Smart Street Lighting for Smarter Cities

OpenSky Zhaga IoT   v27.12.2021

Why invest in Smart Streetlights?

60% - 80% Energy Savings

Dimming streetlights with pre-defined schedule and smart sensors significantly cuts energy waste.

Predictive Maintenance

Proactive alerts / notifications for faults, alarms or outages optimise maintenance and substantially reduce operational costs.

Total Infrastructure Control

Connected streetlights enable remote monitoring, management and control of complete citywide infrastructure.

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Why invest in Smart Streetlights?

Foundation for Smart City

Standardised interface and Open APIs support inter-connectivity with applications such as traffic lights, security systems, etc.

50% Lower Light Pollution

Dimming streetlights during off-peak hours or through motion sensors significantly cuts light pollution.

Improved Public Safety

Right light and right place and right time enhances citizens' sense of safety.

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Why invest in Smart Streetlights?

Address Climate Change

Fine-tuning lighting levels on need-basis dramatically reduces carbon emissions.

Protect Flora and Fauna

Autonomous dimming during off-peak hours lower lighting pollution and benefits local flora and fauna.

Benefits from Day One

Unlike other smart city solutions, deploying smart lighting deliver benefits from day one!
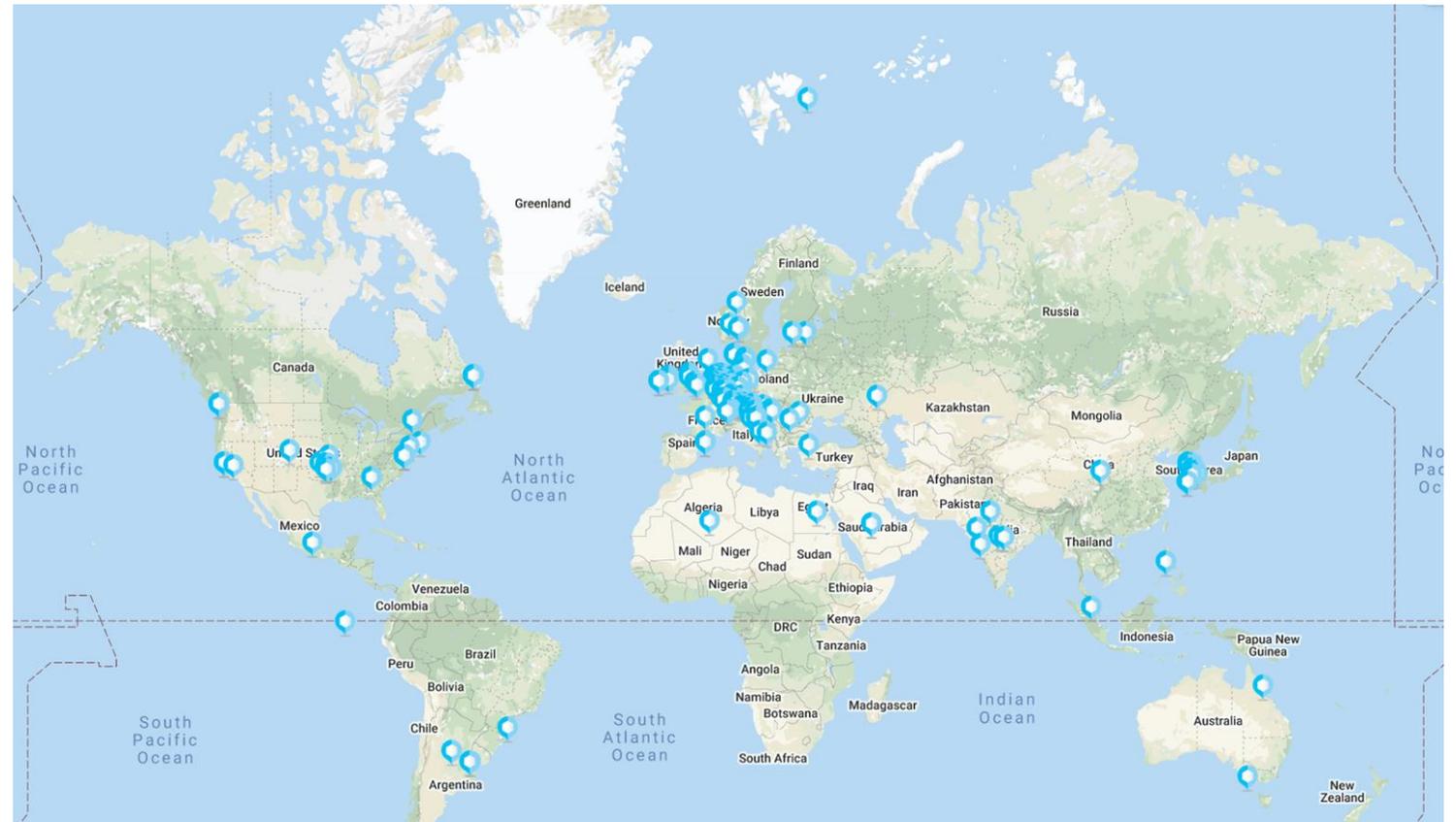
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Specialist in Smart Outdoor Lighting

