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Forbes



Prakab

delivered by PwC Czech Republic

MACHINERY, ENGINEERING

The project helped to achieve a significant reduction in the consumption of copper and aluminum and, therefore, ensured the brief payback period of only 11 months.

11

months payback period

Background

A Company with the Turnover of a Small Country

Prakab is a Prague-based manufacturer making [modern life possible](#) by providing railway, fire-safety and electricity cables, which it has been doing since 1921. Prakab processes more than 20,000 tons of copper each year, with a price of \$6 per kg. The overall annual turnover is \$720M, an amount comparable to the GPD of [Comoros](#). The high price of the material used for producing cables was the reason why Prakab wanted to get more visibility into its production to achieve **a significant reduction in material consumption**, thereby, money.



Prakab cabling factory in Prague.

Goals

Saving the Cost while Getting Full Process Visibility

A core aim of the real-time location project was to digitize the movement of the copper and aluminum coils and to enable precise localization together with weighing the coils to know how much of the valuable metallic material is at which position. This also includes **full process visibility**, its overview and the possible drilling down to a tracked coil and its historical data.

The system should meet the following requirements:

- Minimize significant material losses throughout the production process
- Be able to track coils and cables within the factory to monitor the production flow
- Provide a real-time inventory of work in progress

Challenges

Tags Rotating at High Speed Surrounded by Heavy Metals

To be tracked, each copper coil must be equipped with a tag. This means that although during the production process, the tag is very close to different metals – when the coil is winding/unwinding the wires in the rotation machine, the tag is rotating at a high speed of 300 RPM. Despite this, it should still operate smoothly.

The tags are in a heavy industrial environment, which comes with the following challenges:

- An extremely harsh environment, a damage-free solution needed
- Tags are mounted to coils that are rotating at 300 RPM
- A heavy industrial environment, high signal reflections



Heavy industrial environment in Prakab.

Solution

Durable Technology That Ensures the ROI

To digitize the coils' positions in real-time, small yet reliable tracking [tags based on ultra-wide band \(UWB\)](#) technology had to be used.

The tags also feature an accelerometer for movement detection to prolong **the battery life to up to 2 years.**

As the copper coils undergo various procedures, it was necessary to provide an especially **durable housing** for the tags. After a long research phase, the tag was embedded in a high-resistance layer of resin and mounted using industrial-strength Velcro to withstand the high centrifugal forces.

The infrastructure to cover 10,000 m² included 22 [UWB anchors](#), ensuring the required accuracy while maintaining the short payback period of the project.

Solution Numbers:

10,000 m²

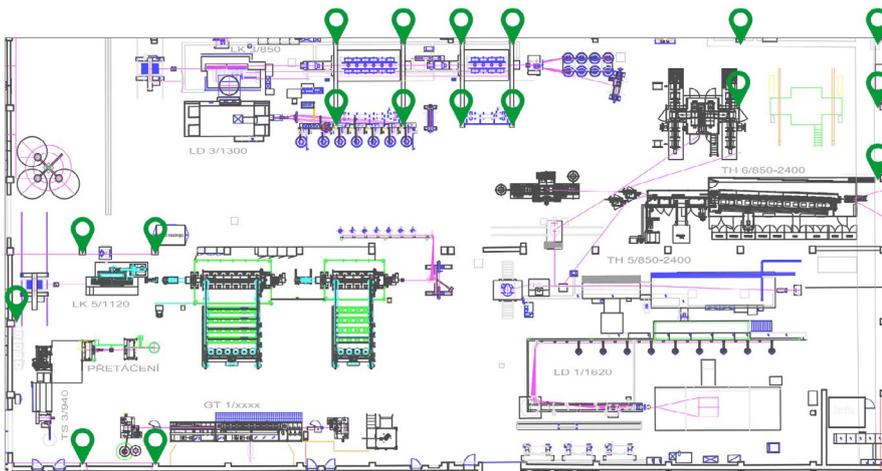
area covered

22

receivers

54

tracked objects



Prakab factory floorplan.

“We really enjoyed working for Prakab as not every digital transformation project has such a clear ROI for the customer, therefore so clearly seeing the customer benefit. On top of that with Sewio we were able to overcome what made the project challenging - the metallic environment and high speed rotation of coils that shouldn't affect the tracking performance.”



Adrian Čech

PwC

Results

Full Return on Investment Achieved in Eleven Months

Thanks to the real-time location system and the weights that the coils are going through, the management of Prakab now know exactly how much copper is at which position, how much of it is being consumed, if any coil has been left behind or if anyone is trying to steal it.

The project was done in the short time of fourth months and brought Prakab's management the needed data and insights, including a real-time visibility of work in progress. It also helped to achieve a significant reduction in the consumption of copper and aluminum and, therefore, ensured the brief payback period of only 11 months.

The project was also featured at Forbes: [Factory 40: How Prakab Transformed Buzzwords into Reality](#)

Results:

11 months

payback period

4 months

deployment time

Reduction

of copper and aluminum
to required optimum

Real-time

inventory of work in
progress

Key Factors for Choosing Sewio RTLS

- Unlike RFID and Bluetooth, Sewio's UWB-based technology works with higher precision and has the ability to work **in harsh metallic environments**
- The guaranteed **long battery life of 2 years**, even with the one-second refresh rate needed for tracking movement, decreases the total cost of ownership
- The ability to **scale the system easily** and quickly to track more objects and expand the system to more halls
- Sewio's unique technology algorithms enabling **the use of a magnetometer** in a metallic environment
- Onsite **in-house affordable support** from both the partner and vendor, as well as the available remote troubleshooting tools for easy issue reproduction and quick fixing
- Short time for deployment (**four months** from signing the contract)
- Continuous Track & Trace – unlike RFID and other technologies



Partner



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Manufacturer

Sewio Networks s.r.o.

Sewio Networks is a manufacturer of a **real-time location system (RTLS)** for indoor tracking that drives business results for companies in the intralogistics, retail, sport, entertainment and livestock industries. Sewio system is built on **ultra-wide band technology (UWB)** and delivered with RTLS Studio, remote management and visualization software.

It gives partners and customers a precise, easy-to-integrate, reliable and fully scalable IoT solution for indoor tracking that allows process visibility, boosts production efficiency, simplifies the inventory process and increases safety. Founded in 2014, Sewio is headquartered in the Czech Republic with offices in Germany and France. Sewio has 70+ system integration partners and powers customers in 37 countries. Customers include: Volkswagen, Budvar, Pirelli, Matador, TPCA, Škoda.

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