
WIREPAS
LIGHTING, AND BEYOND
WIREPAS AND INGY

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Installation

is as simple as point for point replacement.

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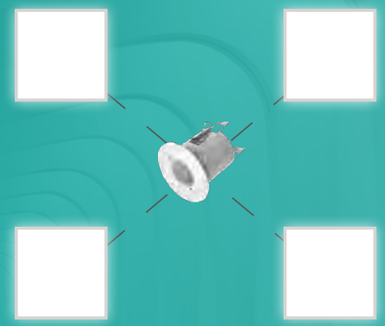
Ingy® comes in two different variations for a complete lighting solution

Standalone sensor



- One on one replace of existing lightplan based on standalone sensors
- Get connected easy to commision sensors for the price of a normal non-connected stand-alone sensor
- Lowest possible lighting control budget

EUR 130.- gross.
For a standalone sensor with daylight harvesting and presence detection.

Integraded sensor

- Highest possible savings for any lighting control solution
- Reduced total investment cost versus Dali based solutions
- Highest possible density of sensors and radio modules for IoT applications

EUR 220.- gross.
For a complete panel with integrated daylight and presence sensors.

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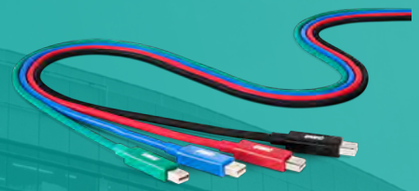
Ingy® offers great benefits compared to traditional lighting control solutions

Compared to: Standalone based

- Intuitive app based configuration
- Building wide control network build-in
- IoT upgrade path



Compared to: Dali based

- No wires nor central control units
- No expert required during (re) commisioning
- IoT upgrade path

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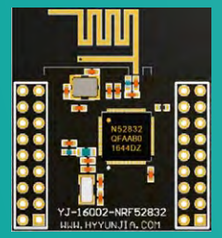
Ingy technology

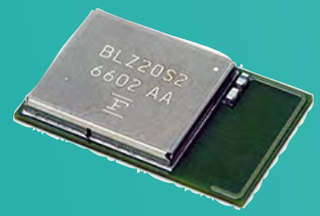
can be integrated into luminaries in four ways



Nordic NRF52832

Option 1: Serial interface to secondary chip, providing access to sensor and driver
Option 2: Direct connection

- Driver through PWM/UART/Dali
- Sensors through Analog ports



Fujitsu FWM7BLZ20

Incorporate Fujitsu FWM7BLZ20 with Ingy pre-flashed

- Driver through PWM/UART/Dali
- Connect on-board sensors through Analog ports

Build-in sensors

Build-in module with integrated sensors

- Driver through 0-3.3V/0-10V/ Dali/UART
- Sensors come build-in to the module
- Supports Dali-2, Philips SR, Osram Dexal/ Helvar freedom

OEM Luminairs

OEM Luminairs

- Most common form factors available
- Fully white labeled
- Comes with integrated sensors

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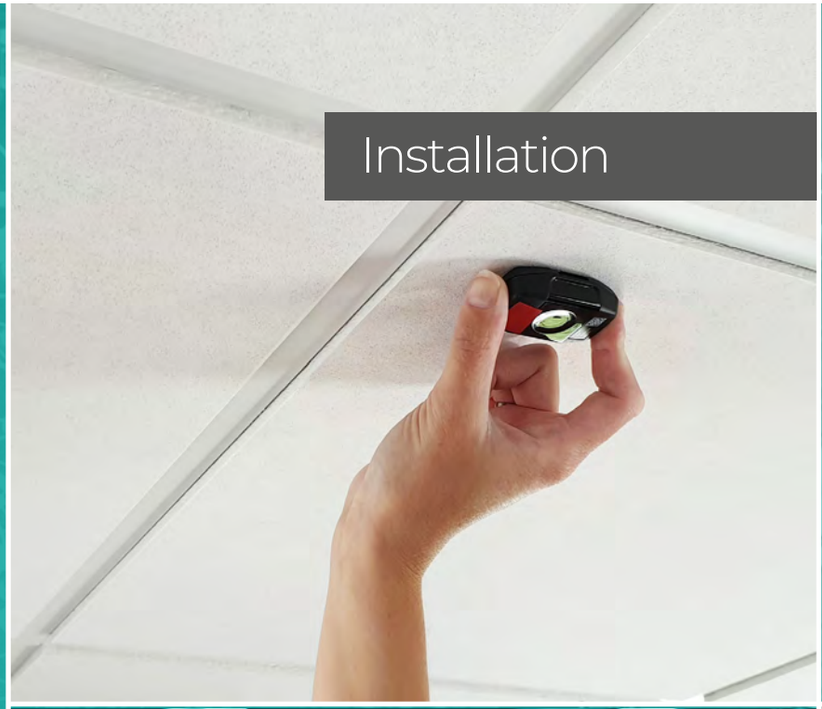
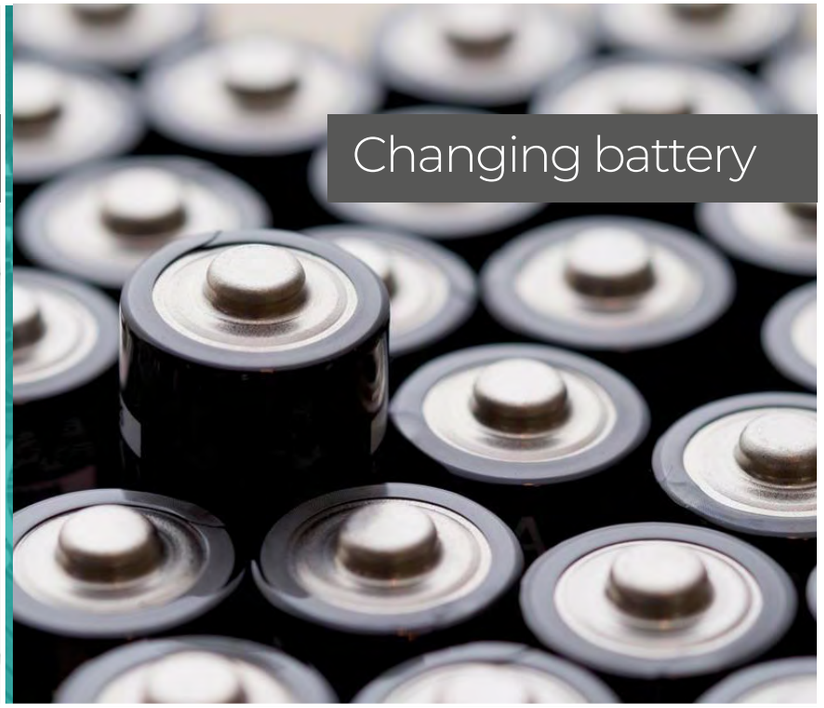
The challenges when rolling out sensor networks





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The solution:

Integrate sensors in the luminaires

- Daylight harvesting
- Occupancy detection
- Asset tracking
- Occupancy analytics
- Indoor navigation

- Remove need for battery-powered sensors
- No separate installation cost for the sensors
- Wireless coverage everywhere through mesh

