



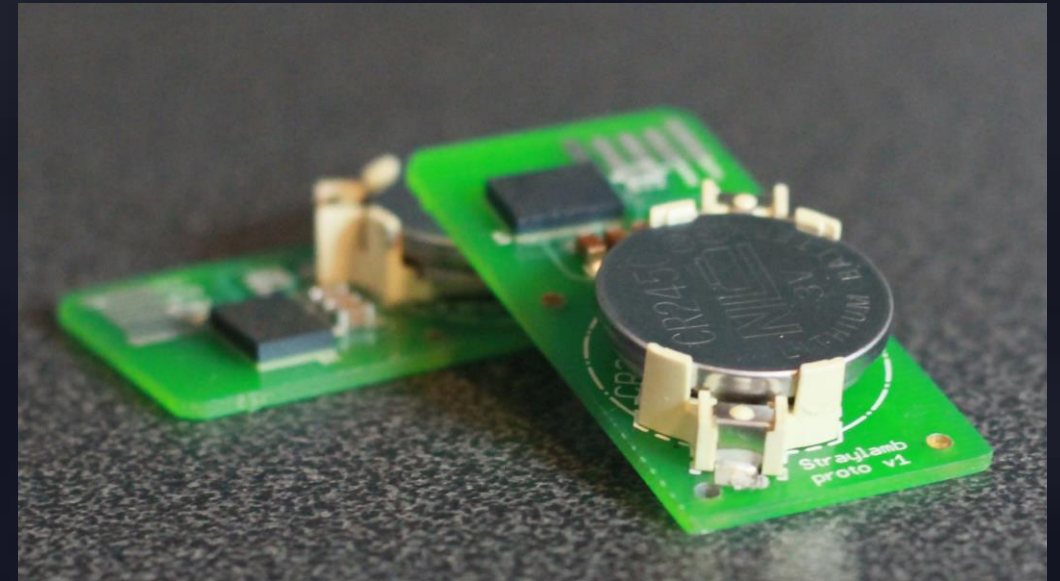
Smart Industry and Retail solution based on localization

# History of StrayLamb

- 2 years old hungarian startup – continuous innovation process
- Industrial and Retail like IT developments
- Own hardware and software achievements
  - Based on mainly BLE (Bluetooth Low Energy) beacons
  - In portfolio: UWB, RFID
- BIGData and automatization

## Our main partners so far

- AUDI Hungaria
- WestEnd City Center
- ThyssenKrupp
- L-Mobile



Our own developed BLE tags – the base of our solutions



# Our mission

Improve customer experience and loyalty, increase customer acquisition, improve operation efficiency

Your  
Business

WE help YOU to build innovative business improvement services in operation and optimization

Our  
Solution

By providing OUR real time position tracking technology and (big)data analytics solution

Your  
Success

Based on this information YOU decide how you use it and what to improve / change



Main achievements so far

- Retail - Customer heat maps, car parking aid, digital marketing enablement
- Logistics industry - Indoor real time vehicle, product and staff tracking and optimizing



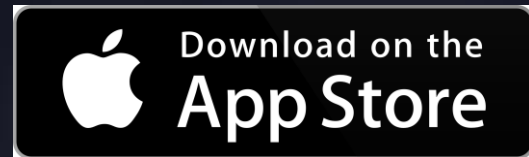
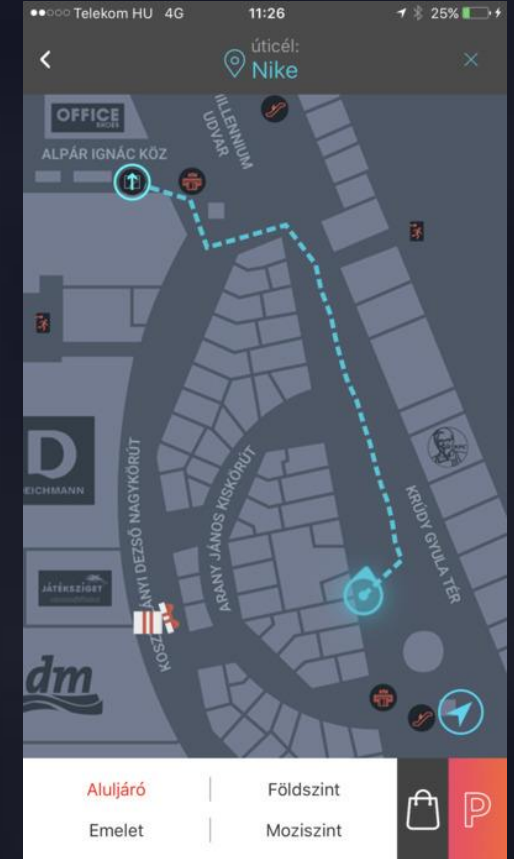
# Use cases and benefits (Retail mobile app)

