pozyx®

Accurate positioning.

re:Define

THE VISITOR EXPERIENCE

A CURATED COLLECTION OF WHITE PAPERS
RE-DEFINING INDUSTRIES
THROUGH ACCURATE POSITIONING

pozyx.io

CYBER-PHYSICAL CONCEPT

Introduction

Imagine that you, as a destination marketing manager, have a **crystal ball** in which you can see where the visitors have been, where they are at the moment, and where they are going.

What a tool that would be for planning and development - transportation optimization, overtourism mitigation, safety and security issues, and tourist experiences facilitation? This is where we need a **digital twin.**

Technology and tourism are growing in parallel, but there are gaps between the two industries. **Most tourist/venue** applications that are available on smartphones and tablets **are not context-sensitive, lack interactivity,** and create the feeling of reading a simple textbook about the sights around the user.

There are many reasons why **GPS or QR codes** are inappropriate mechanisms for indicating the existence of digital content. These include the inability to obtain accurate locations (particularly indoor), battery life of devices on long tours, and the desire not to modify/damage historical locations.

Pozyx solves these issues and closes the gap between tourism and technology. By providing venues with an organic integration enabling a discreet real-time data collection while providing your visitors with an interactive environment.

In short, we provide you with your customer's guardian angel; a way to feed your business intelligence with real-time data of your physical assets (from objects to people) and at the same time improve the user experience by triggering actions on this data.

Sources

HANKEN SCHOOL OF ECONOMICS

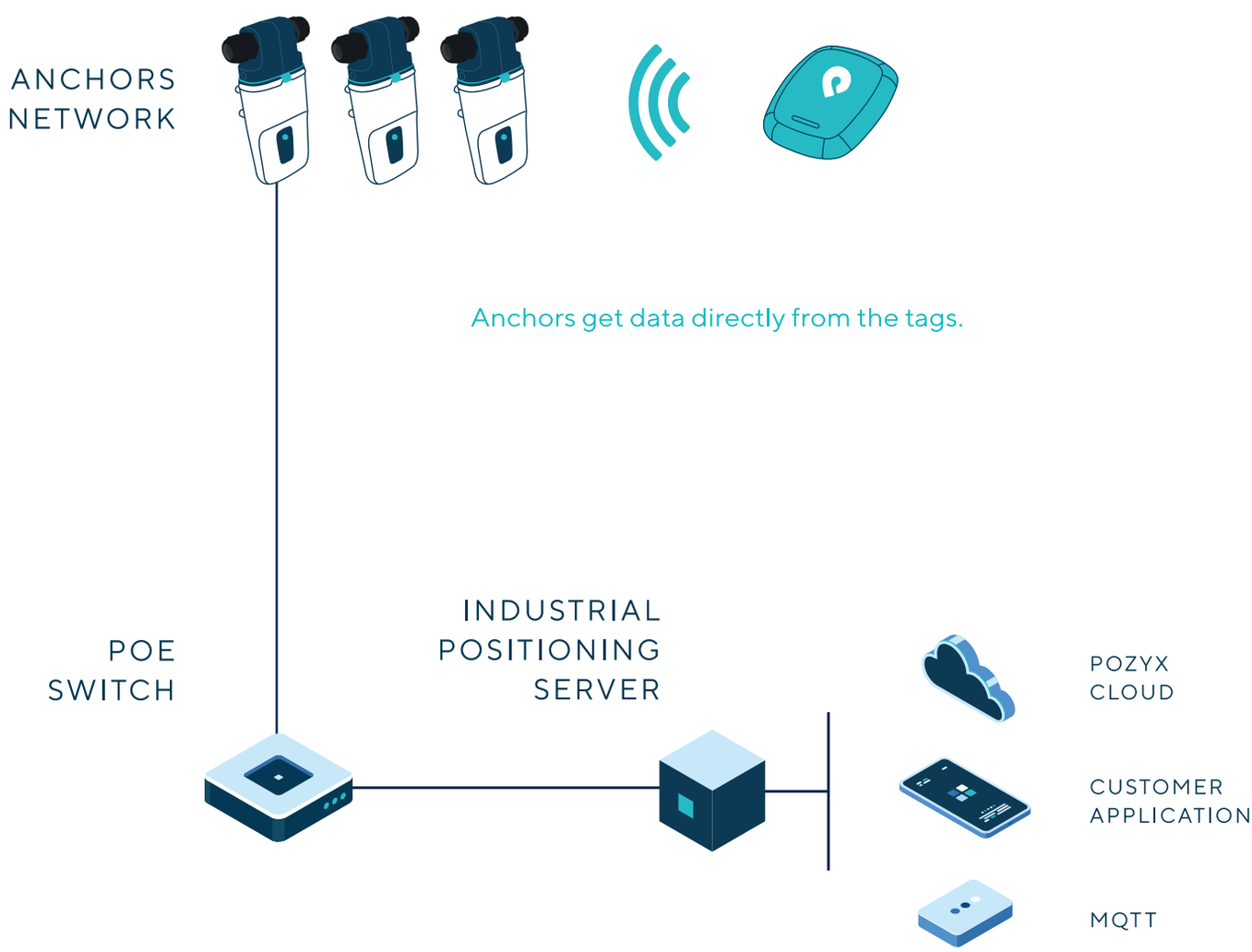
A Digital Twin for Destination Development and Management

