AIMagazine

32

INDUSTRY 4.0 IN PRACTICE

Indoor Location Based Services

#AimtecHackathon

8‑10 March 2019, Moving Station Pilsen

→ **Shift Digital Boundaries with Us!**

1 weekend **60 hackers** **50 young hackers** **100 audience members**

aimtechackathon.cz

Contents   Editorial

They're watching! Look around – is someone hidden behind that flowerpot? Is someone following you home? Oh come on, human spies are so last century! It just takes a tiny chip that can constantly report on itself and its position… but not all tracking is evil. Just think about how much you want to know your package's precise location long before the courier hands it to you.

One such sort of position tracking is currently reaching beyond the walls of factory halls – not outwards, but inwards. Locating objects inside of buildings is tricky, but not impossible. With the latest RTLS (Real Time Location System) technology, you can be informed on the positions and movements of everything that you care about in a hall – from materials to handling equipment to people, whom you can protect from such perils as entering a danger zone. For more on how this kind of system works and what you need for it, see this issue's main topic.

For SAP ERP users, we have some insights into its future, because S/4 HANA is unstoppably on its way, and as we all know, fortune favours the prepared. So don't let the new ERP generation surprise you. Take a look at what "S/4" will bring – just see page 16.

But besides technologies, a human side to support is still essential. To learn how our Customer Support department works and what it means to be an Aimtec Support operator, see pages 8–11.

Pleasant reading!

Zdeňka Linková

Warning! You are in an unauthorised zone!

Imagine a warehouse where the workers don't have to scan shelf positions and where the forklifts automatically avoid high-traffic spots so that they never have to wait and yield. Imagine a world where people are always notified when they enter an unsafe zone – perhaps a robot zone. Thinking of the future? Then think again. Welcome to the present – welcome to the world of Location Based Services.
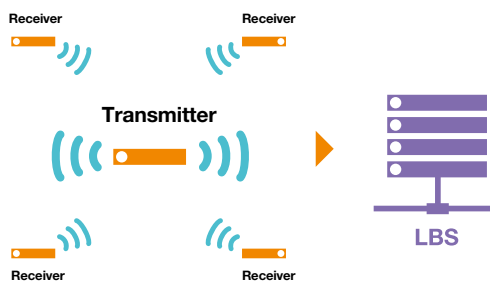
Actually, we all know them. Location Based Services (LBS) work with data on your position. If you allow a phone app to access GPS data, it uses your location and lets you automatically e.g. save your restaurant visit and rate the restaurant. But how can you get object localisation into buildings, where GPS units can't see the satellites and vice versa? Not easily – but Location Based Services (LBS) have long been making their way past this problem and into manufacturing and warehouse halls.

Technologies for monitoring objects in real time inside of buildings were first brought out at the end of the 1990s. The era's systems were based on RFID technology. However, the systems were too expensive overall for commercial use. But they were still revolutionary for their time. As new communication technologies were developed, solutions became cheaper and more precise. As a result, we now can monitor not only objects' positions, but their movements as well. That brings plentiful possibilities for monitoring data and outputs and provides the foundations for optimising internal-logistics processes – and warehousing itself.

I await your signal

At first sight, an RTLS system overall resembles GPS. You have a signal transmitter (a chip, or if you'd like, a tag) that sends information to a receiver over UWB (Ultra-Wideband) technology. For GPS, a satellite would be waiting for signals, while for RTLS, it's something called an anchor. Multiple anchors are generally needed in order to cover a space, with their exact count depending on how large and broken-up it is. These anchors pass on information to a special program that calculates how far a tag is from an anchor based on the difference in how quickly the signal reaches the individual anchors. With today's technologies, that program can manage this with a precision in the tens of centimetres. While that
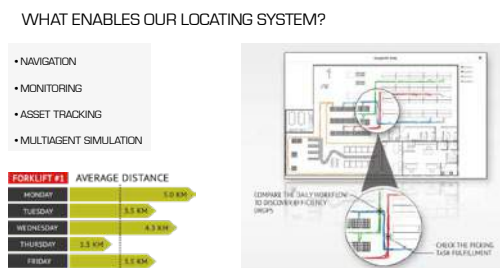

How LBS works. Source: Aimtec

Anchor, source: Sewio

FIND OUT WHERE YOUR
FLEET IS LOSING SWIFT

PREVENT DELAYS BY
PLANNING THE OPTIMAL
ROUTING

Heatmap of hall. Source: Sewio

might not sound precise, in a hall several thousand square metres in size, that's an acceptable deviation.

What good is it all?

So what we have here is a world where you can monitor practically anything in motion in your spaces, if it's tagged with a chip. But… do you need to? Maybe so. Let's take a look at two of the most typical things people associate with factory halls: forklifts and pallets.

Handling equipment has been an essential assistant in warehouse operations for almost a whole century: the first modern forklift that could "stack" goods was used in 1926. But even in 2018, forklift fleets are still often used sub-optimally. Some of a plant's forklifts

WHAT ENABLES OUR LOCATING SYSTEM?

- NAVIGATION
- MONITORING
- ASSET TRACKING
- MULTIAGENT SIMULATION

Fleet utilisation. Source: Sewio

may sit out part of a work day while others never catch a break. Since a single forklift's purchase price can run up to the tens of thousands of pounds, it's clear that getting full use out of them is a major goal. RTLS systems will give you a complete overview of your fleet, including several types of information and visualisations for them. This information includes an overview of your forklifts' overall lengths of use. That way you can immediately see if half your fleet is lying unused for two days a week.

A heatmap for your hall provides useful information as well. It enables you to analyse the bottlenecks at your warehouse. An intuitive map in which you can see where forklifts are showing up the most often, or where they're running into delays – or even minor accidents – is a secret weapon for a warehouse's efficiency. Together with other systems such as a Warehouse Management System, they let you plan and optimise warehouse workers' routes and your
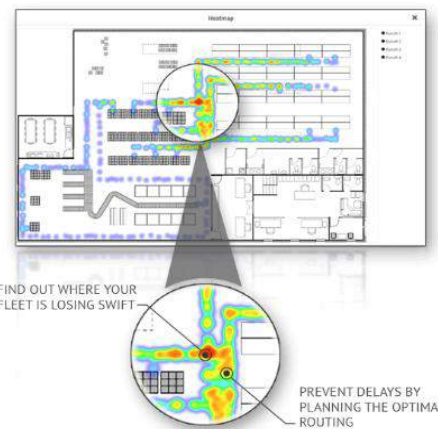
fleets (or just the fleets, for automated warehouses) to make the whole operation smoother and more efficient.