Dwell Time, Party Size, Visit Frequency, Conversion, Average Party Spend, Shopper Satisfaction

➤ **Push messages** based on position proposing different promotions even based on customer profile increasing sales of products and spend of each customer, improving customer satisfaction/experience and increase customer retention/acquisition rate

➤ **Heat map** based decisions like rental fee finetuning, refurbishment planning, marketing potential determination, bottleneck analysis, etc.

➤ **Parking aid** for finding empty spaces and directing customers back to their cars improving customer satisfaction/experience and increase customer retention/acquisition rate



Westend City Center app

# What we do for industrial performers

- Collect and visualize tracking data in cloud or local based database/software
- Provide and utilize tracking data for the required function(s)
  - **Push information** by segmentation by conditions
  - Provide data for task based **indoor navigation** (operation and route optimization)
  - Provide **requested information** by position
- Visualize data to **improve decisions support**
  - **Analyse tracking data** to plan and optimize on longer term
  - **Management dashboard**: Track movements and positions
  - **Real time** visibility and alerts providing high security
  - **Big data analytics** with automated dashboards
  - **High accuracy**, track even within 50 cm





# Our partnership's benefits

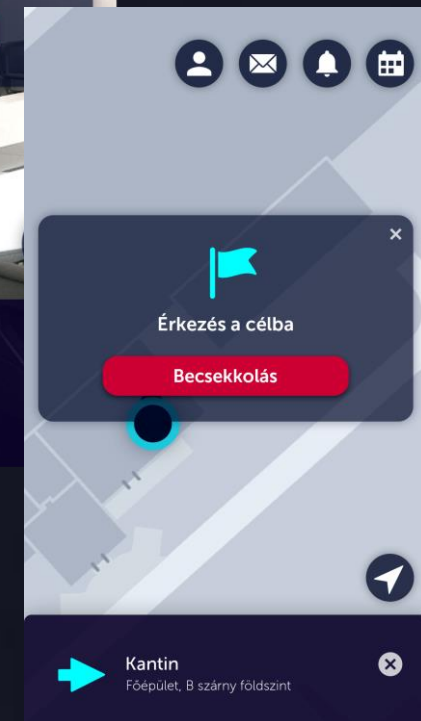
- **Real time** tracking of everything to management flat screens with dashboard visualization besides camera screens
- Reduce general **processing time** of putaway and picking
- Reduce amount of **miss-used materials**
- Identify **bottlenecks**
- Monitor forklift **capacity utilization** by statuses by location (working, planned stop, non planned stop, maintenance, etc.)
- Portable **asset identification and tracking** (external assets in and out, internal assets security)
- **Integration** of our solution to your existing systems for further benefits with warehouse navigation
  - Optimize general **material flow**
  - Optimize **putaway and routes**
  - Optimize **picking, routes and commissioning**



# AUDI Map – POC (smart office)

## Available functions

- Corporate registration / Guest login
- Real time navigation (outdoor GPS, indoor BLE) – less search, more active time (Outlook/ERP system integration)
- Digital product/device registration at main gates
- Booking (office meeting-room, workstation)
- Push notification (central managed)
- POIs on the digital map – toilets, canteen, virtual factory visiting etc.
- Alerts (for example: not authorized route)
- „Where I parked?” function
- Permission levels and workgroups: statuses (holiday/meeting etc.) in real time