EDINBURGH NAPIER UNIVERSITY

The International Journal of Architectonic, Spatial, and Environmental Design

HOW IT WORKS

Technology & Infrastructure



Everything is connected to the Industrial Positioning Server which computes the positions and feeds your analytic tools and dashboards in real-time. This infrastructure is much more accurate and costs less than alternative technologies.

WHAT IS IT

Digital Twins **Framework**

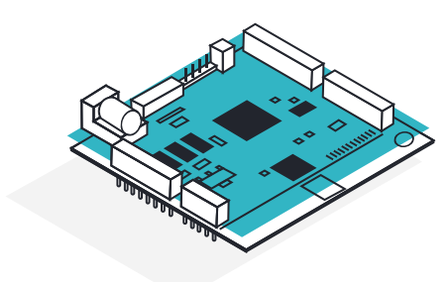
A Digital Twin is a **collection of all digital data** of a physical asset/a real thing. It integrates all information (data, models and other information) of a physical asset generated during its lifecycle (historical data, test data, simulation data, customer data, design data, ...).

A Digital Twin **acts like the real thing**, which helps us in detecting possible issues, test new settings, simulate all kinds of scenarios, analyze whatever needs to be analyzed, in fact, do pretty much everything we want in **a virtual or digital environment**, knowing that what we do with that digital twin would also happen when doing it with the « real » physical asset.

How can we be sure that this would be the case? That is where sensors and the Internet of Things, or better **data**, come in. **The physical asset helps us in making our digital twin as it feeds the data we need to make that digital twin a real twin.**

A Digital Twin is only relevant in view of a **concrete application/question**: i.e. which **added-value** is delivered by leveraging upon the Digital Twin → which « view » is used.

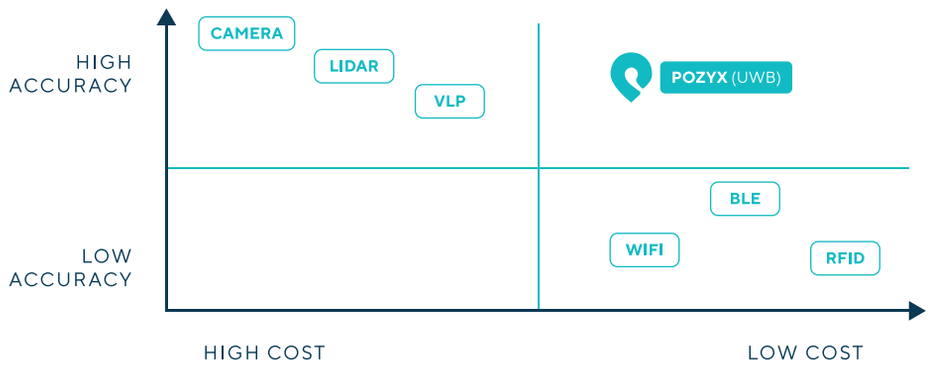
- A digital twin is a digital replica, a virtual representation of a physical object or a process, a digital aid companies can use for improved performance of their real world products or services.
- The digital twin represents a one-to-one connection between a concrete application in the the real world and the virtual reality.
- It is dynamic and generates real-time, historical and even predictive data using sensors and information sharing processes.
- It's an extension and consequence of the Industry 4.0 discourse which fuses IT world with real world.