Pallets. For many people, they're the most "warehousey" thing of all. Pallets generally see acceptance scanning just after entering the warehouse gate, and then position-code scanning after they've been stored. But what makes RTLS attractive is that you don't have to enter locations manually. So your workers don't carry scanners, and they're not reading positions from shelves and then from goods for every operation. The chip on a pallet easily determines its location (usually including its height), and if the goods are then transported to a different position or to the production hall, once again the anchors can tell based on the chip where the given goods are going.

And what else? We definitely shouldn't forget about people. The march of automation hasn't yet driven people out of warehousing and manufacturing spaces, and it never will. For people, Location Based Services can be an invaluable bodyguard. You see, robots are appearing as helpers in hall spaces more and more. Special settings and the monitoring of people's movements within a hall can trigger an alarm or even turn off the robots if a person approaches them and could thus be injured by them. After all, safety should always come first.

Want to learn more about the possibilities of Location Based Services? Follow our series. Or just contact us to arrange a brief, no-obligations meeting.

Michal Karim

Distance matters. Which technology sees what you need?

Understanding what's stored in your warehouse and by your lines is useful, to say the least. But you needn't always know with perfect precision. The technologies that let you localise objects in your halls are several in number. We've prepared an outline of which system can do what and when it's worth considering.

There are several ways to determine locations. From the simplest, but also least precise, wherein you only determine a tracked object's presence by an access point, to more sophisticated methods, such as TDoA (Time Difference of Arrival), wherein an object's location is calculated based on triangulation and on capturing a signal at multiple points. WIFI AP, RFID gates and also barcode scanners are examples of the first method. The TDoA method, meanwhile, offers the most precise determination of locations.

All the mentioned technologies belong to one large set: **Location Based Services** (LBS). TDoA is also utilised by Ultra Wideband (UWB), which is the foundation for Real Time Location Systems (RTLS) – these use locations to determine both status and motion. Using these technologies, you can both obtain an overview of a chip's passage through a checkpoint and monitor its current route.

Antonín Steinberger

|	RFID	BLE	Wi-Fi	UWB
Accuracy	1–5 m	1–3 m	2–5 m	5–30 cm
Purpose	ID only	ID, position	position	ID, position, motion
Battery usage	medium	low	high	low
Maximum read distance	10 m	10 m	30 m	30 m
Advantages	can use passive, unpowered tags	unique identification	can be combined with data infrastructure	broad possibilities for integration and analytics
Disadvantages	complicated infrastructure risk of misreading	low scalability	low precision interference--heavy band	large metal objects can block the signal
Usage	identifying goods and materials	detecting presence low-energy communication	detecting presence	ID; precise position tracking

Get the most out of LBS
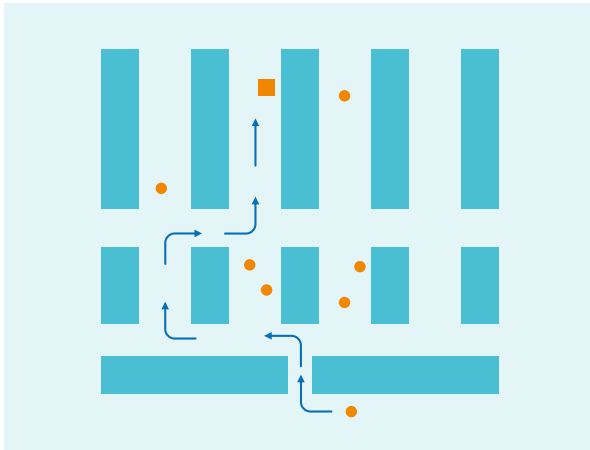
1. A Waze for indoors

GPS systems can't see indoors. But LBS technology can! And so it practically begs to be used for indoor handling-equipment navigation. Use your fleet capacity fully. Besides finding an optimal route based on your work queue, LBS adjusts that route based on the latest info – for example another vehicle's presence in an aisle. It informs the operator of the next operation and confirms task fulfilment. All without scanning and in real time. It also works as a true nav system, and thus can tell operators when they'll need to turn, and when they'll be at their destination.
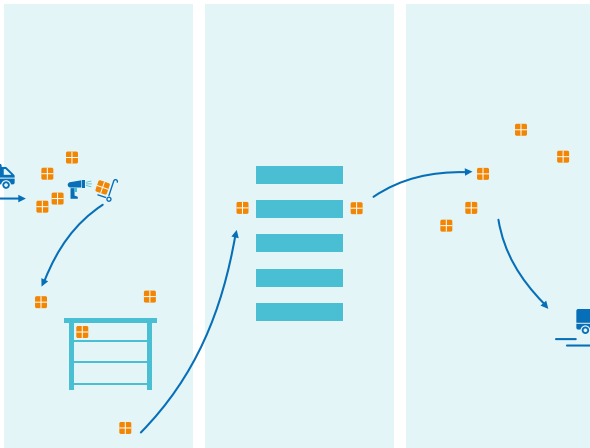
2. One scan is enough

Don't search, don't scan. LBS lets you scan materials/goods just once, and then watch their warehouse movements. If a pallet has been loaded improperly or if the operators forgot to scan a position, it doesn't matter. With LBS, you have instant information on your stocks' precise locations and quantities.
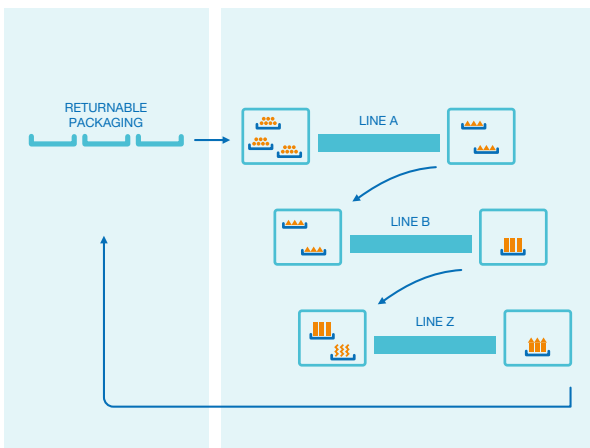
3. No more returnable-packaging losses

Does your plant use returnable packages? And do you ever lose them? Combining barcodes with UWB will bring you information on your returnable packages' quantities and positions and on inter-operation stocks. It will also let you track empty-package movements and pinpoint missteps.