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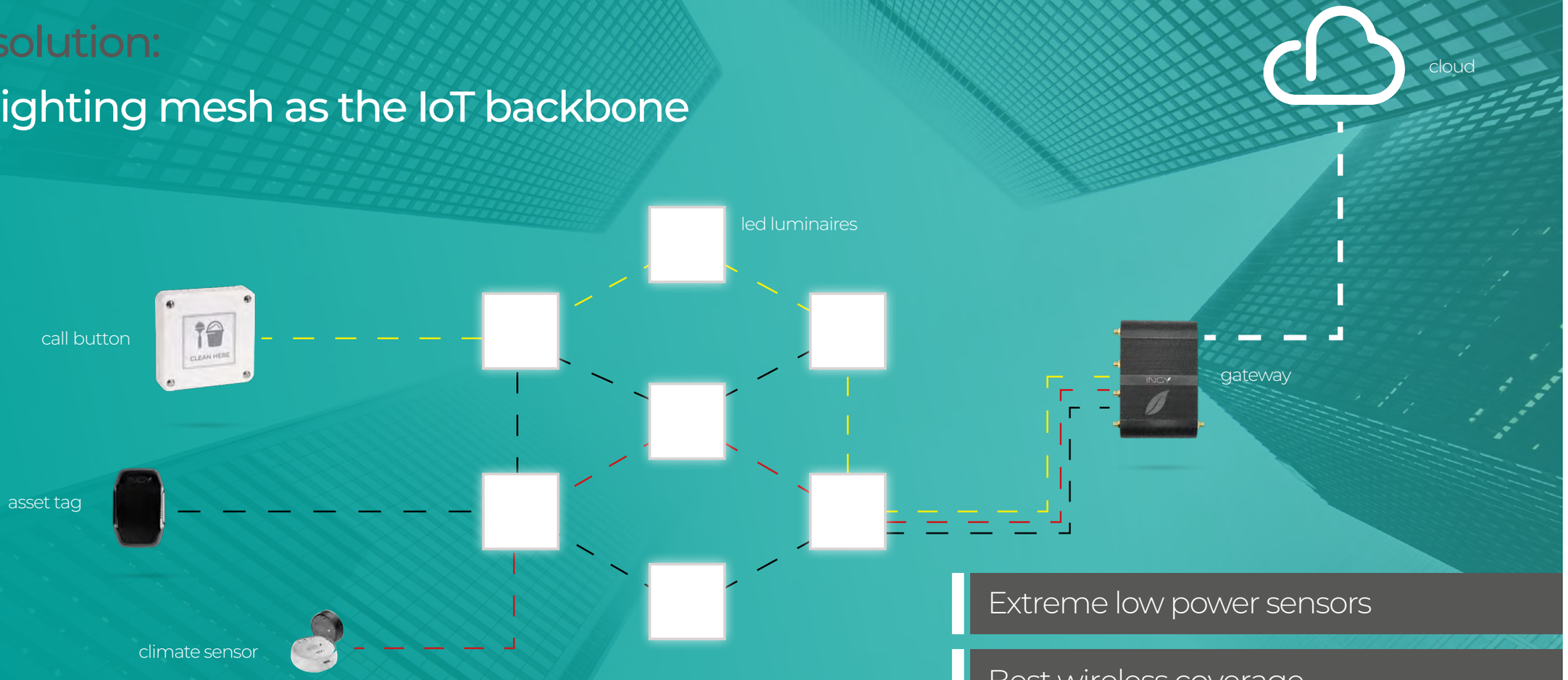
The solution:

Use lighting mesh as the IoT backbone



- Extreme low power sensors
- Best wireless coverage
- Converged network

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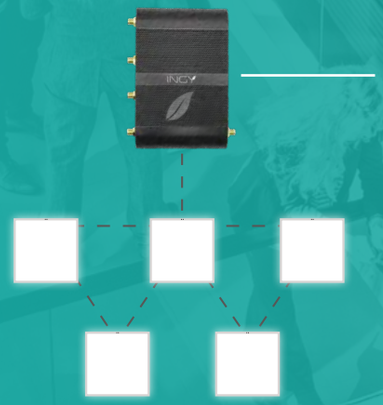
A building with Ingy® luminaires can easily be upgraded to a smart building without investing in the infrastructure

1 Add gateway

2 Integrate smart building data into your existing IT infrastructure



partners

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3 Optionally add additional sensors to Ingy building wide mesh

Asset tracking

Call button

Indoor climate control

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Integrate any data from the lighting network into your existing IT infrastructure

- Lighting management
- Asset tracking
- Occupancy analytics
- Climate control
- Indoor navigation
- Call button

gateway

- Integrated workplace management solutions
- Indoor positioning engines
- Building management systems
- Order management systems
- Enterprise resource planning
- Room booking management
- Task management systems
- Facility management information system
- Building digital-twin portal

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We have developed a number of smart lighting applications on top of our lighting control stack

The Ingy-enabled smart lighting infrastructure can enable a wide range of smart building use cases

Localize equipment through our asset tracking technology

Indoor navigation sending location beacon signals to mobile phones from every luminaire

Occupancy analytics through presence sensors integrated in the lighting

Battery-free sensors Connect low energy sensors through our mesh to the internet

Asset tracking can reduce required medical equipment by 15%

Nursing Times

HOME NEWS CLINICAL LEARNING UNITS AND PORTFOLIO STUDENTS OPINION EVENTS JOBS

Nurses waste 'an hour a shift' finding equipment

10 FEBRUARY, 2009

More than one-third of nurses spend at least an hour finding items of equipment during an average ho
according to a survey by Nursing Times.

Catharina Ziekenhuis © Menno Boon

Gestolen medische apparatuur Catharina Ziekenhuis Eindhoven naar buitenland

EINDHOVEN - Waar raken dieven de zeer prijzige endoscopen kwijt die zaterdag in het Eindhovense Catharinaziekenhuis zijn gestolen? De apparatuur met een waarde van 100.000 euro is ongetwijfeld bestemd voor buitenlandse markt, denkt voorzitter van de Sterilisatie Vereniging Nederland (SVN) Tom Pereboom. ,,Want in Nederland kunnen we niet zomaar zo'n endoscoop kopen en in gebruik nemen."

Easily locate assets based on a particular query

FOR EXAMPLE:

Show all safety equipment that currently is not in its registered room

Show all beds suitable for a child of 10KG that are not in use

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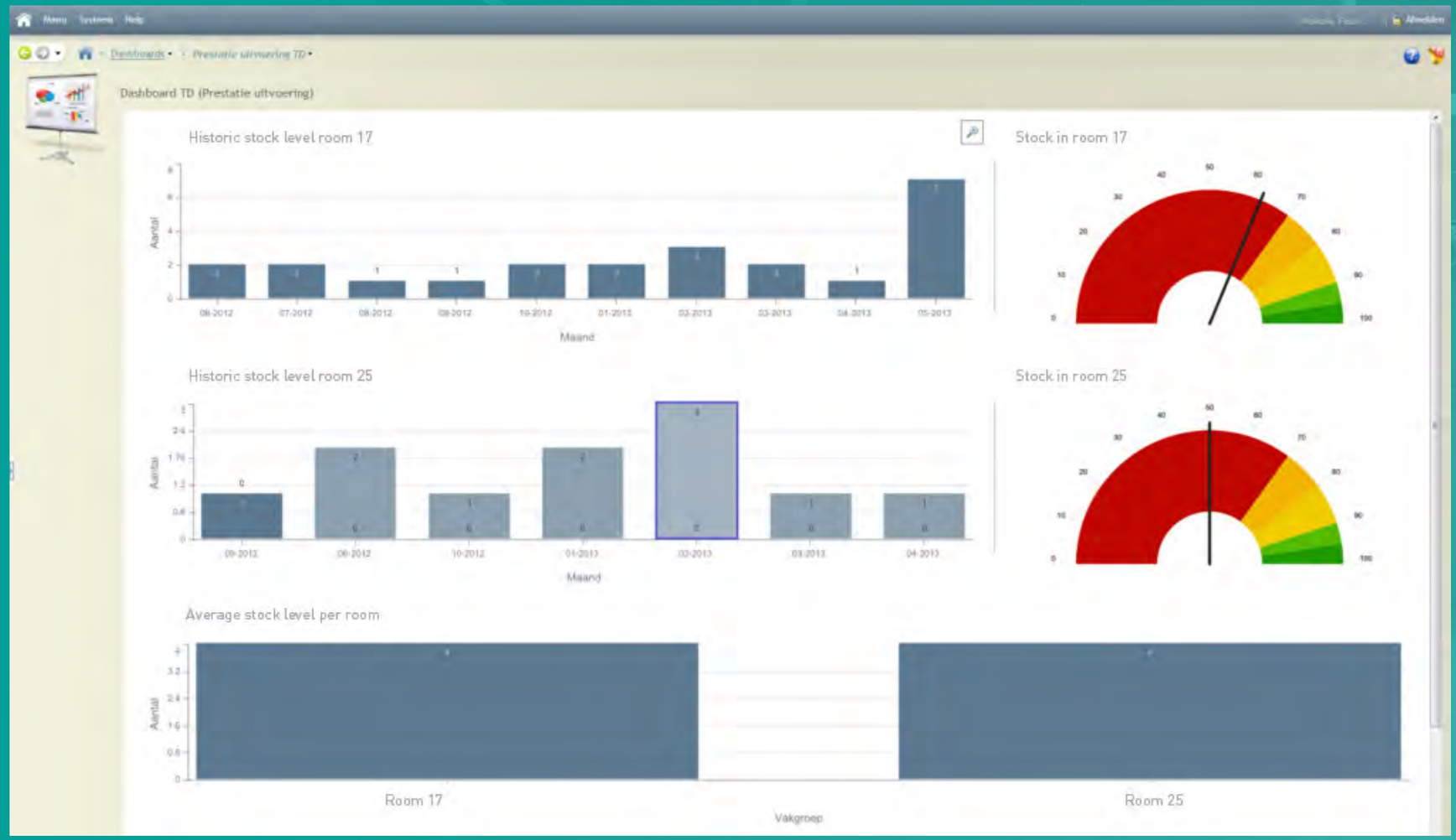
Track current stock level of inventory of items in different storage rooms



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Indoor Navigation

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Our build-in ibeacons enable indoor navigation

Personal spent 14% of their time looking for stuff

On average employees spent 7% of their time looking for colleagues and a workplace

* requires indoor navigation software not part of the Ingy offer

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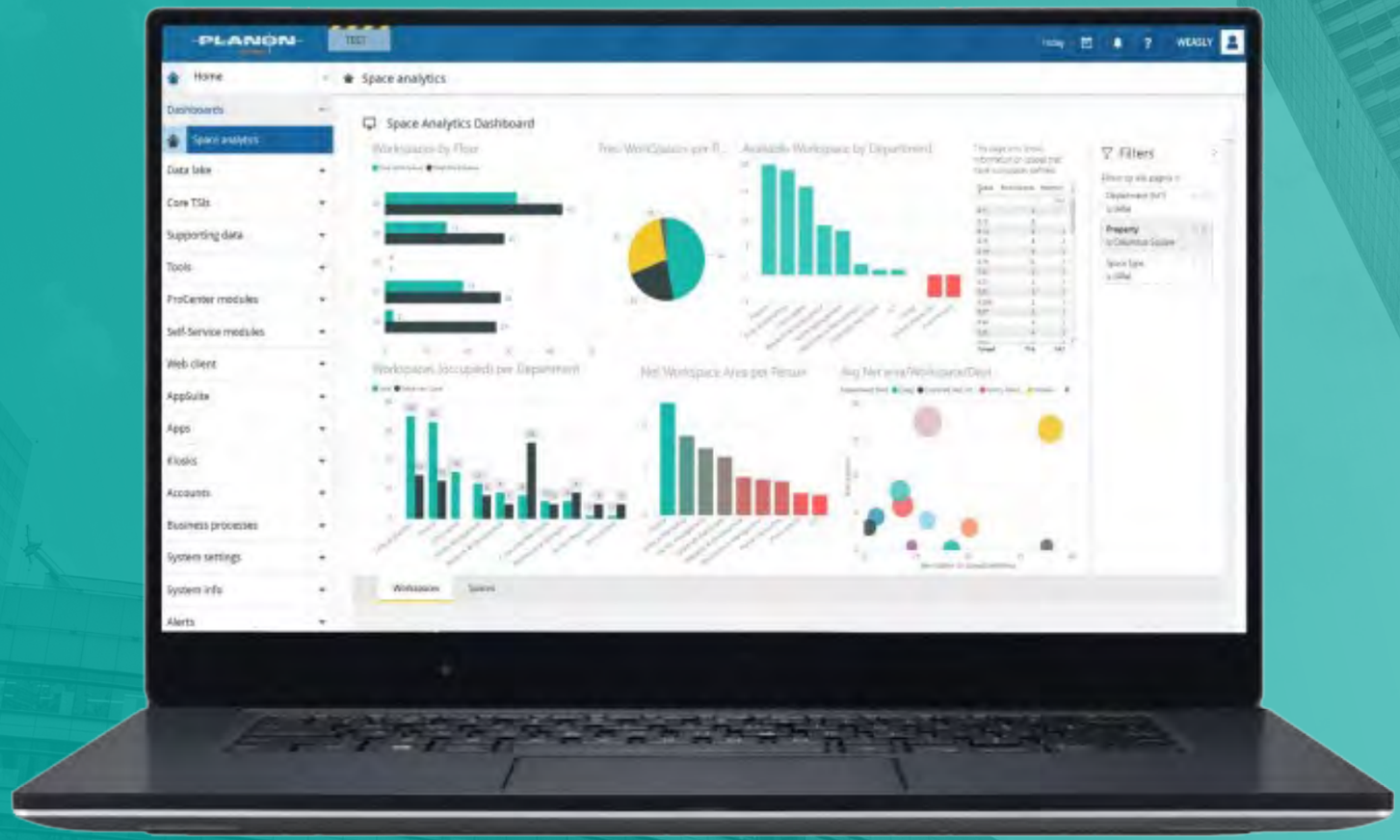
See and analyse realtime data of your space utilisation