We enable cities to take full control of their Lighting Infrastructure based on Open Standards
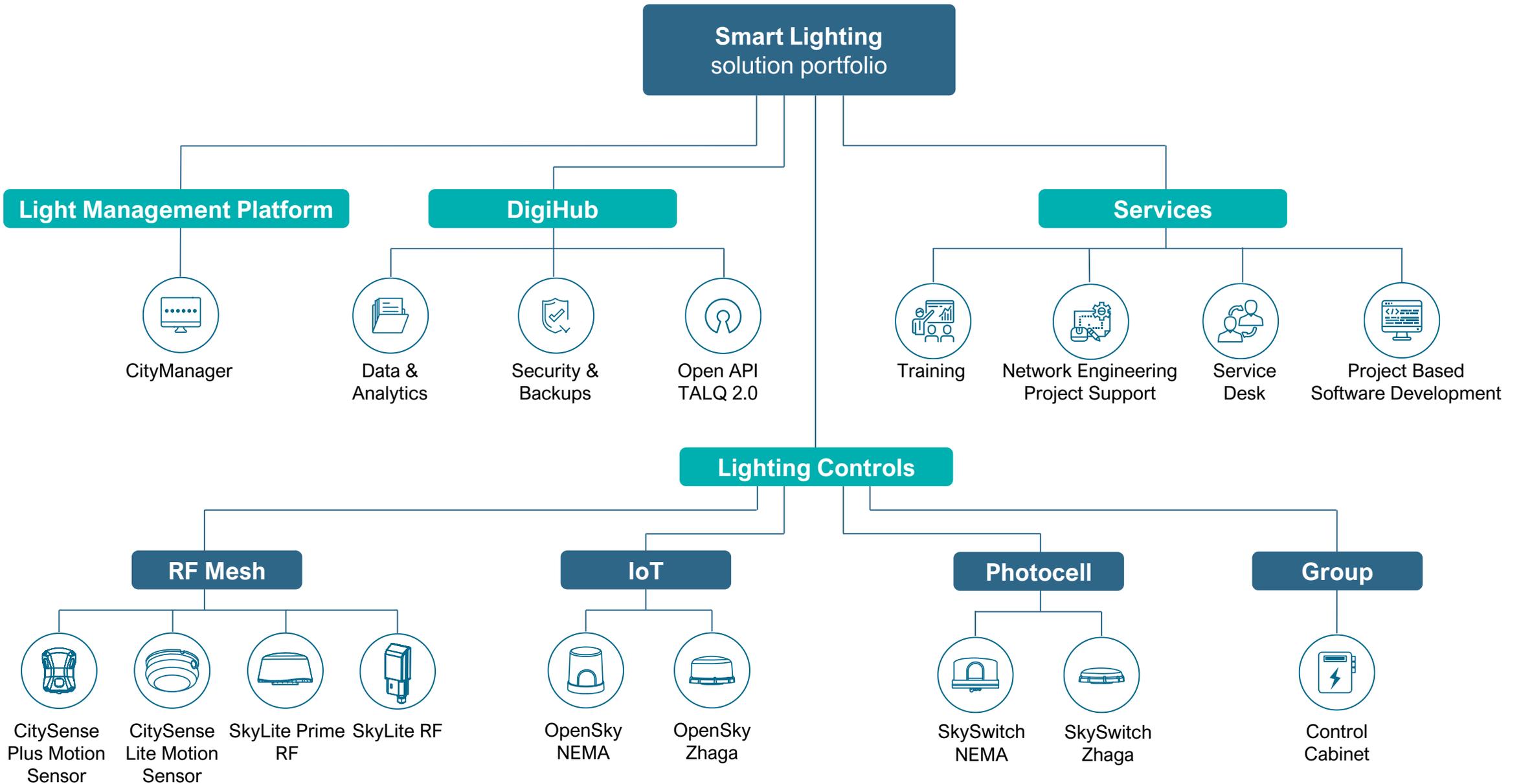
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Global presence: 100k+ connected streetlights, 650+ projects