Michal Karim

Enjoy your sleep. We'll protect your dreams

We doubt you'll find anyone who'd challenge the statement that, in our age of deep interconnection among industry's manufacturing sectors, end-customer support for software is a thoroughly critical and indispensable service. Especially in recent years, when the old saw that "time is money" has taken on realer-than-real contours. Thanks to this, growing demands are placed on support, and our goal is to offer you more than the expected standard.
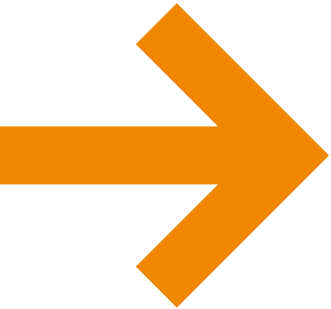
There's 24/7, and then there's 24/7

Just about every responsible company offers some form of "24/7" support for its products. But you won't always truly find support 24 hours a day behind this support. There's a major difference between the customer line just receiving and registering a critical request outside working hours, or maximally striving, if needed, to resolve the problem as soon as possible.

At Aimtec we're prepared at any moment to take the latter road: to work on your critical issue immediately. Competent specialists are on watch nonstop at our Service Desk; they respond to emergencies with a cool head. A special team works nonstop to handle all phone and email communication with customers, manage the helpdesk, and coordinate active requests. Its members can handle certain requests themselves, and they also perform regular preventive maintenance as well as ClouEDI and TSIM supervision outside of working hours. If the situation demands it and a request demands technical handling, they even turn to our leading developers and consultants – who are prepared for such situations in advance – in the middle of the night. They are all core Aimtec staff, and they all work under one roof. No call-centre outsourcing, no

complicated forwarding of tickets and information over middlemen. But that's just the start for us, as we always want to be a step ahead.

A new generation of auto-monitoring

Imagine a solution so responsive that it can solve certain problems without your needing to contact the Service Desk. Or so responsive that it works to prevent potential crisis situations even before they happen. Now you might say: "That's just a description of preventive maintenance", but that maintenance uses regular analyses to optimise the whole system after the fact. What we have in mind here is watching and predicting system behaviour in real time. And we now offer you an **Automated Monitoring** service (AMO for short) for precisely this.

It all began with our search for a proper tool for monitoring our own services. The time-tested Zabbix proved itself the best choice. It has a very good name on the international IT scene and meets all of corporations' strict demands. Initially, we integrated it into our internal servers, and once it had proven itself, we decided to also use it for monitoring our own cloud product, **ClouEDI**. But we do have to note that, while it's a reliable monitoring tool, it's nevertheless
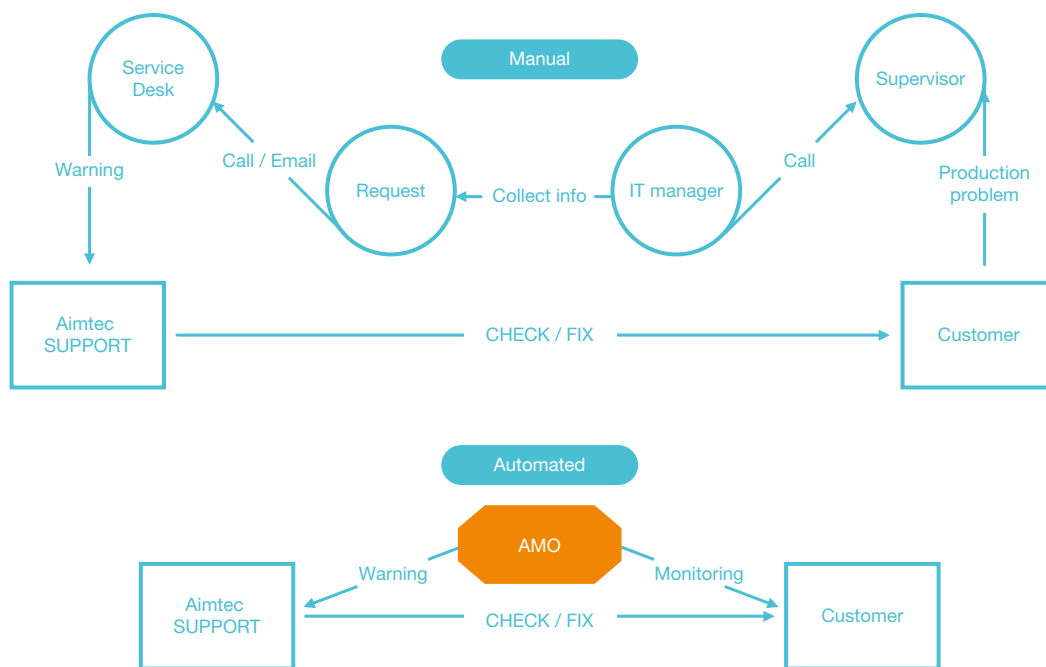
Difference between standard request processing and automated monitoring.

utterly essential to know precisely which services you wish to monitor and set custom parameters so that you'll have enough time to react when a problem is approaching. Since we develop all our products ourselves, this did not present a problem.

After our positive experiences, we became aware of the entire service's giant potential and decided to deploy Zabbix within on-premise installations of our DCIx product. Every monitoring installation undergoes a thorough testing phase wherein individual warning triggers are configured; these notify all preselected recipients (and above all our Service Desk) of problems in time, using a suitably chosen form of communication. Nearly anything can be monitored – from the behaviour and responses of an application or database itself (e.g. through the loads for individual system elements) to the statuses of the running processes and services that ensure its correct operation to physical factors such as a given location's humidity and temperature. Naturally, automated monitoring also has its own checkup mechanism, based on regular data exchanges with our own internal server.

In combination with our support team's professionalism, automated monitoring can be among the pillars of correct operations for your manufacturing and logistics, and can even reach beyond our products' boundaries. AMO increases a system's overall resistance to downtimes, and is one more good tool for keeping your services highly reliable. So don't let nightmares about bug-fueled downtimes disturb your sleep at night – leave your systems' supervision to us.