* requires link to IWMS system, not included in the Ingy solution

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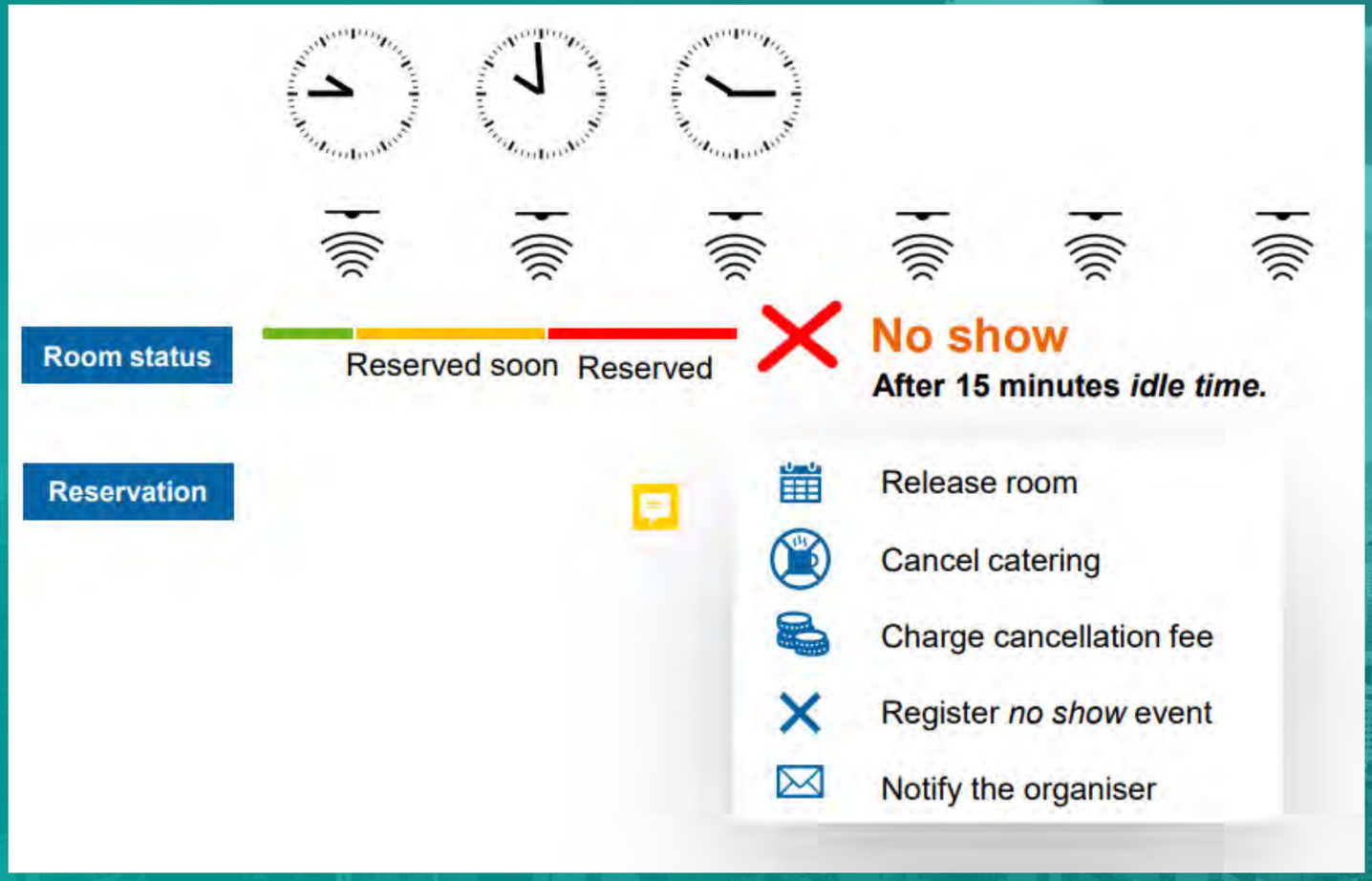
Automatically release room reservation in case of no show using presence data



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Utilize space more efficiently

40% of office space is not utilized at any given point

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Ingy data in combination with a IWMS significantly improves space utilisation

Improve space utilisation up to	30%
Reduce real estate portfolio operation expenses up to	25%
Improve employee satisfaction up to	25%

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Use presence data to clean only rooms that have been used

Rooms that should be cleaned today

Rooms not needed to be cleaned

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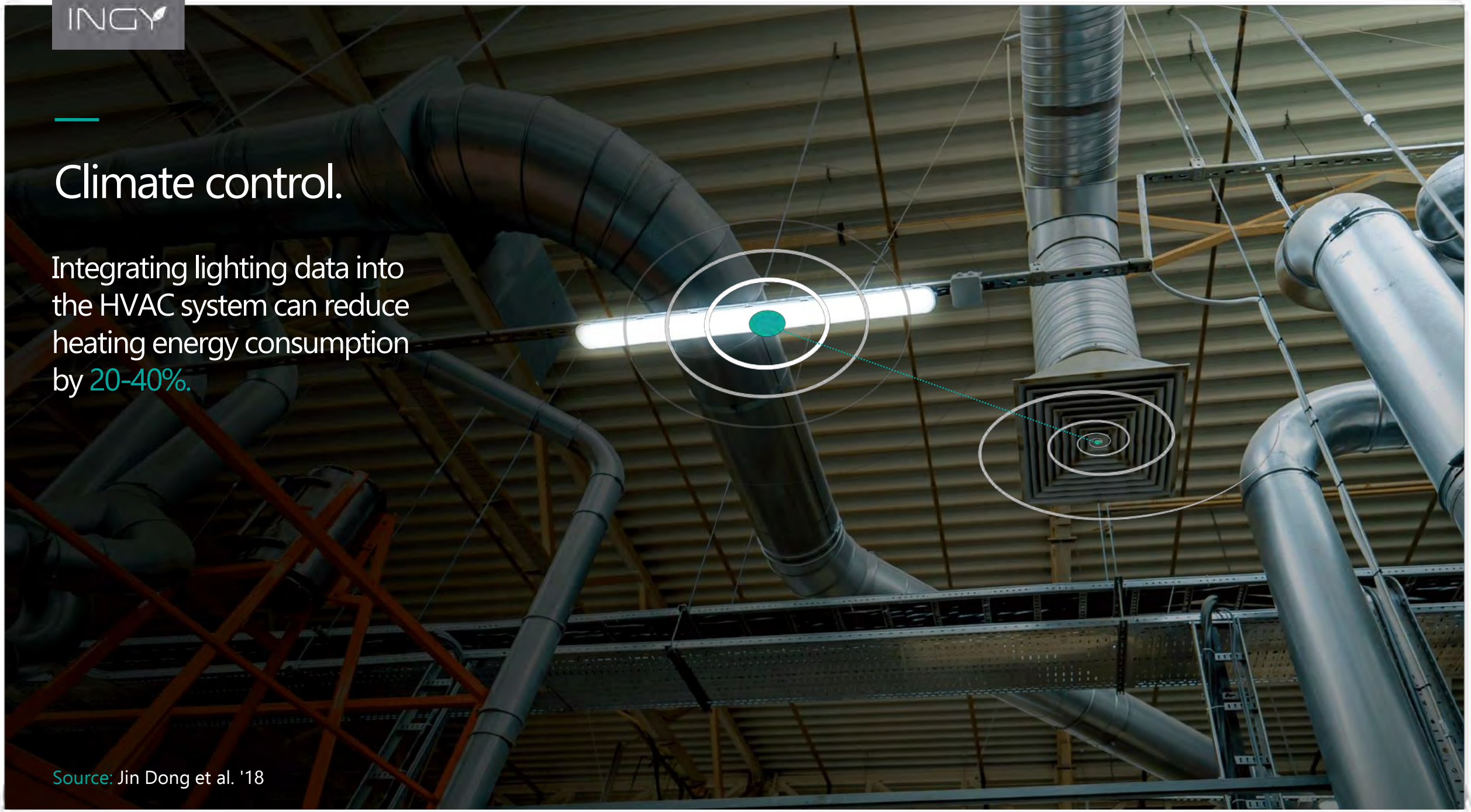

Climate control.