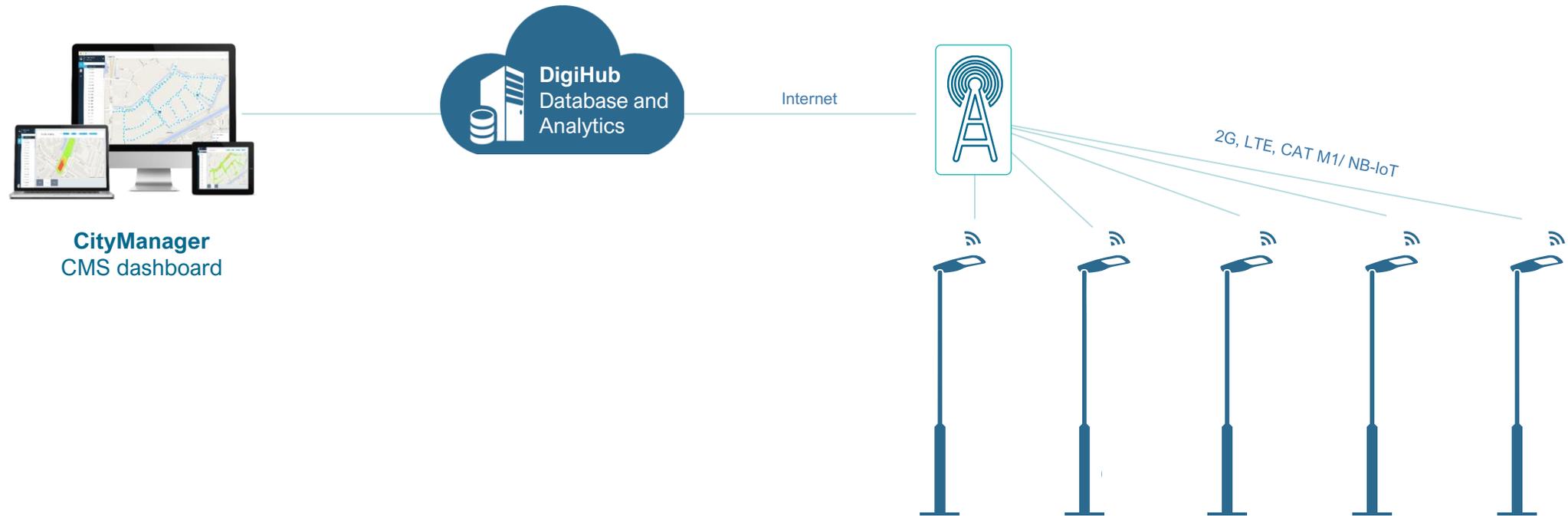**Monitored by CityManager and supported by our Service Desk**

Selected Projects

- Dortmund (DE) 25.000 smart streetlights
- Düren (DE) 5.000 smart streetlights
- Dutch Railways (NL) 10.250 smart streetlights
- Island of Texel (NL) 3.420 smart streetlights
- Helmond (NL) 8.500 smart streetlights
- Seoul (KR) 2.500 smart streetlights
- Busan (KR) 1.500 smart streetlights
- Bangladesh 4.300 smart streetlights

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Smart Lighting solution portfolio

- **Light Management Platform**
  - CityManager

- **DigiHub**
  - Data & Analytics
  - Security & Backups
  - Open API TALQ 2.0

- **Services**
  - Training
  - Network Engineering Project Support
  - Service Desk
  - Project Based Software Development

- **Lighting Controls**
  - **RF Mesh**
    - CitySense Plus Motion Sensor
    - CitySense Lite Motion Sensor
    - SkyLite Prime RF
    - SkyLite RF
  - **IoT**
    - OpenSky NEMA
    - OpenSky Zhaga
  - **Photocell**
    - SkySwitch NEMA
    - SkySwitch Zhaga
  - **Group**
    - Control Cabinet

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Smart Lighting with secure IoT network

DigiHub
Database and Analytics

Internet

2G, LTE, CAT M1/ NB-IoT

CityManager
CMS dashboard

Wireless Smart Lighting

- Open Standard Cellular Network
- Edge (EGPRS), LTE CAT M1 and NB-IoT (NB2) connectivity
- No local gateway needed
- Highest security standard regulated by 3GPP

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Zhaga IoT Street Light Controller
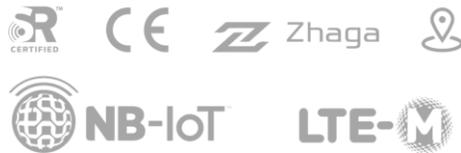
- Remotely **monitor, manage** and **control** citywide streetlights

- **Plug & play installation** through standardized Zhaga book 18 socket and auto-commissioning system