Michal Krištof

Superportmen

Aimtec's Support division provides nonstop support for our customers. Requests are processed by a team of people who must understand both the customer's products and the importance of a cool head. After all, support situations can be real crises, especially if production is threatened. Here's a chat with Aimtec's Support Team Leader Filip Heidenreich about the range of responsibilities for a Support specialist.
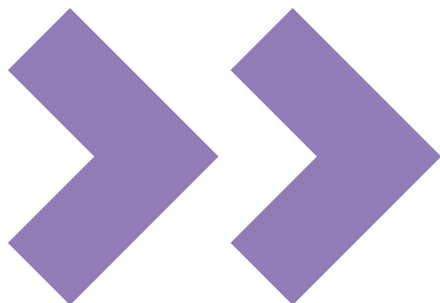
Filip, you've worked your way from the Support team to Team Leader. How do you see the progress by yourself and Support in that time?

In the last two years, Support has grown more stable. We've locked ranks, and improved as well. Besides just organisation, we're also constantly expanding our scope. Alongside helping customers, we're responsible for many internal activities.

So, then – what does an Aimtec customer-support team member do?

We help in several areas. Cross-product and cross-division activities are the first of these. That means customer communication, ServiceDesk administration and filing, categorising and coordinating requests. Activities specific to selected divisions are the second area. The mentioned internal, primarily "overhead" projects are the third.

Those activities specific to selected divisions – can you give an example?

These are of a significant scope mainly for the Integrations and DCI divisions. For Integration, this mainly means preventive maintenance for customers, where every week we check that their servers and systems are OK, and we can prevent complications by uncovering defects. Then there are things like supervising ClouEDI outside of working hours, and basic "Level 1" interventions: checking connections, resending unsent messages etc.

We do Level 1 interventions for DCI as well: checking the app, restarting and overall checks to see a problem's source before a request is escalated. And newly, automated monitoring (AMO) as well.

But you also have projects that don't concern Aimtec products, right?

Right. For selected customers, we also provide End User Support. This might sound clichéd, but we're literally awake when our customers are sleeping. Our project for Eissmann, a German company, is one great illustration. Since we handle support for all their plants worldwide, we're available to their other plants when their German colleagues are resting. Their IT team is only available during standard working hours.

What's exceptional about being part of Aimtec Support?

Customer support means much more than answering calls and recording requests. Everyone on the team must have deep enough knowledge of our individual products and be able to navigate among them and respond flexibly. For example, a customer may call us because they can't scan an item into DCIx. But it turns out that the problem isn't in DCIx: it's in the ERP it's connected to. And we should be able to reveal that.

Foreign languages are another key skill. We provide support in German, English and of course Czech, and there should be no palpable difference when customers call us or "their" company. We also e.g. file feature requests and help developers to test new features. Every Support specialist is simultaneously a consultant whose competency includes the given product. We each must have basic knowledge, know the terminology, know of possible interconnections with other systems, and respond to requests accordingly. Sometimes situations are also tense, because at the other end there's someone who's stressed at having possibly broken something or endangered their own or others' work. In these cases, we must be empathetic and handle and moderate the situation coolheadedly. When you consider that we work in shifts and provide a wide range of services, this definitely isn't easy work.

Zdeňka Linková

Your signal's flight has been delayed

Ultra Wideband (UWB) technology lets you localise objects with up to 30-cm precision, and for industrial localisation, it is currently seen as having the ideal price/performance ratio. In the world of real-time location services, you'll hear these facts often. But you'll hear much less about how not all UWB systems are the same. Three different algorithms – methods, if you will – are used for localisation. Yet all three work with the time a transmitted signal needs to reach another device.

The first method is Time of Arrival (ToA), also called Time of Flight (ToF). Precise locations are determined based on the time from a signal's transmission by a tag to its reception by an anchor. Round Trip Time (RTT), which measures the time "there and back", works similarly. Time Difference of Arrival (TDoA) is the last variant. It places tight demands on devices' clock synchronisation, because it localises based on the differing times at the moments of a signal's transmission by a tag and its reception by an anchor.

Since UWB has been in widespread use only briefly (though its first official use was back in 1901, when Guglielmo Marconi used it to send Morse code over the Atlantic), its terminology is still in flux. For example, some manufacturers also use "ToF" to describe methods we've described as RTT. For clarity, we will stick to the usual designation. What, then, are the core differences between TDoA and ToF?

TDoA has stricter hardware demands, because the anchors must be fully synchronised nonstop. This makes its anchors somewhat more expensive than for ToF (a few dozen percent). The main challenge is spreading the synchronisation signal among anchors. It can only be as fast as the speed of light. One related difference is increased costs for an implementation's installation compared to ToF,

Round Trip Time

Time Difference of Arrival

LBS
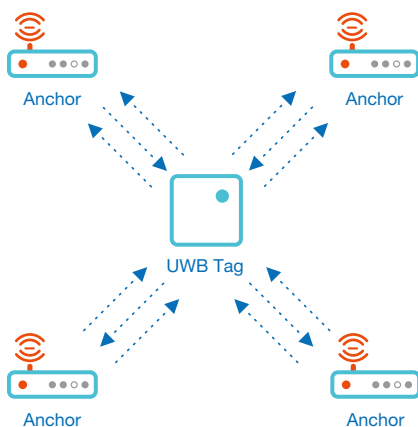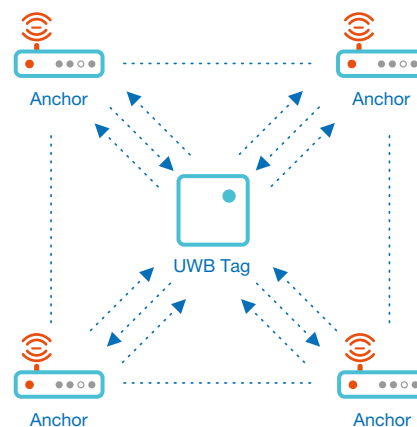
because synchronisation and calibration are more demanding for TDoA.

Since ToF tracks a signal along its path "there and back" (and additionally the tag must send information to an anchor = a third path), fewer tags can be localised with it. If you're considering a solution for raising your tracked-object count, TDoA is the surest choice. The above also means that tags' battery life is the highest for TDoA.

So as not to turn away those who seek compromise-free solutions (which can seem near-impossible in the real world), we have some good news in closing. Methods that combine the benefits of TDoA and ToF

are currently in testing. We'll have to wait a while for results and detailed information, however.