# Smart Entrance System

## BLE based access control system

- Efficient, quick and low cost installation (Access points + BLE tags per employee)
- Easy expansion method to monitoring the movements inside all the workplace
- Integration with payroll calculation applications
- Less paper and administration, faster processes
- Statements
- Exporting documents (for example: record of attendances)
- Collecting of information, analysis

The screenshot displays the 'STRAILAMP SMART ENTRANCE' software interface. The main content area shows a 'Jelenléti ívek' (Attendance sheets) section with a table of attendance records for December 2017. The table is organized by employee name: Kiss János, Nagy Ferenc, Bódi Bálint, and Gerendás Gábor. Each employee's record is a grid with columns for 'Munkaidő' (Work time) and 'M. idő' (Time), and rows for each day of the month. The cells are color-coded: yellow for 'Téppens' (Absence), green for 'Szabadság' (Vacation), red for 'Hívtéve' (Not called), and blue for 'Munkavégzési nap' (Working day). A legend at the bottom identifies these colors. The interface also includes a sidebar with navigation options like 'Bejelentkezésközpont', 'Jelenléti ívek', 'Szorgalmi ívek', 'Jelentéshoz rendelés', 'Munkavégzések', and 'Beállítások'. The top right corner shows the user 'Filip J.' and a notification icon.

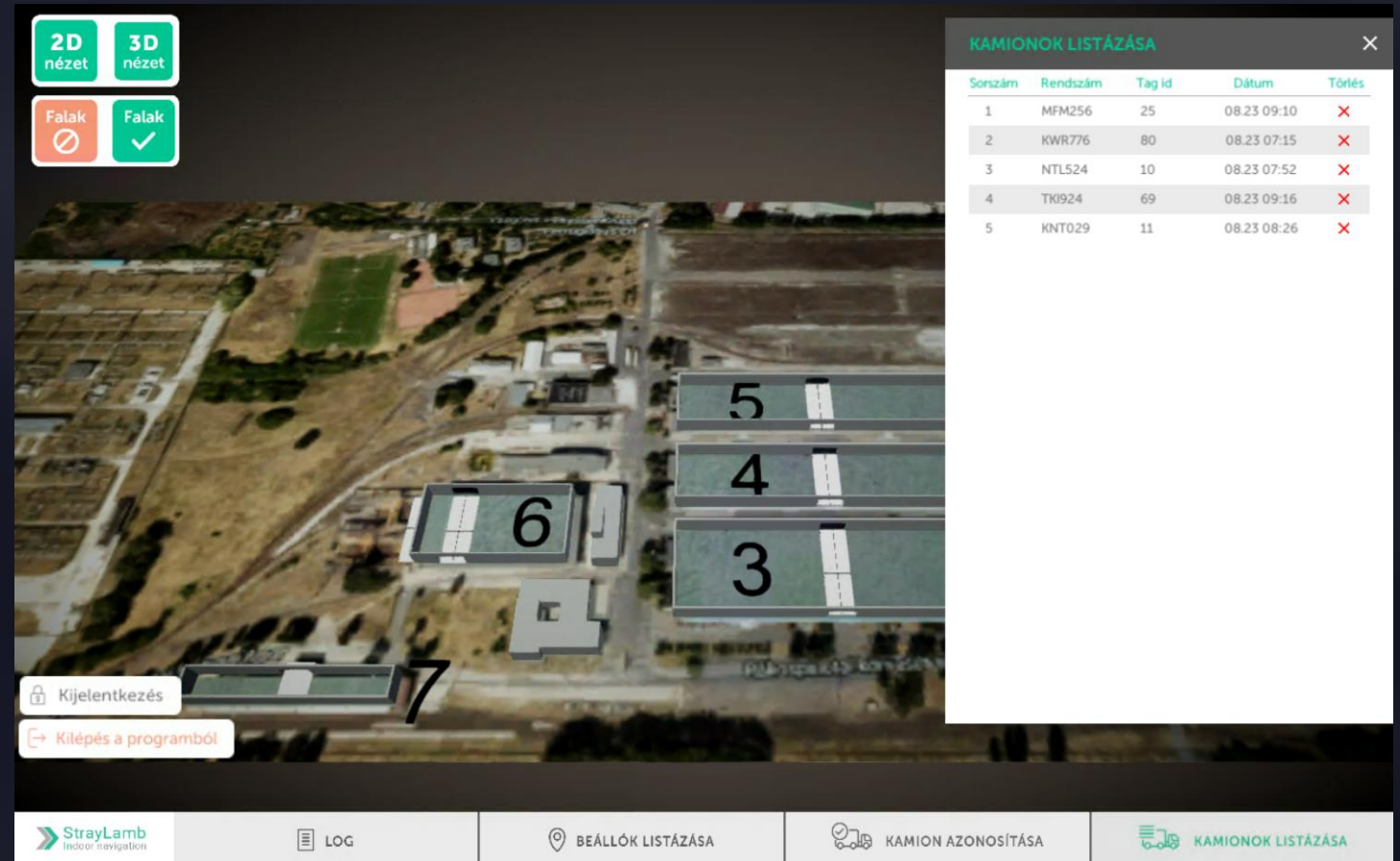
2017 december		Kiss János		Nagy Ferenc		Bódi Bálint		Gerendás Gábor			
Dátum	Napok	Kezdő	Vége	óra	Kezdő	Vége	óra	Kezdő	Vége	óra	
december 1.	péntek	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 2.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 3.	vásárnap										
december 4.	hétfő	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 5.	kedd	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 6.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 7.	csütörtök	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 8.	péntek	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 9.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 10.	vásárnap										
december 11.	hétfő	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 12.	kedd	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 13.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 14.	csütörtök	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 15.	péntek	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 16.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 17.	vásárnap										
december 18.	hétfő	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 19.	kedd	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 20.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 21.	csütörtök	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 22.	péntek	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 23.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 24.	vásárnap										
december 25.	hétfő										
december 26.	kedd										
december 27.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 28.	csütörtök	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 29.	péntek	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 30.	szerda	7:00	15:00	B	7:00	15:00	B	7:00	15:00	B	
december 31.	vásárnap										
Összesen:											
		17%		17%		17%		17%		17%	