WHY

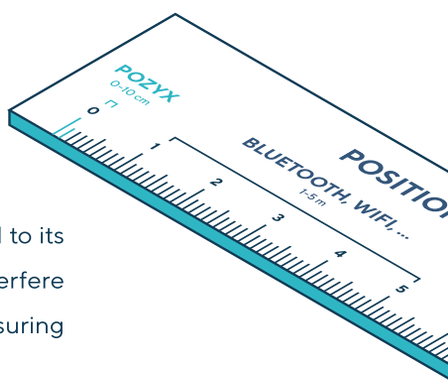
UWB Positioning?

There are a lot of competing indoor positioning technologies on the market.



On the right side, you'll find all the radio-based technologies *(generally cheaper)*, and on the left side, you'll find all the light-based technologies *(typically more expensive)*. Likewise, you can see on the matrix that light-based technologies **will generally be more accurate**; this is because of standard physics principles.

Ultra-Wideband (UWB) Pozyx Technology



Ultra-Wideband is a radio technology that uses **a very low energy level** compared to its range capability. Contrary to other indoor positioning systems, UWB does not interfere with other technologies. It transmits very short pulses across a large bandwidth, ensuring **no interference with Wi-Fi or Bluetooth equipment.**

Additionally, Ultra-Wideband positioning has **very high accuracy** as it can achieve positioning **within 10 cm or less.** It also uses low latency times, allowing it to update frequently. The position updates can go **up to 100 times/second.** The maximum range of the system is typically **150 meters in clear line-of-sight.**

The exceptional accuracy of Pozyx Positioning solutions is achieved through a unique combination of:

- Carefully engineered hardware, designed and made in Belgium.
- The **Pozyx Positioning Engine**, an exclusive set of algorithms, increasing hardware accuracy.

It's the very core of every Pozyx solution and what makes them uniquely accurate.

RE:DEFINING THE

Museum Experience

Fredo De Smet, Curator of the Design Museum of Ghent: The relationship between the museum and the visitor is significant. And it was time to **redefine this relationship.**

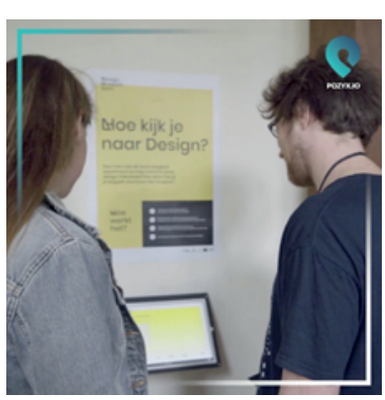
The journey begins as soon as a visitor picks up a tag, providing guests with an organic and interactive visit.

We detect where and how long visitors stay but in a non-intrusive way. And at the same time, we're collecting valuable data, improving the curation of our exhibits.

In real-time, anchors pick up the tag signal and create a precise heatmap, coupled with the exhibition items locations.

The collected data provides intel on how to improve setups to create an immersive experience.

And at the end of the exhibit, visitors can consult their profile based on their behavior and get a recommendation for their next visit to the city.