Don't want to wait for new tech developments? Shorten the delay by trying a demo version of Location Based Services with us and discussing how indoor object tracking can help to optimise your production and storage

Michal Karim

We work with the best

We've chosen Sewio as our LBS project implementation partner. Since its 2014 founding, this startup based in the Czech city of Brno has earned its place at tech's top – as affirmed by its awards.

- **Deloitte: Fast 50**
  Rising Stars category – 6th place

- **The Technology Agency of the Czech Republic: 2018 TA CR**
  Award for Partnerships – winning project alongside TUV Brno

- **Forbes: 2018 Startup of the Year**
  9th place

Sewio's RTLS solution: the basic building blocks

Nearly all RTLS systems need at least two elements for full functionality: tags and anchors. Tags usually transmit, while anchors receive – and determine tags' positions using predetermined algorithms. What are these elements' basic characteristics?

Tags

These are sensor-equipped, battery-fed chips that emit impulses with MAC-address information and sensor data at predefined intervals. Their transmission frequency fundamentally affects their battery life. A system administrator can set the period to reflect a project's specifics. For example when tracking goods or materials, a low frequency on the order of minutes suffices and will provide years of battery life. When monitoring movements in real time, meanwhile (e.g. forklift movements), a shorter frequency must be chosen, in the hundreds of milliseconds, to essentially provide data about every step.

The current tag portfolio

The IMU Tag
Role: *motion detection; identification using MAC addresses.*
Radio: *DecaWave 3 7 GHz UWB Radio.*
Battery: *560 mAh rechargeable; USB-chargeable.*
Transmission frequency: *10 ms to 60 s.*
Operating temperatures: *0–50 °C.*
Sensors: *accelerator, gyroscope, magnetometer and barometer.*

The Picollino Tag
Role: *motion detection; identification using MAC addresses.*
Radio: *DecaWave 3 7 GHz UWB Radio.*
Battery: *CR2450 600 mAh button cell.*
Transmission frequency: *10 ms to 60 s.*
Operating temperatures: *0–50 °C.*
Sensors: *accelerometer.*

Anchors

These form a network of receivers that capture signals from tags and determine precise positions on their basis. For them to work correctly, it must be ensured that every tag can directly see at least four anchors nonstop. For high-quality coverage of a space, the anchors must be spaced at least 15 to 25 metres apart.

The current anchor portfolio

The Router Cube 1.5 Anchor
Dimensions: *70 x 74 x 25 mm.*
Power: *USB DC 5 V or Passive PoE 48 V.*
Operating temperature: *0–50 °C.*
Radio range: *15–50 m.*
Omnidirectional antenna.
Usage: *indoors*
(usable outdoors in a protective box).
Supplementary sensors: *barometer.*

The Router Cube 1.5 Anchor.

The IMU Tag.

The Picollino Tag.

A flexible system optimises costs and operations

The whole Sewio RTLS system is designed to enable precision down to a few centimetres. Precision this high, however, demands significant investments into infrastructure – but it is not always needed. The system's strong flexibility enables optimum precision of information while also fundamentally cutting infrastructure investments. Practice has shown that covering every corner of a space may be unnecessary. Many times, the desired goals can be achieved despite reduced data collection. It's often enough to know that e.g. a materials pallet is in the right zone, what aisle a forklift is in, how many workpieces have piled up at a line's end, etc.

This technology can also easily be used to improve human safety. For example, a warning signal can sound when an employee erroneously steps under a loaded crane. RTLS can also be used for automation, specifically in manufacturing, when a workpiece is moving from site to site. Based on knowledge of its position, the system can automatically program the machines at the workpiece's destination.

RTLS offers a wealth of information on location, speed, time and other data at every moment, and from there it's all up to our creativity what data we will capture, what processes we will bind to the data and what analytical reports we will create.

What's next?

RTLS systems are seeing swift development, and we are glad that we can be a part of it. Our close cooperation with the manufacturer has enabled us to look "under the hood" of their development lab, and so we already know we can look forward to new anchor and tag versions next year.

Anchors will gain range – and also support for charging via an active PoE. A directional anchor version is also on the way: in a 45° segment, it has better range than omnidirectional anchors. That offers new possibilities in complex spaces.

But the biggest news will be in tags: several new versions are arriving. All the tags will have wireless NFC configuration of frequency, ratings and channels. Bluetooth connectivity for hooking in external devices and transferring data to a RTLS system is also planned. A version enabling wireless charging is on its way as well.

Antonín Steinberger
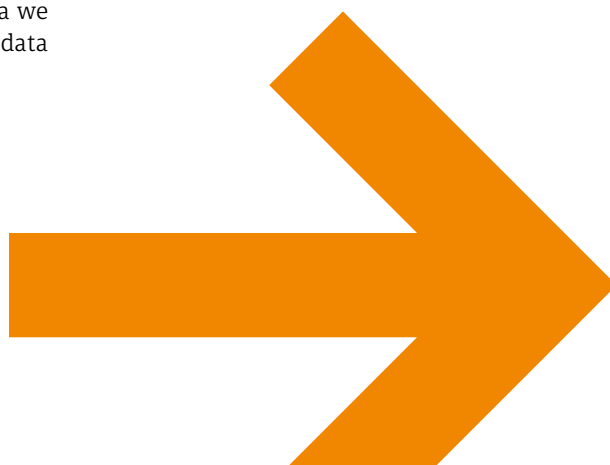
The new SAP ERP generation is coming. Are you ready?