# Yard Management System

- Monitoring vehicles, moving objects accross large areas
- Real time and automatized task management and deputation
- Data integration
- Optimizing work processes and energy consumption
- Monitoring usage
- Sensors for unique results
- Device shadowing and automatized stockpiling



The screenshot displays the Yard Management System interface. At the top left, there are controls for 2D and 3D views, and a 'Falak' (Fence) status indicator. The main view is a 3D aerial perspective of a yard with several trailers numbered 3, 4, 5, 6, and 7. A 'Kijelentkezés' (Check-out) button is visible near the trailers. On the right, a 'KAMIONOK LISTÁZÁSA' (Truck List) window is open, showing a table with columns for 'Sorszám', 'Rendszám', 'Tag id', 'Dátum', and 'Törítés'. The bottom navigation bar includes the StrayLamb logo and buttons for 'LOG', 'BEÁLLÓK LISTÁZÁSA', 'KAMION AZONOSÍTÁSA', and 'KAMIONOK LISTÁZÁSA'.

Sorszám	Rendszám	Tag id	Dátum	Törítés
1	MFM256	25	08.23 09:10	×
2	KWR776	80	08.23 07:15	×
3	NTL524	10	08.23 07:52	×
4	TK924	69	08.23 09:16	×
5	KNT029	11	08.23 08:26	×

Trailer Yard Management System in use by one of our partner





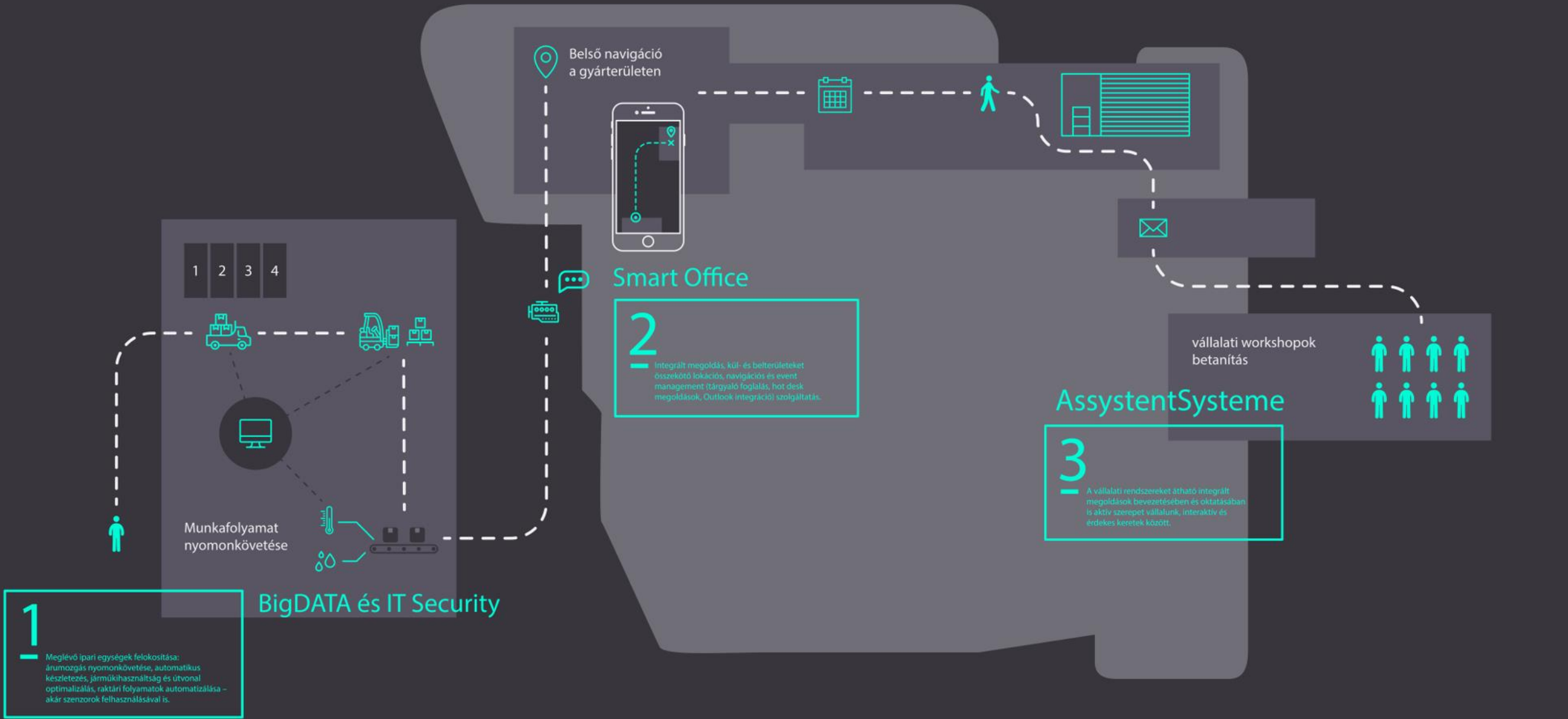
We are creating 3D visualization for unique needs

# BLE Beacon + E-ink display

- Special device exclusively for TYMS
- Remotely changed system notifications
- Flexible shaping
- Low energy consumption and price



# Summary of our industrial vision





# Who we are

- › **Start-up** Hungarian company
- › Working together with **BME R&D** on UWB technology
- › **Innovative** design and implementation with young talents
- › **Flexible** local team providing a fast time to market solution
- › **Affordable** cost structure ensuring affordable price
- › **Local** solution references with fast ROI