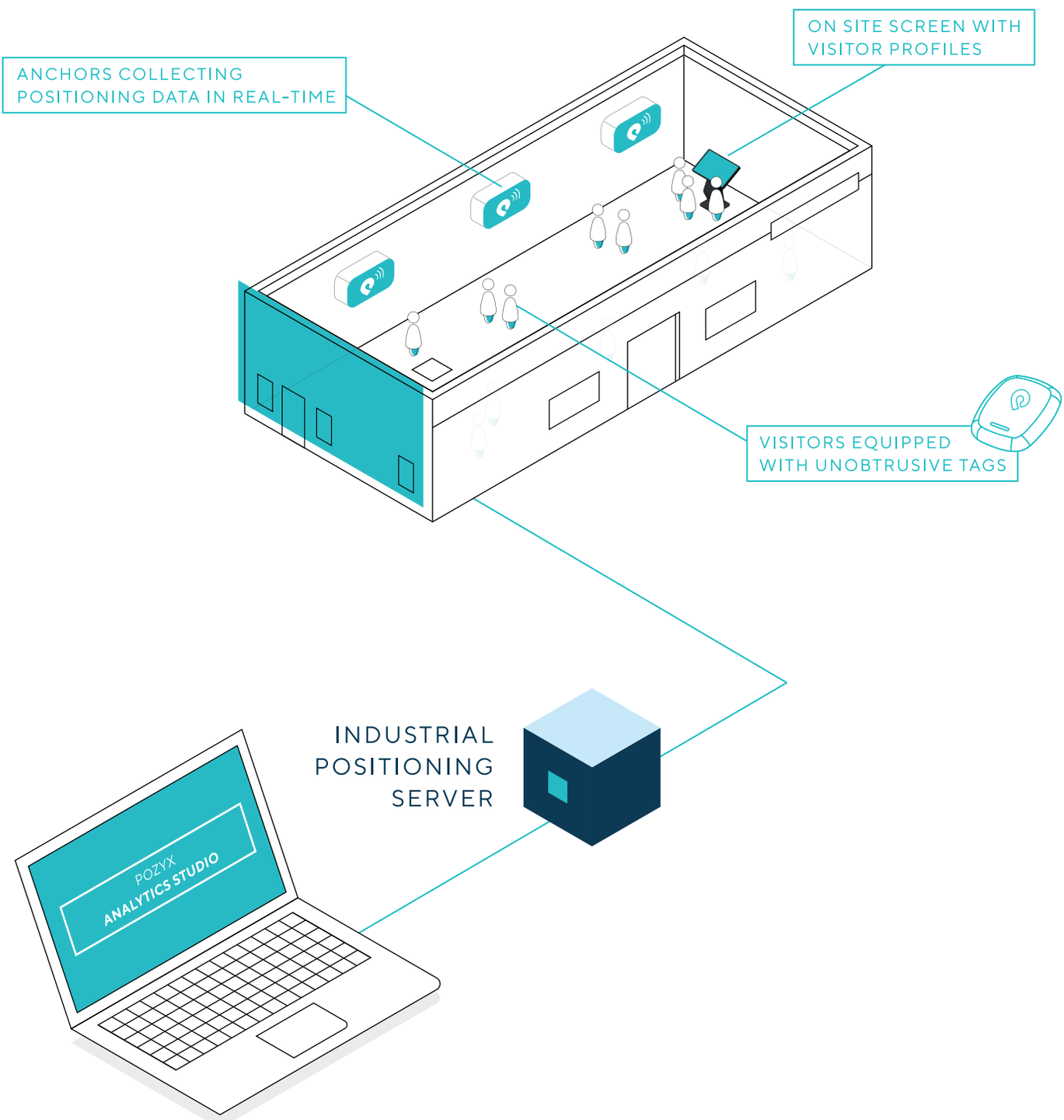


HARDWARE PROJECT SUMMARY

Tracking devices: **12 Pro Anchors**
Trackers: **25 Custom Visitors Tags**
Tracked Surface: **500sqm**

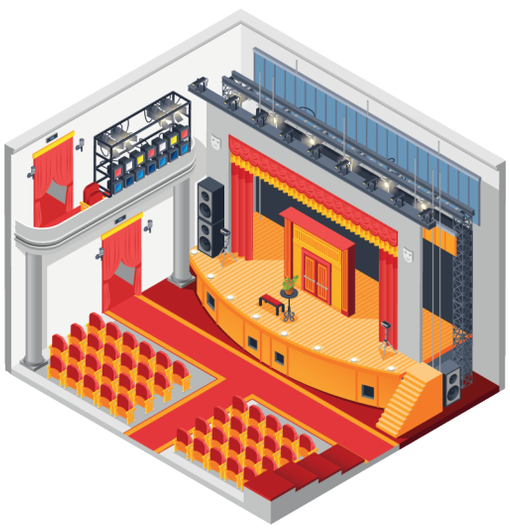
A TYPICAL

Pozyx **Setup**



SOME

Environments and typical **Uses**



Improve your **Customer Comfort**

MORE DETAILS ON **PAGE 11**

Implement **Gamification**

MORE DETAILS ON **PAGE 13**

Location-Based **Mobile Ordering**

MORE DETAILS ON **PAGE 12**

Visitor
Analytics

MORE DETAILS ON **PAGE 10**

Event
Intelligence

MORE DETAILS ON **PAGE 10**

Location-Based
Advertisement

MORE DETAILS ON **PAGE 14**

Event **Intelligence** & Visitor **Analytics**

Capturing positioning data from your visitors provides a wealth of information that can be leveraged to further improve the visitor experience or the profitability of the event.