Starting in 2025, the new generation of SAP ERP – SAP S/4HANA – will fully replace the current version. The current version, SAP ECC 6.0, will no longer be supported or see further development. What are the options for moving to SAP S/4HANA?
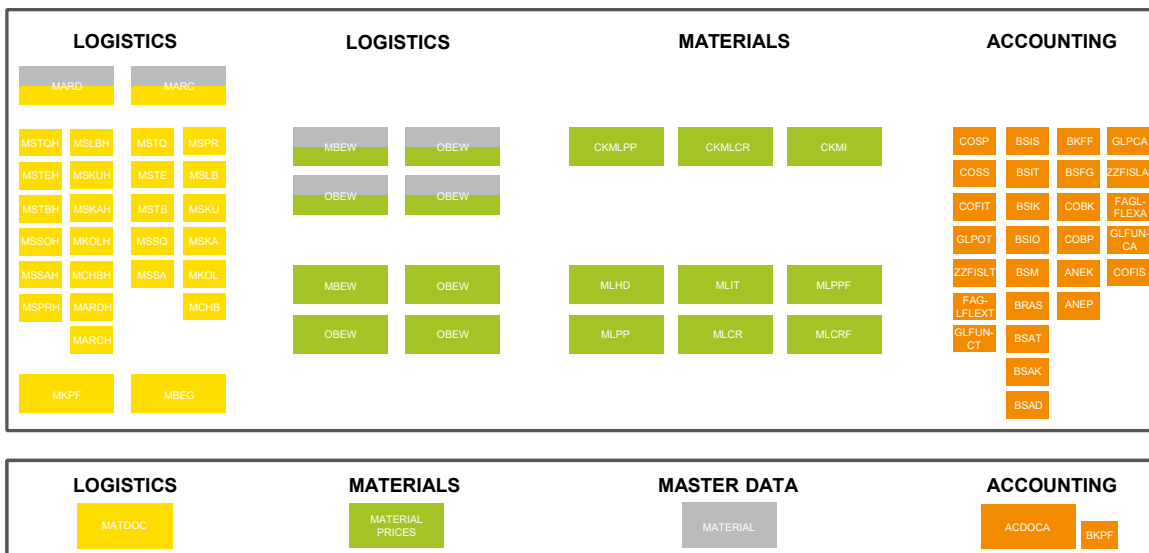
SAP S/4HANA uses the familiar SAP HANA database and the Fiori UI. Its goal is to ease work for both SAP's users and the computers running it. Among the new system's key benefits are reduced demands and increased system performance. "S/4" also promises easier deployment, configuration and business processes. And since SAP is an IT leader, S/4 naturally also has things like built-in IoT functionality, Big Data processing and Machine Learning. All this makes SAP S/4HANA a brand-new tool prepared for the future of the enterprise world.

Variants for a SAP S/4HANA transition

There are several ways to arrive at the new system. All of them require thorough preparation and process analysis. So you should first ask when (not whether) you'll be moving to SAP S/4HANA and how you'll deploy it at your company.

System conversion

Most users of systems from the SAP Business Suite use an on-premise version. SAP S/4HANA takes this into account. It thus lets you simply switch to the new

S/4HANA promises a faster and smaller database and a simplified data model.

SYSTEM CONVERSION	ERP System	SAP S/4 HANA ON-PREMISE EDITION	▪ **Complete conversion of existing SAP Business Suite system to SAP S/4 HANA**
NEW IMPLEMENTATION	ERP System / Non-SAP System	SAP S/4 HANA CLOUD EDITION / SAP S/4 HANA ON-PREMISE EDITION	▪ **New or existing SAP customer implementing a new SAP S/4 HANA with data load**
LANDSCAPE TRANSFORMATION	ERP Systems A, B, C	SAP S/4 HANA CLOUD EDITION / SAP S/4 HANA ON-PREMISE EDITION	▪ **Consolidation of current regional SAP Business Suite landscape into one global SAP S/4 HANA system**

The options for moving to S/4HANA.

ERP, while keeping your infrastructure. This method is good for companies whose current process status fits with the use of their existing SAP ERP system. The system is converted including its settings and keeps all data, including historical data.

New implementation

The second method is a full new implementation, during which an enterprise can fully redesign their processes. Open items are converted from the enterprise's current ERP system (which need not be SAP) into SAP S/4HANA. Here you have the option to choose an on-premise version or a cloud version, or combine them. Historical data is not converted; it can only be accessed over the original system.

Landscape transformation

If you are using multiple SAP Business Suite systems or multiple ERP systems, when switching to SAP S/4HANA, they can all be unified under one global system, again with the option of choosing between the cloud, an on-premise solution or a hybrid environment.

What a SAP S/4HANA transition looks like

A SAP S/4HANA switchover is performed in several phases. The first phase is the technical upgrade, during which the actual change of the system to SAP S/4HANA occurs. This is a series of technical steps such as database migration, converting data to the new data model, adjusting one's customisations, and other operations; a number of support tools have been developed for all of them. The original features are retained thanks to the use of a Compatibility Package.

The technical upgrade can be followed by a gradual move to the new SAP S/4HANA processes and the Fiori UI. This is a form of system re-engineering, during which processes are adapted in S/4.
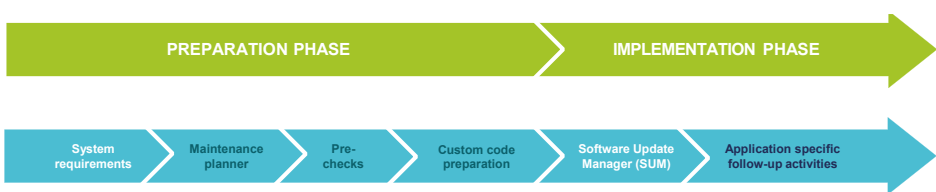
We've customised our SAP. Should we worry?

No matter whether these are small custom adjustments or entire add-ons like SappyWMS or SappyEMS, there's no need to worry about the move to SAP S/4HANA. However, in the preparation phase, you must make sure to test and adjust these special aspects in time, so that it all works as it should once the new environment starts up. Our systems are ready for the switch, so when you want to start your SAP S/4HANA transition project, all you have to do is call us.

Jan Königsmark

PREPARATION PHASE	IMPLEMENTATION PHASE
System requirements	Maintenance planner	Pre-checks	Custom code preparation	Software Update Manager (SUM)	Application specific follow-up activities

The Sculpted Sappy

The products in our Sappy range are currently under intensive "core" testing. Thanks to their new core composition, developed for S/4HANA, you can look forward to new, expertly sculpted Sappy products with more convenient feature sets.

Every system is based on its core, which coordinates the activities of its running processes throughout its operations. In the development of our Sappy range of products, we reached a point where each approached the core slightly differently, complicating the system's overall structure. And if certain systems also share functions, the program must also frequently call parameters from differing contexts, once again complicating the integration of systems and features. We thus decided to develop an entirely new core shared throughout the Sappy product range – which also brings several new features for users.

What's in the new concept

The main changes in the new core (Sappy General Run – SGR) include separating off the display layer, alongside a unified approach when launching transactions from any direction. This ensures that a given transaction will always run in absolutely the same way, no matter what the user's client (PC/web) or product (EWM, MES etc.). The new display layer keeps the same principles and layout for SappyEWM as are seen in the current SappyWMS, even on mobile terminals.

