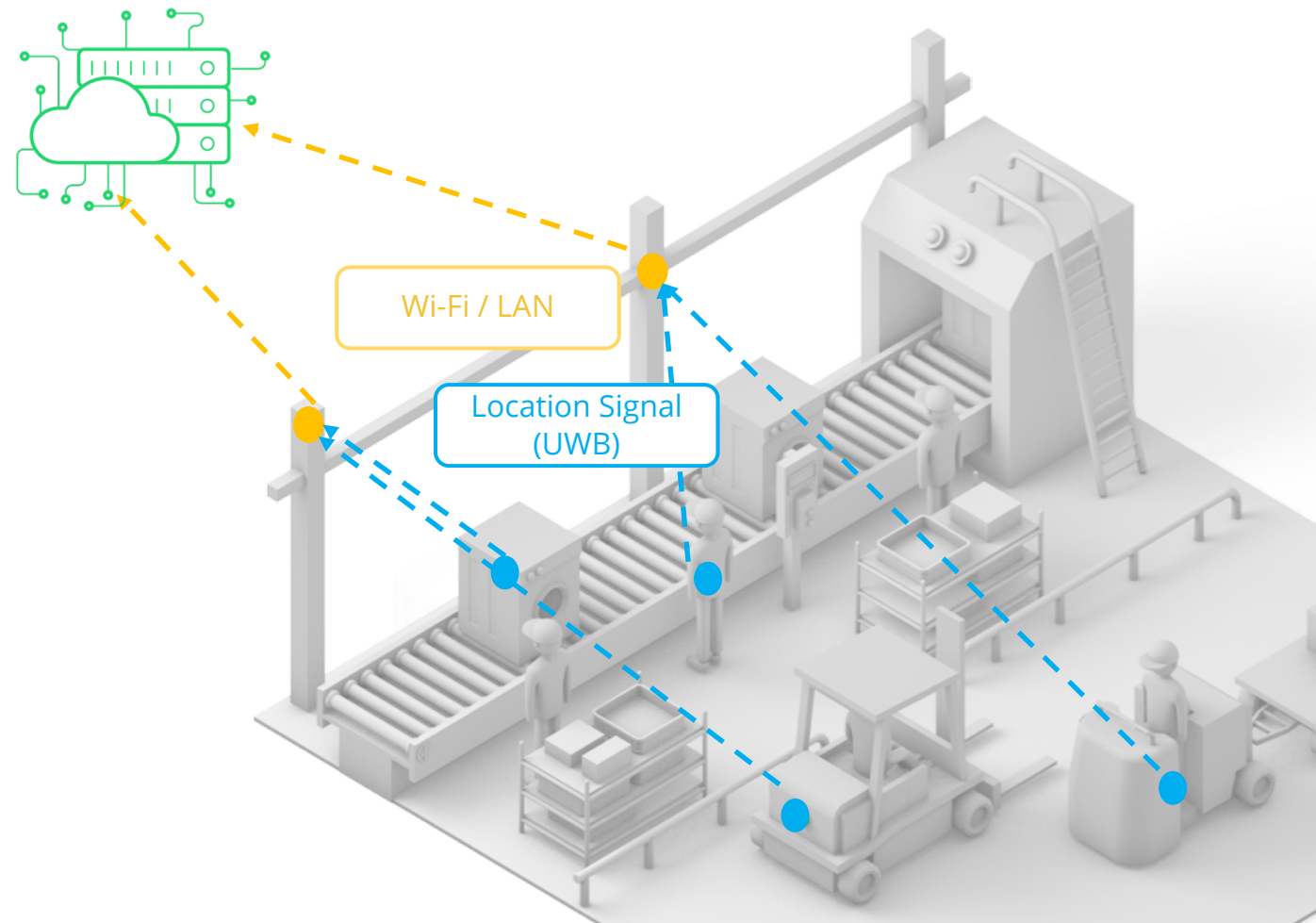
Data and analytics (live view, heatmaps, custom reports) accessible via web browser that enable real-time monitoring and provide metrics about the utilization of monitored assets.

## Indoorway Hubs

Wall- and ceiling-mounted devices that communicate with the Tags and process information displayed in the Client Dashboard.

## Indoorway Tags

Location devices that continuously send location signals to Hubs using Ultra WideBand (UWB) technology. They can be attached to any moving object or carried by employees as access cards.