Integrating lighting data into the HVAC system can reduce heating energy consumption by 20-40%.

Source: Jin Dong et al. '18

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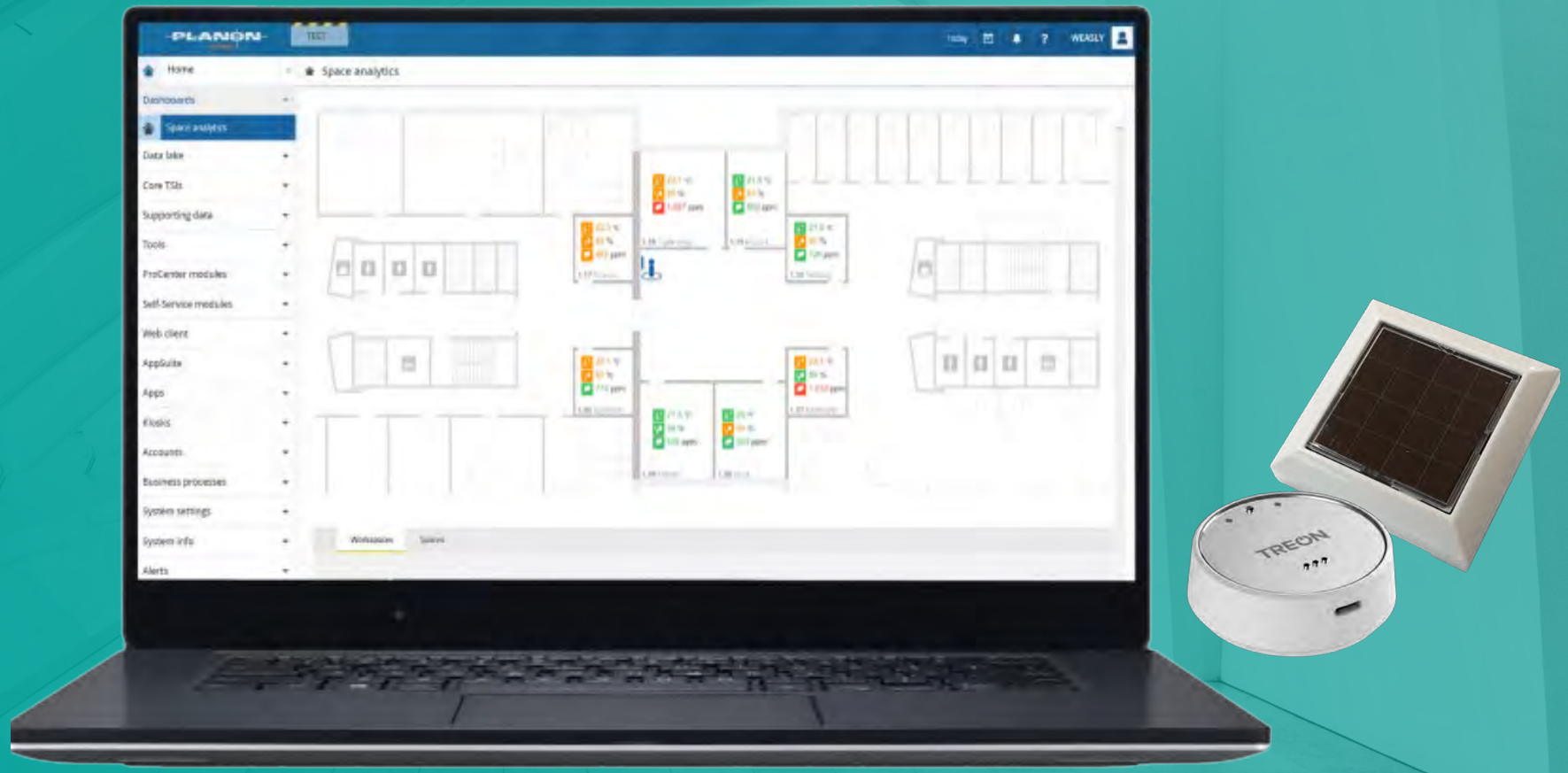
Monitor climate conditions across your estate with our environment sensors



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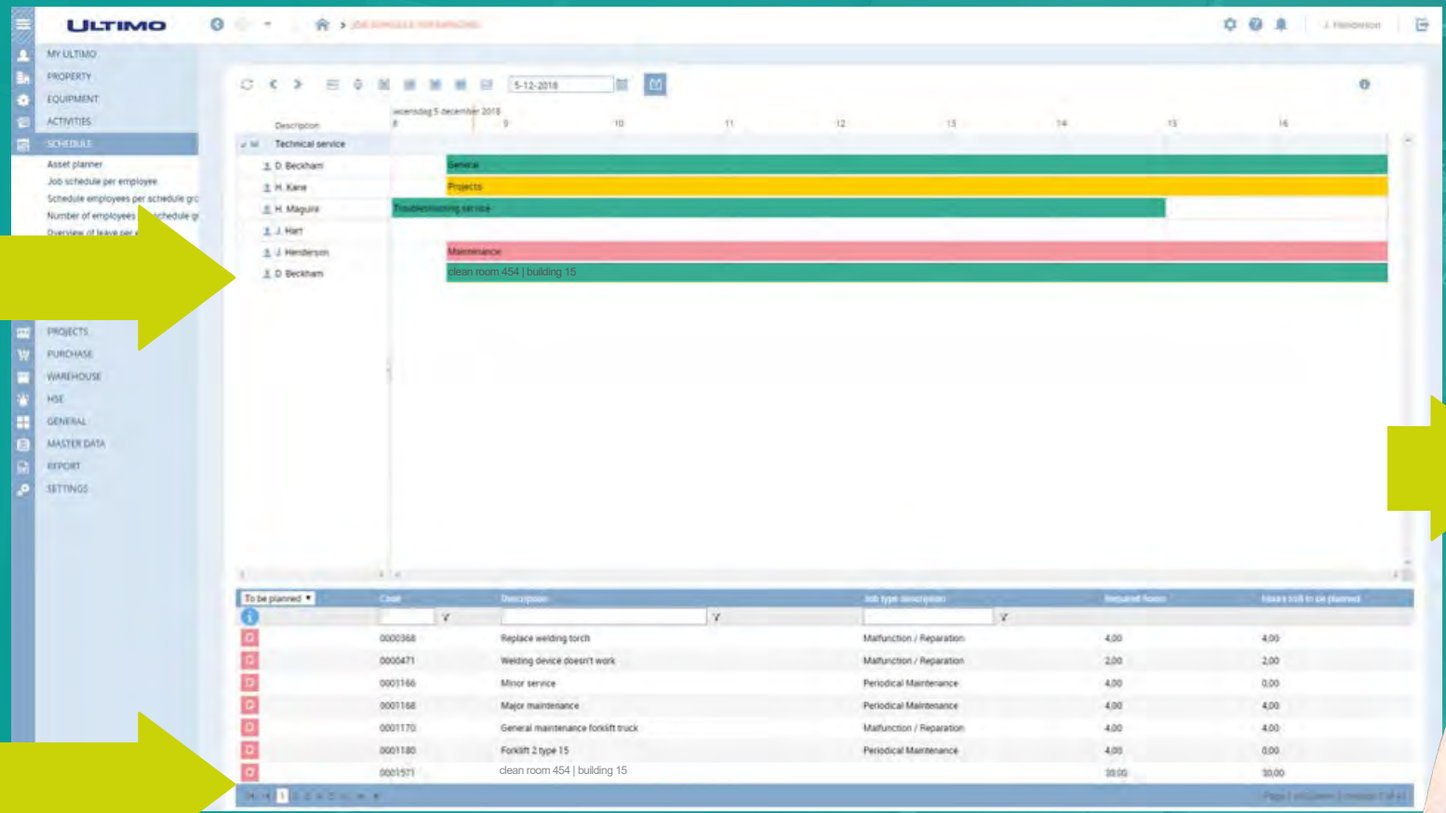
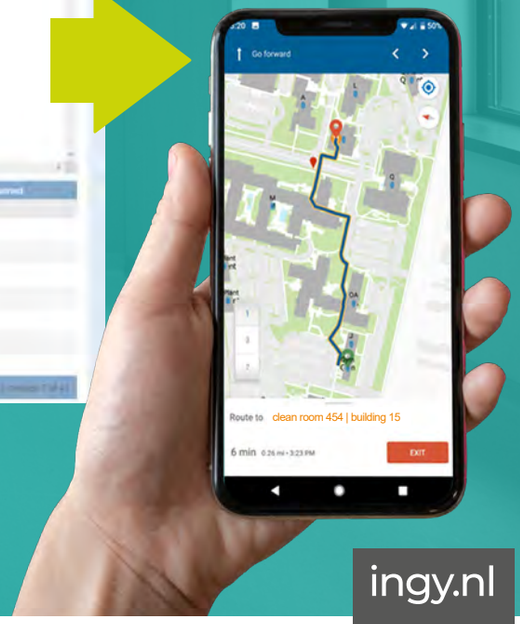
Wireless battery-free call buttons can be used to generate task directly into you IWMS system