Most Popular Locations

Optimize your teams & assets management by analyzing crowd movements and behavior. Allowing staff to **track and monitor the crowd in real-time**. This can, for example, be used to detect queues and to automatically instruct teams to increase presence in bottlenecks **effectively reducing queues**. Heatmaps can be used to locally increase or **decrease staff**, shops or signposts.

Behavior-based Visitor analysis

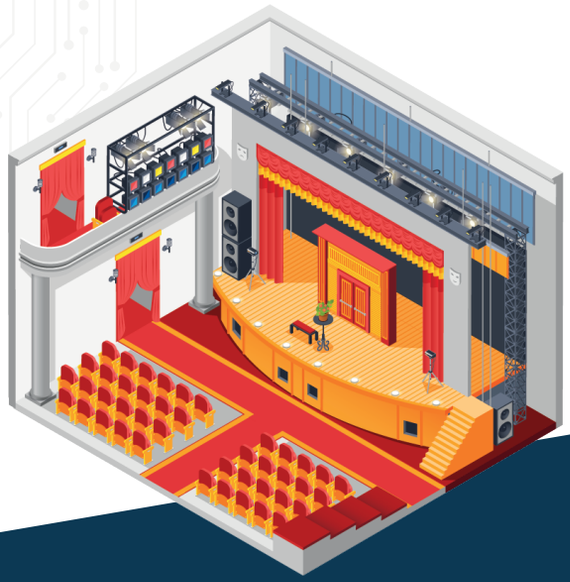
Provide your visitors with a **tailored experience based on their behavior**. Whether they are more adventurous, preferring outdoors or more interested in culture, sports, restaurants or shopping. All of this information can be **gathered from positioning data** alone and allows marketers to **target similar visitor profiles** for future editions with **increased festival revenues**.

Optimized Staging of Exhibitions

By analyzing the flowchart within a museum/exhibit context, it becomes visible how the visitor is exploring premises and **which content is the most popular** among your audience. This information can then be used to **improve the exhibition quality** and its appreciation on various rating websites.

Improved
Customer Comfort

Today more than ever, visitors want to be impressed and expect much higher attention and levels of service. Pozyx will enable you to leverage technologies to increase your visitors' comfort.



Seat Management

Through accurate indoor positioning, it is possible to **determine the seating** of a visitor. Allowing the staff to **locate people** that are in the wrong seat and **assist them**. For the visitor itself, it could potentially be indicated that he or she is indeed in the right seat by turning the seat light green or through the event mobile app.

Real-time Assistance

Equipping a tracking device with a **help button**, or linking it with a smartphone, allows the visitor to send out a **request for assistance**. For example, when the person is lost or desires a drink. The staff can then quickly and easily **locate, approach and help** the visitor.

Children Safety

A tracking device can be used to **locate children** in case they go missing. The real-time indoor and outdoor tracking **reduces the time** for parents and staff to locate a missing child in a large or busy resort.

Location-Based **Mobile Ordering**

Inside positioning system is now available to assist professionals.
Serving your order at the table where you are sitting is a concept that has proven successful for McDonald's in their quest for the 'restaurant of the future'.

More Quality

Any meal or drink that is ordered at the counter, at a kiosk or through a smartphone application **can be brought** to the table of the visitor based on his real-time location.

Less Mistakes

This does not only improve the customer experience but also **reduces the effort and mistakes** of the staff to remember correctly where the customer is seated in busy restaurants.

Less Costs

HR management is the **key to profitability**. This technology allows you to reduce the required staff or to deploy untrained seasonal workers and still provide **excellent service.**

Better Environment

Equip your waiters with Pozyx tags and you can benefit from a *Spaghetti Diagram* path visualization, providing you the data to **optimize your people management** and **improve your internal disposition** of your facilities

Gamification

Gamification is the application of game design elements and game principles in non-game contexts. Gamification commonly employs game design elements to improve user engagement, organizational productivity, flow, ease of use, and more.