The user-interface features have also seen expansion. A broader set of error screens is one example. Unlike now, where users only see an error / no-error message, they will be able to see an incident specification – error, warning, info or success. Fully configurable function keys are surely another pleasant change, as is the option of longer button texts.

Jindřich Štěpán

Sappy is a family of SAP add-ons that perform advanced functions beside the standard ERP operations and facilitate end users' operations. These advanced add-ons are a MOM (Manufacturing Operations Management) layer for managing warehouses and material flows (SappyWMS), collecting data and managing manufacturing (SappyMES) and verifying and managing quality (SappyQMS). For more info, visit aimtecglobal.com/sappy.
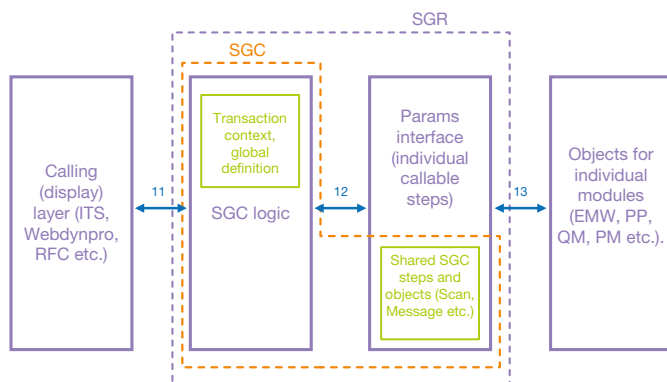
The new SGR – Sappy General Run structure.
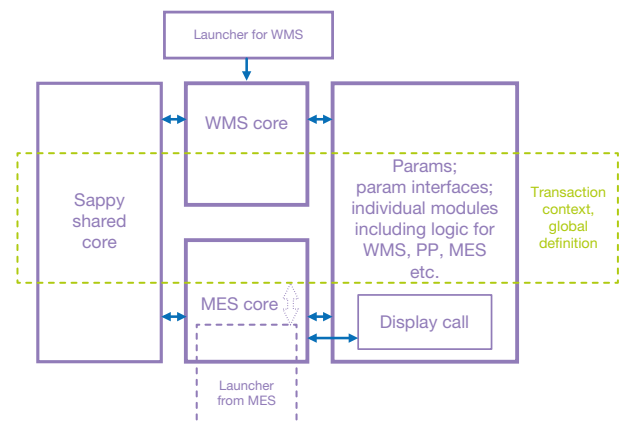
The Sappy core's current structure.

The Digital Factory:

Pain or Gain?

TAL 2018

10 October 2018

Report

Exclusive interview

Photos

Digitalisation pays off. But it also pays off to prepare for it.

Is digitalisation truly a benefit, or just a necessary evil? The 2018 Trends in Automotive Logistics (TAL) conference delivered a clear answer: Digitalisation pays off. But it must be preceded by thorough preparation. It also showed that technologies are constantly becoming simpler and more available, and the market eliminates the firms that don't innovate. On October 10th in Pilsen, domestic and international speakers described how to prepare for the rise of new generations – and for the first steps in digitalisation. For what is now the nineteenth time, we joined up with IHK Regensburg – the chamber of commerce and industry for the Upper Palatinate and Kelheim regions in Bavaria, Germany – to organise TAL.

This year's choice of trends in automotive logistics was focused on a single question – "The Digital Factory: Pain or Gain?" The nearly 200 participants – who came from not only manufacturing and logistics firms, but also consultancies and professional associations – could attend presentations on the latest technologies as well as on specific case studies. The morning programme opened up with Paul Norford from Zebra Technologies, who presented his view on how the upcoming generation is changing our world. They are the minds that have been shaped by a world full of technology, that have never been without smart phones and TVs, that perceive technology as a part of life. Naturally, companies also have to react to this: to survive, they must innovate in their products and business models.

Philipp Zimmermann from Franka Emika emphasised the new generation as well. This German start-up develops safe and affordable collaborative robots. Even schoolchildren can program these machines. That's an enormous change compared to today's situation, where integrating industrial robots is very complex. A shift like this (from industrial robots that people can't work near, to robots that are cooperative and accessible) will mean a major shift

in industry and in daily life. It will let people pursue more sophisticated activities and leave the simple ones to machines.

The morning block was rounded out by Matthias Pröller from ZF, who presented the integration of elements from the Industrial Internet of Things (IIoT) into both logistics processes and complex infrastructure with the cloud on one side and SAP EWM on the other. Openmatics, ZF's telematics subsidiary, has developed small IIoT tags that enable simpler and faster communication between e.g. warehousing and production. These devices are proof that even physically tiny tools can help a factory to become smarter and more flexible.

The conference's afternoon block was devoted to case studies. Representatives of IAC Group, RINGFEDER and Panasonic Automotive Systems presented their experiences with deploying new systems. They've each faced different challenges. The IAC Group was facing a new project and the need to provide JIS deliveries of complex interior parts. Producing such parts with a fast takt time is a process that must be managed properly. Although RINGFEDER isn't an automotive supplier, they too have to deliver their

products at precisely defined times. Meanwhile, they needed to digitalise their warehouse within SAP. And Martin Hana showed us the traps that await in this kind of process. Veronika Rejmanová from Panasonic Automotive Systems presented the change process that Panasonic underwent in their production planning. They faced the need not only to plan a large number of manufacturing operations, but also to do it with multiple planners working simultaneously. The day's final presentation was a collaboration between Sewio and Aimtec. They presented a technology for tracking objects inside of buildings. It helps firms to eliminate position-scanning tasks, optimise their fleet's hall movements and more. Michael Klaus (Sewio) and Rostislav Schwob (Aimtec) explained its benefits.

With such a wide rainbow of presentations, was there any point that every speaker still touched upon? Yes – not just one, but two. The first is that, no matter what its type or scope, digitalisation must be preceded by thorough preparation – of both the final processes and the actual deployment of the new technologies and systems. The second shared conclusion was that digitalisation is always about people. It's important to prepare them for changes and give them time to adapt to what's new. After all, new technologies and systems are here to make their (our!) lives easier. And when preparations are proper and thorough and the right solutions are chosen, they do.