User presses button to request additional cleaning



Task is generated in Ultimo

Cleaner receiving instruction can get navigation in ESRI to get to the job



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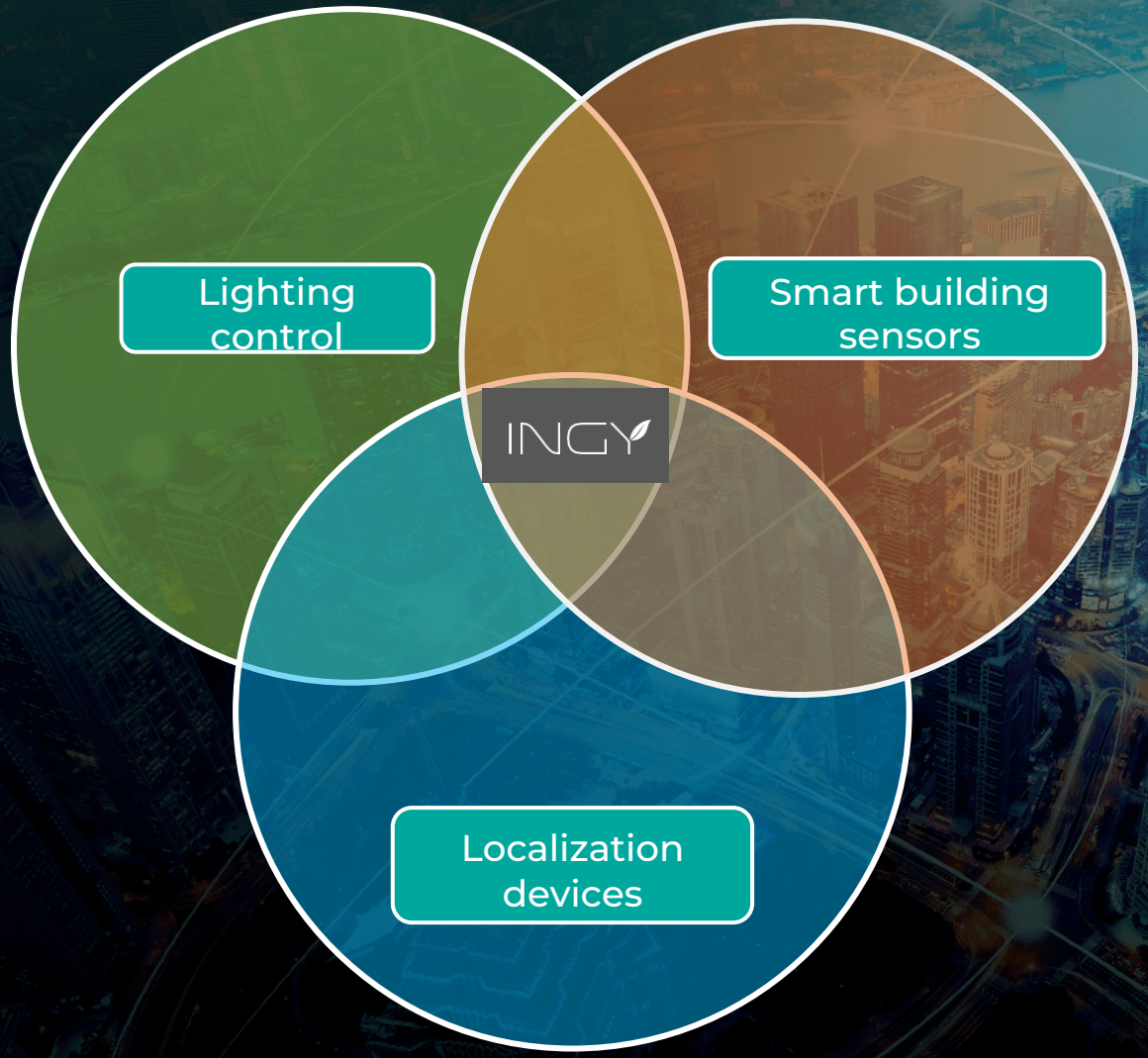
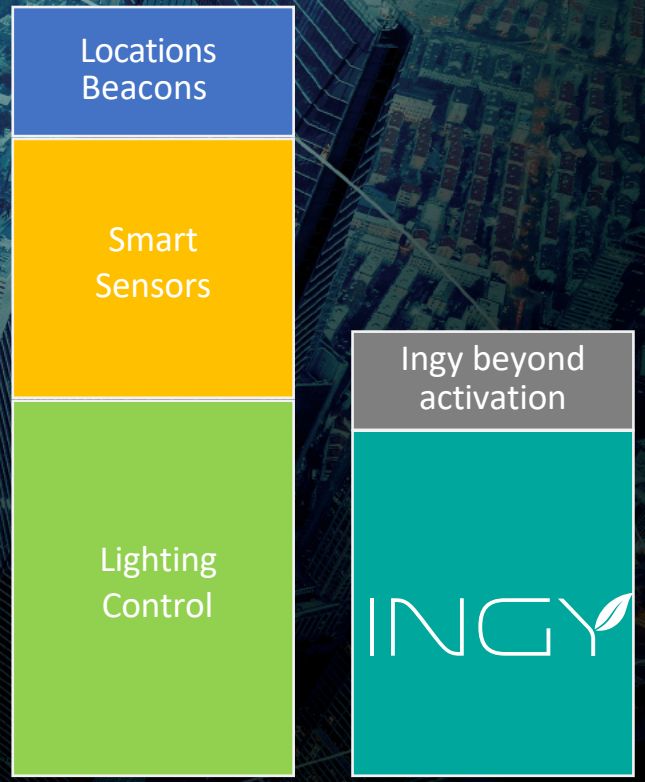
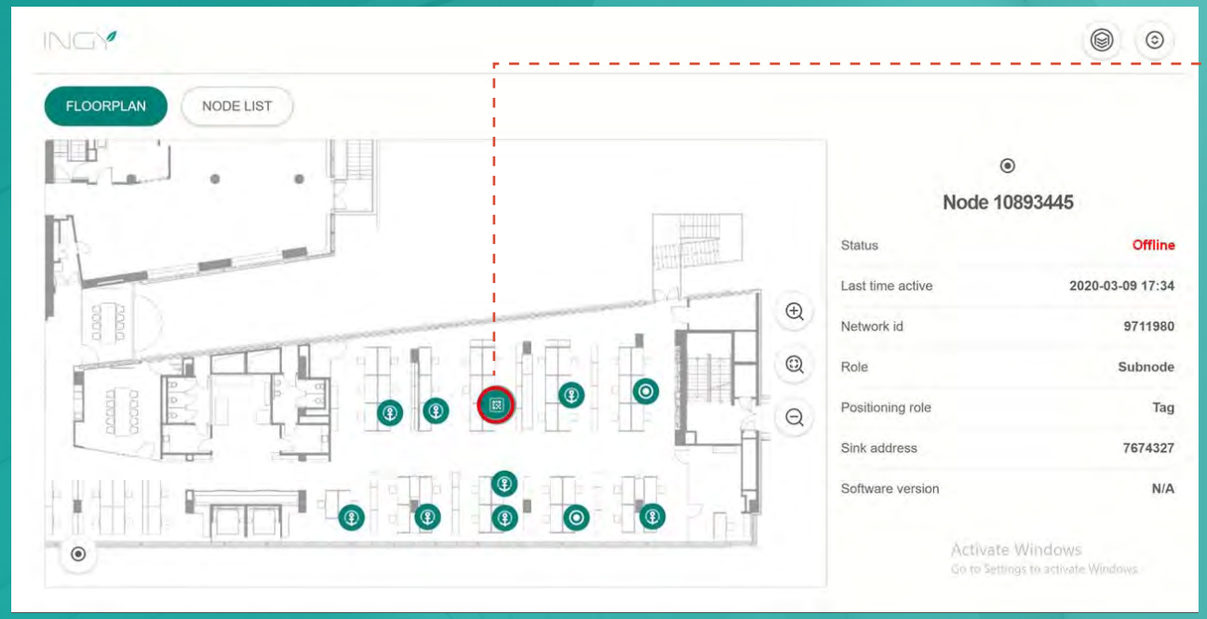
Creating value by combining systems