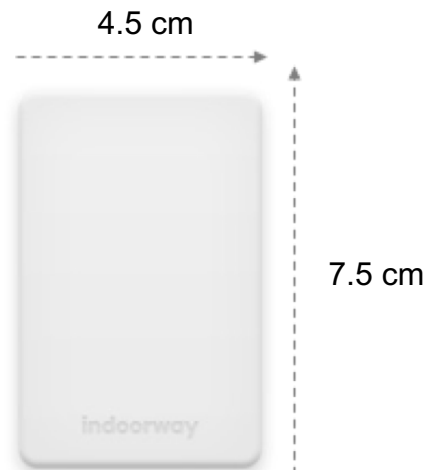




# Indoorway Tag - indoor location device for vehicles, assets or employees

## Employee or asset Tag

- **Small size**, comparable to credit card **with thickness of 0,5 cm** and dedicated space for user ID sticker
- Tag acts as emitter of **individual ID** and **can be integrated with existing access control system**

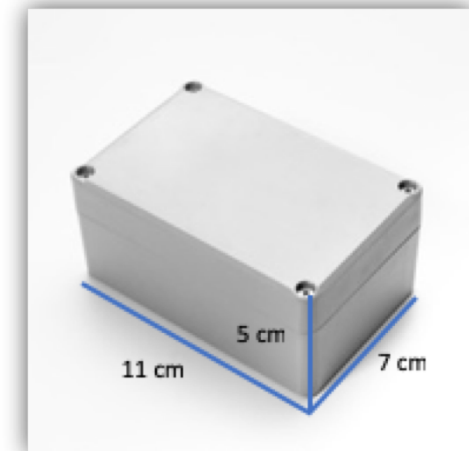


## Specifications

- Lithium battery
- Battery life -min. 24 months (replaceable)
- Housing material - Plastic
- Operating conditions - 0 - 40 °C (adjustable)
- Communication via UWB

## Indoor vehicle Tag

- **Waterproof, dustproof case** adjusted to work environment with battery supporting 36 months of continuous operation
- **Increased data frequency** (1 location every 0.5s)