Zdeňka Linková

We've got to be curious!

Paul Norford was one of the main speakers at TAL 2018, where he enchanted us all with his energy and his words on innovation, data and the rise of new generations. What, in Paul's opinion, leads us towards change? And how do people today differ from their Stone Age predecessors?

If a company is saying: "Now we should innovate", where should they start? Is it the idea? Is it the processes? What is it?

I love the concept of just spending time and playing. We are so focused on work these days – and we do have to deliver. That's a given. I think in order to innovate and to be creative, you have to create a space to be creative. You have to almost push things aside and say, "I'm going to spend" – and I'll just come up with some concepts – "I'm going to spend an hour every Friday just looking through the internet, just to see what there is." Because there'll be ideas generated from just spending time in a decompressed zone to just think a little bit clearly.

I think holidays are also important; they get you out of your normal comfort zone, out of running 158 miles per hour, trying to get things delivered. But if you step back, it gives you an opportunity to think, to consider, to process, to compartmentalise and just to have a look at the world in a slightly different way. From that point, when you have that space to think differently, to think of it slower, without the pressures of time – or everything else – that's when creativity is born. That's when innovation starts. You look at something in a slightly different way and think: "Wait a minute!"

And I think when you come back to the office or you come back to your environment to work, if you take that idea and you're given the empowerment to go and fail – go and fail fast! – that's when true innovation happens. It doesn't matter how you do it, when you do it, but you've got to create that space for that innovation spark to happen.

What are the biggest obstacles you are facing with your clients? Are they obstacles in technologies, or instead obstacles in our minds?

I think it's Option C, which is All of the Above! I think sometimes we have great ideas and we're unable to implement those ideas because the technology's not quite there yet. Or it's too expensive to embrace that technology and to use it. That won't stop us in moving in that direction, but it is a bit of a barrier.

I also think, sometimes, we as humans, we don't really realise that we're blocking change, that we're blocking our curiosity to innovate, to continue and push forwards, and I believe we have to look back at history to consider – how did we innovate, going from the Stone Age to the Bronze Age? How did we change? What elements, what processes did we go through? I don't believe there's any big change or difference now; we humans haven't really evolved since the dawn of time. So those processes still apply. Those elements of curiosity still apply. So if we can remember how to be curious, if we can remember how to act like a five-year-old, sometimes, that will help us remove some of these… let's call them human obstacles.

How should we explain to people that technologies are OK?

Wow. That's a big question! I think when it comes down to embracing technology, we have to consider where we've come from, and where technology is going. Everybody, certainly in my view, is very focused on the newer technology and where that technology is taking us. You also, I believe, have to look at the younger generation, when it comes to embracing technology – they love it! If you give your smartphone to a two-year-old, they're able to unlock it, and find YouTube, and get to games, and so on and so forth.

And I believe in order for us to really embrace technology and take it forwards, we've got to be curious, and we've got to make sure that we nurture that curiosity, because it's that that's going to take

us forwards. Of course there's things around moral values, about what we do with the technology, privacy, the GDPR has kicked in... what do we do around that? That's a whole other conversation. But certainly for me, making sure that we nurture and continue to be curious will help us accelerate and adopt technology, but also it will help us keep our mindset fresh and focused on the future.

How is Zebra helping clients with this step forward?

We've implemented that space where we're able to stop and spend some time – playing, let's say. We're also embracing newer technologies. If we think about Android: that operating system has been with us for a number of years now. If we hadn't stopped and played with Android when we did, back in 2010, 2011, we wouldn't be in the strong position where we are now, so I think it's our responsibility to spend that time playing and to create spaces, to create devices, to create technologies, to create thought

processes for our customers. For me a lot of it comes down to communication. If you don't communicate effectively, you're not able to do the things that we have done, so – it's a lesson for us as well! We need to continue to be curious, but also to push the boundaries and be empowered to push those boundaries, to work with our customers and partners to create something that's more than the sum of its parts.

Paul Norford is in charge of spreading new solutions at Zebra Technologies. Besides this solution evangelism, he's also a global trainer for Zebra's sales teams. He enthusiastically helps customers and partners to change how they do business. Beyond his vast energy, Paul also brings a wealth of knowledge, idea leadership, creativity and involvement in promoting innovative solutions at the customer. Hear this interview at www.talconference.com.

Zdeňka Linková

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Photo report

1. Veronika Rejmanová from Panasonic Automotive Systems presented the benefits of advanced planning and scheduling systems.

2. The soulful singer Tonya Graves enriched the evening programme.

3. Even after the main programme, there was still plenty of room for discussion – in a more informal atmosphere.

4. Attendees could try all the latest technologies... including Aimtec-style virtual reality.

4

3

5. The speakers also got to touch the robots
of which we've all said so much...

6. Evening discussion time.

7. Our partner Desseq brought
in its collaborative robot.

In brief

We do hardware too

Our award from Ingram Micro is one proof of this. We were their second best partner in 2017. Thanks... and we're sure we'll be up on the podium next year too!
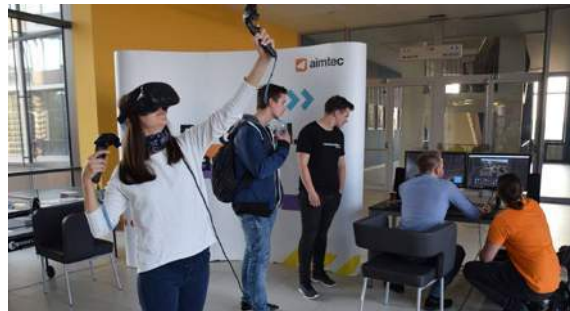

Our development has a new face

And not just at the top – where Jan Kocián has arrived – but throughout. This will move DCIx one more step closer to you, our users. We'll tell you more soon.

With your ~~head~~ EDI in a cloud

Think the cloud is just for photos? Or in our case, just for EDI? Wrong! At a seminar in November, we showed everything the cloud can bring a modern company.

Unified in the diversity of code

As a part of Europe Code Week, we joined up with Nvias and University of West Bohemia's Department of Information Science and Computing to show kids that IT doesn't bite – and in fact, it's a good and fun career.

IZB 2018

Where can you encounter 800 automotive companies in one place? At IZB in Wolfsburg! This year, we were there too.

Aimtec Open Race

18 May 2019, Pilsen

aimtecopenrace.cz

aimtec