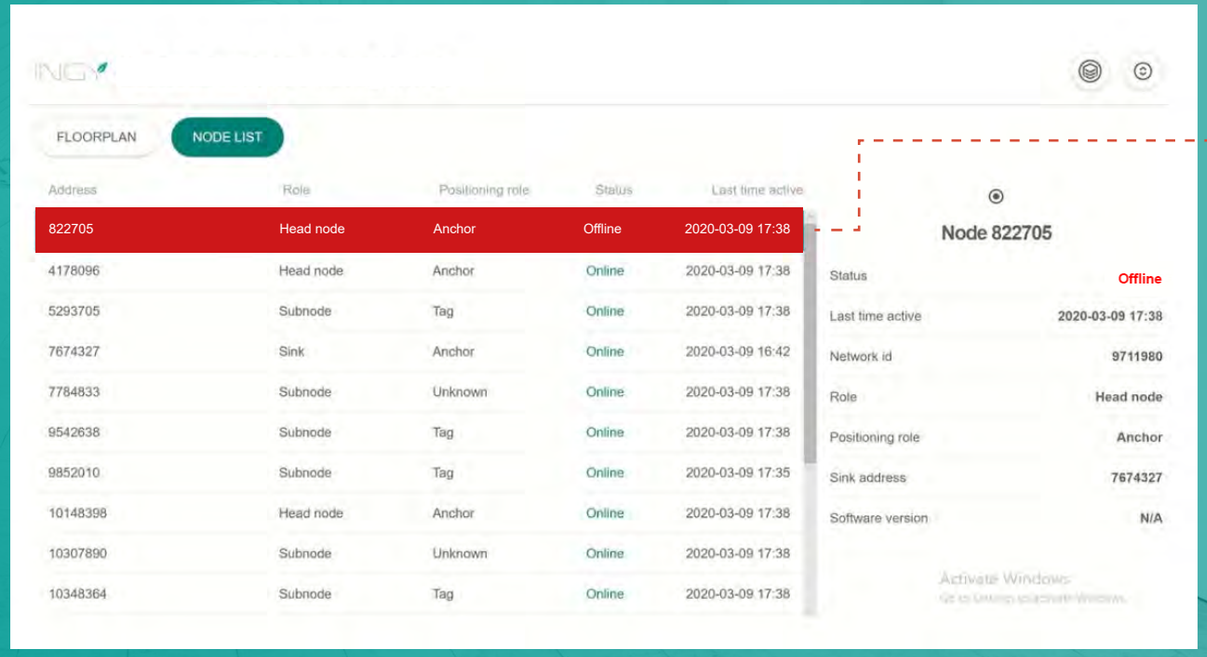


Investment



Ingy network tool





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Ingy® business model meets the wishes of two buyers

Buyer lighting

- Deliver within existing lighting budget
  (even when budgeted for standalone sensors only)
- Reduce installation cost by going wireless and removing all central control hardware
- Remove need for for wide range of IoT sensor solutions

Buyer smart buildings

- Remove upfront investment cost for smart-building infrastructure
- No vendor lock-in of portal or data
- Unified network for all IoT sensor solutions