Decrease
Dead-spots

Gamification encourages your visitors to explore the entire venue. **Enabling better visibility** for the entire venue. Effectively **suppressing dead-spots.**

Increase
Satisfaction

Provides your visitors with treasure hunts as customers love to engage and interact with their surroundings. **Increasing their satisfacation, therefore, their likeliness to spend.**

Increase
Engagement

All exhibitors want the best spot and engage with a lot of visitors. You can now provide your exhibitors with a **controlled crowd** and increase visitors **likelihood to engage.**

Optimize
Flow

Analyze crowds in real-time and send staff or start animations in order to fluidify your venue circulation. **Increasing visitors comfort and exhibitors leverages.**

A majority of studies on gamifaction find it has positive effects on individuals.

Location-Based **Advertisement**

Location-based advertisement is a new form of advertising that integrates mobile advertising with location-based services. The technology is used to pinpoint consumers location and provide location-specific advertisements on their mobile devices.

Location-Aware Advertisement

Marketers already know that making advertisements relevant to the viewer is the key to achieve success. With **real-time location information, advertisements** on a smartphone application can be made **location-aware.**

Location-Based Coupons

Provide your visitors with coupons for a nearby store or restaurant and increase sales. Making it much **more likely for them to use them on the spot.**

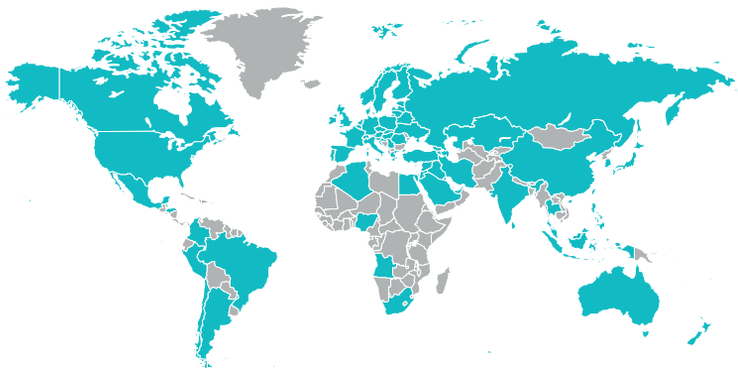
Location-Based Awareness

Promote your events/animations in real-time in order to gather crowds at the right time and place. **Enabling effective and useful crowd control.**

According to Bruner and Kumar (2007) : "Location Based Advertisement refers to marketer-controlled information specially tailored for the place where users access an advertising medium".

A WORD ABOUT

pozyx®



Pozyx Ltd. is a Belgian company specialized in accurate positioning based on ultra-wideband technology. We provide indoor and outdoor solutions in over 80 markets. The company was founded as a spin-off from the prestigious Ghent University in 2015.

Pozyx designs its own hardware, writes its firmware and invests heavily in the development of algorithms to make UWB positioning more accurate and robust in **all environments.**

Quick to install and easy to maintain. Pozyx is designed with ease of use in mind. You don't have to worry about the system. With Pozyx, you can focus on what matters.

Our software modules can be deployed in containers, both in the cloud and at the edge. Back-end integration is fast and flexible, thanks to our APIs and MQTT. We also provide SAAS analytics tools. You select what you need.

Pozyx offers **Two Product lines**

- The **Creator** Series, made for creative and DIY people looking to explore and evaluate UWB positioning technology, created for inventive people who want to learn and experience UWB-positioning hands-on such as robotics clubs, technical researchers, and academics.

- The **Industrial** Series, made for industrial position-based solutions, leading professional customers from Proof-of-Concept, over Pilot, to full solution roll-out, with system training and after-sales support. An industrial, professional MVP, with the robustness, the comfort and the security of accompanying enterprise-level software and maintenance options.

Pozyx also works as an independent design house (IDH), helping OEM clients to bring UWB products to market.

Designed & Made in **Belgium**

POZYX IS ALREADY **IN 80 COUNTRIES**
AND SOLD **MORE THAN 3000 KITS**

Schedule a demo on our website

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Contact

GENERAL INQUIRY
info@pozyx.io

SALES DEPARTMENT
sales@pozyx.io

TECHNICAL SUPPORT
support@pozyx.io

pozyx®
Accurate positioning.

VRIJDAGMARKT 10/201
9000 GENT - BELGIUM

FACEBOOK **@pozyx**
LINKEDIN **@pozyx**
INSTAGRAM **@pozyxlabs**
TWITTER **@pozyxlabs**