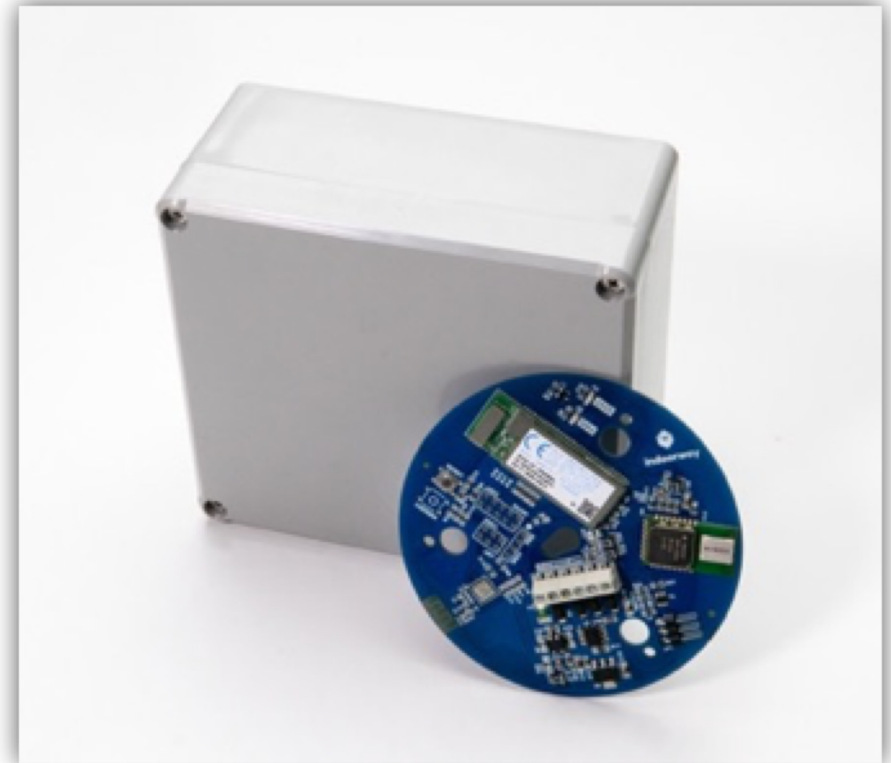
# Indoorway Hub – data receiver

## Indoorway Hub

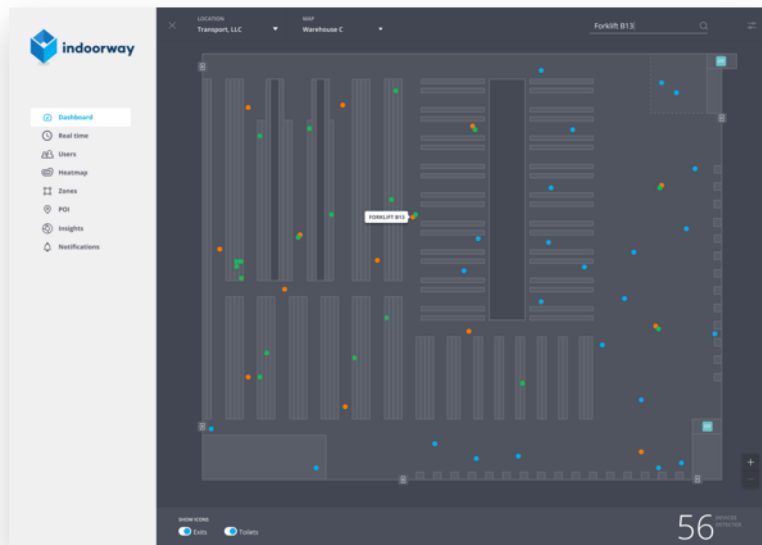
- Hubs average installation density is 1 hub per 100 sqm (1070 sqft)
- Thanks to the use of Ultra WideBand (UWB) technology, Hubs can monitor hundreds of objects (Tags) in real-time
- Hubs require connection to power source and Indoorway server through Wi-Fi or LAN

### Specifications

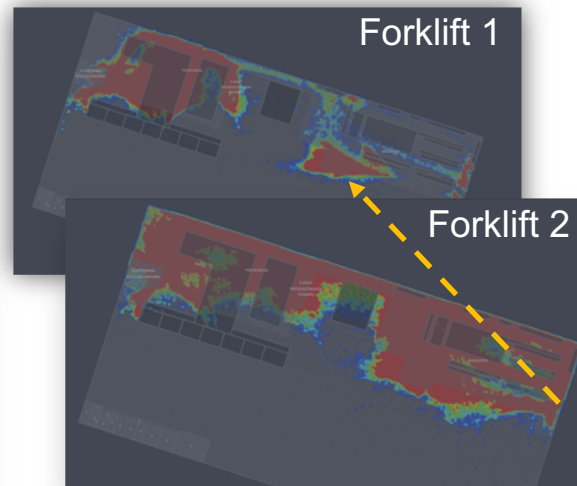
- Power - 5V/2A DC
- Network connection - Wi-fi 2.4 (802.11b/g)
- Housing material - Plastic
- Default environmental conditions - 0 - 40 °C (adjustable)



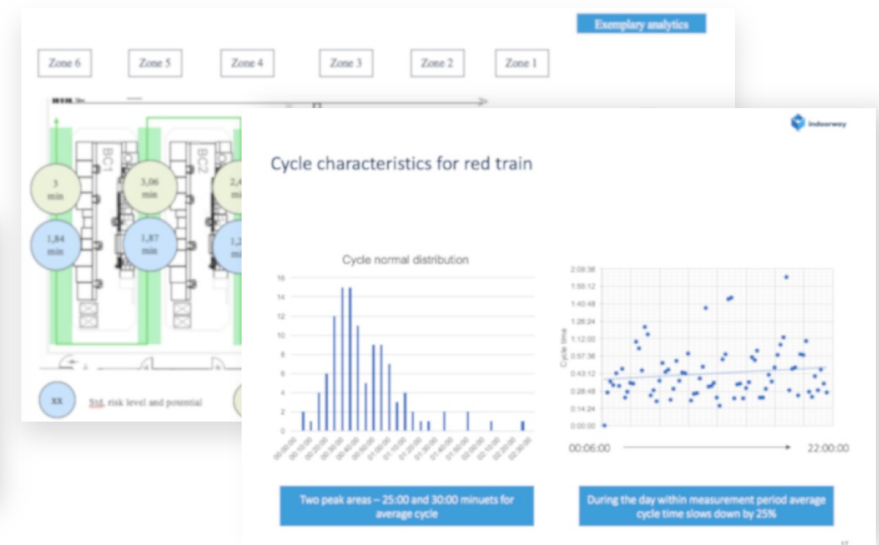
# Client Dashboard - real-time data, analytics and custom reports allow management to make informed decisions that improve productivity



**Live view** of all monitored objects, which can be searched according to their name, or other client-defined attributes



**Interactive heat maps** for monitored objects



Automatic regular **reports** showing process characteristics, **customized** to client's requirements

# Indoorway can be implemented without the need to interfere with production or logistics processes

- The Indoorway system is an separate module - **non-invasive for the existing infrastructure** or IT systems
- The assembly and activation of the system does not require the user to pause production and does not cause downtime in logistics. A pilot implementation of the system on **3000 m<sup>2</sup> takes 6 hours**
- The system, thanks to its **modularity**, can be easily extended to cover **additional surfaces** (e.g. a warehouse), monitor **additional Tags** or add more functionalities - adjusting the Indoorway tools to your unique needs