Integrating Wirepas Sensors

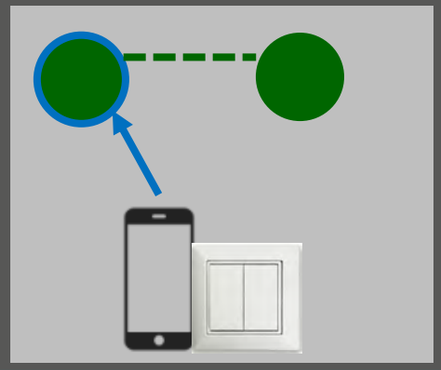
REST API

MQTT

Local & Cloud

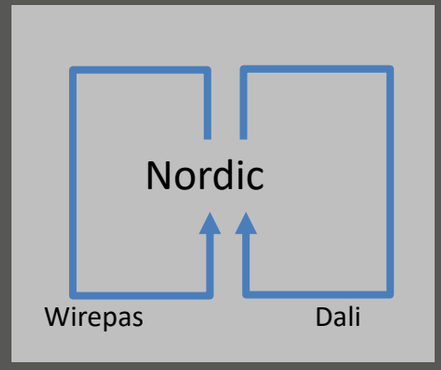
Other technical challenges solved

Implementing Wirepas -> Mobile Communication



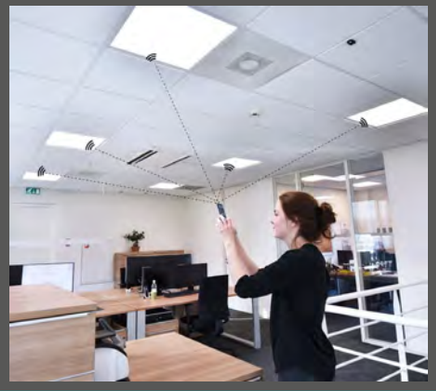
- Limited number of BLE scanning nodes
- Limited bandwidth mobile to node

DALI within Wirepas control loop



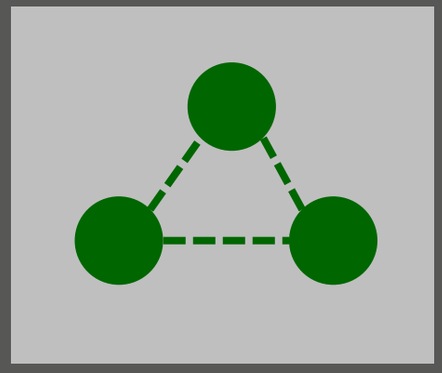
- Two control both with critical timers
- Different timed cycles
- No multi core processor

Luminaire Identification



- It is about seconds, as every second is multiplied 1000x
- RSSI based identification unreliable, leading to long cycling

Maintaining Group Settings



- Synchronizing state and configuration
- Handling sub-groups
- Removing from group without joining a new group

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Zone.College case

The Zone.college in Doetinchem wanted to become the smartest school in the Netherlands. They were looking for a light control system that could function as the backbone of their smart building. So they needed lighting and an network.

The solution was found in Thinq, where these are combined.

In the offices and classrooms, sensors integrated in the luminaires were chosen for high coverage and maximum energy savings. In the general areas downlights have been combined with separate sensors for maximum cost efficiency.

The system can commissioned efficiently and easily using the mobile app that creates basic grouping and lighting settings in less than 5 seconds per luminaire.

Built-in daylight sensors optimise light by reducing light output when sufficient daylight is available.

They can add wall switches at the touch of a button so that occupants can select scenes and adjust the light level. By linking groups and activating the corridor, the lights in the hallway stay on when one of the rooms is still occupied.

The system acts as the backbone for a range of smart lighting solutions that make processes in the school even more efficient, such as occupancy analysis, switching air conditioning, indoor navigation and tracing valuable material.

zone college

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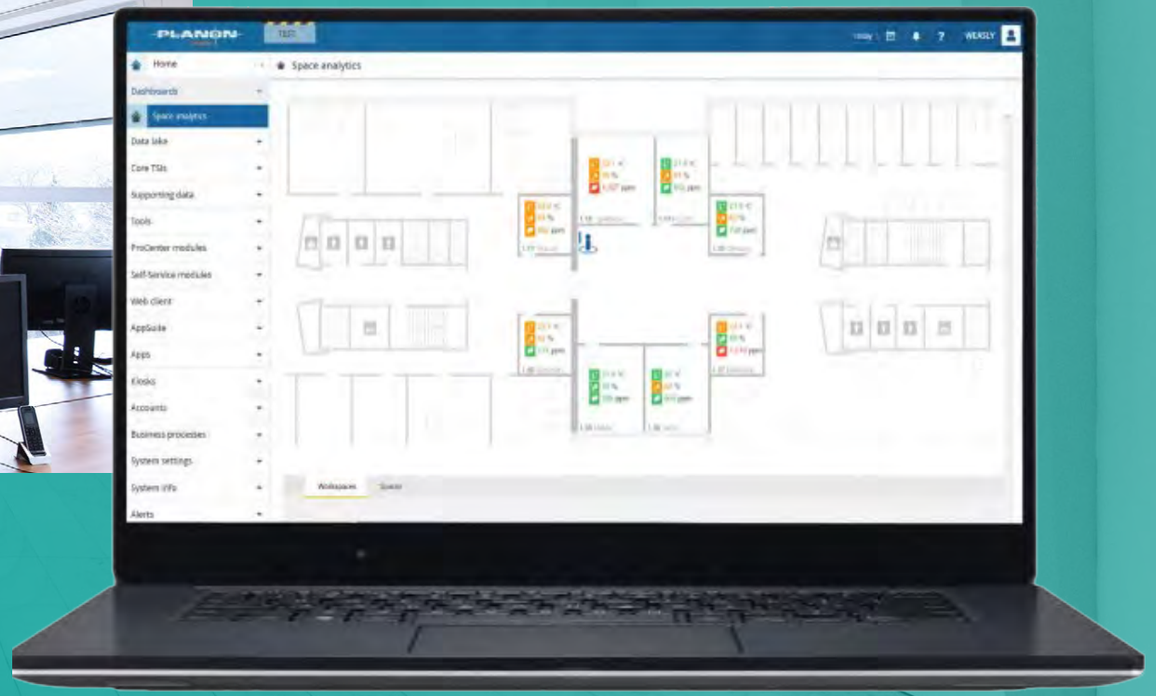
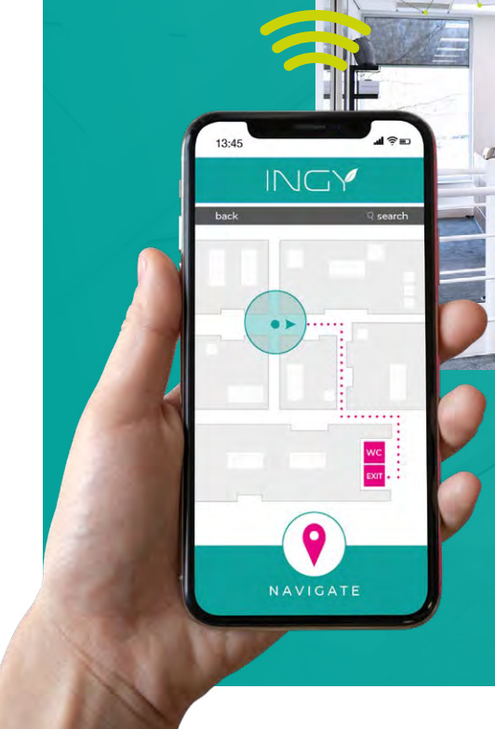
Ingy Pilot Kit

Smart sensors

Wall switches





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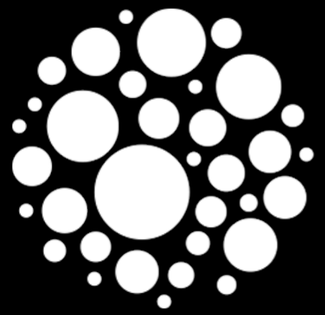

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