- Connects directly to **local secure cellular network**

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Global Standard, Local Network
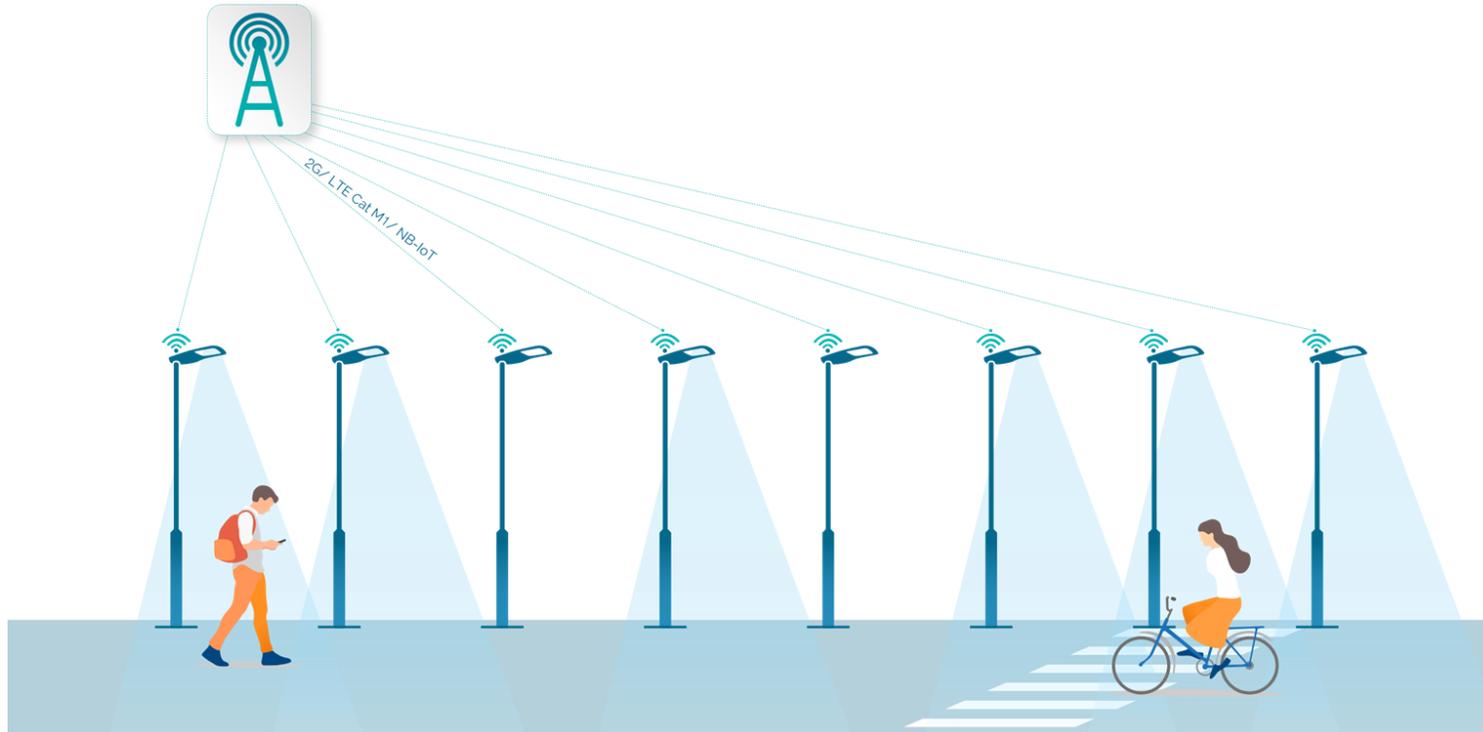
Lamp connects directly to local cellular tower

- Highest available security (3GPP)

- Fully managed network by local telco

- Excellent network uptime

- Automatically selects the best signal and the best operator: EGPRS (Edge/ 2G), LTE Cat M1, NB-IoT (NB2)

- Long range, deep coverage

2G/ LTE Cat M1/ NB-IoT

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Gateway free installation

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Light Management Platform
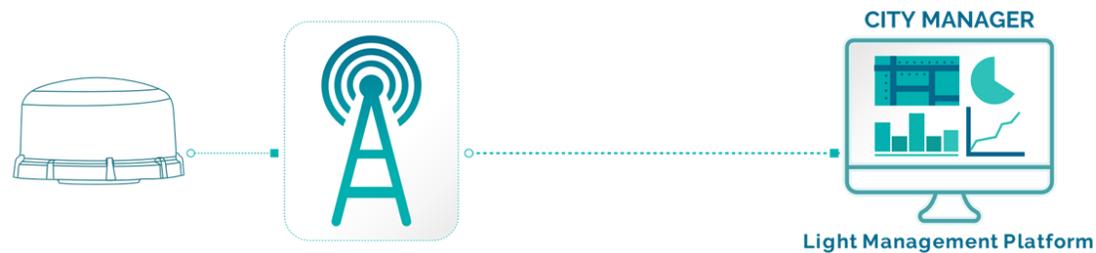
Devices communicate directly with LMS

- Full control over individual streetlights

- Eliminates cost and hassle of installing and maintaining multiple gateways

- Live dimming / switching response

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Auto commissioning, **easy deployment**

GPS

GLONASS

GALILEO

QZSS
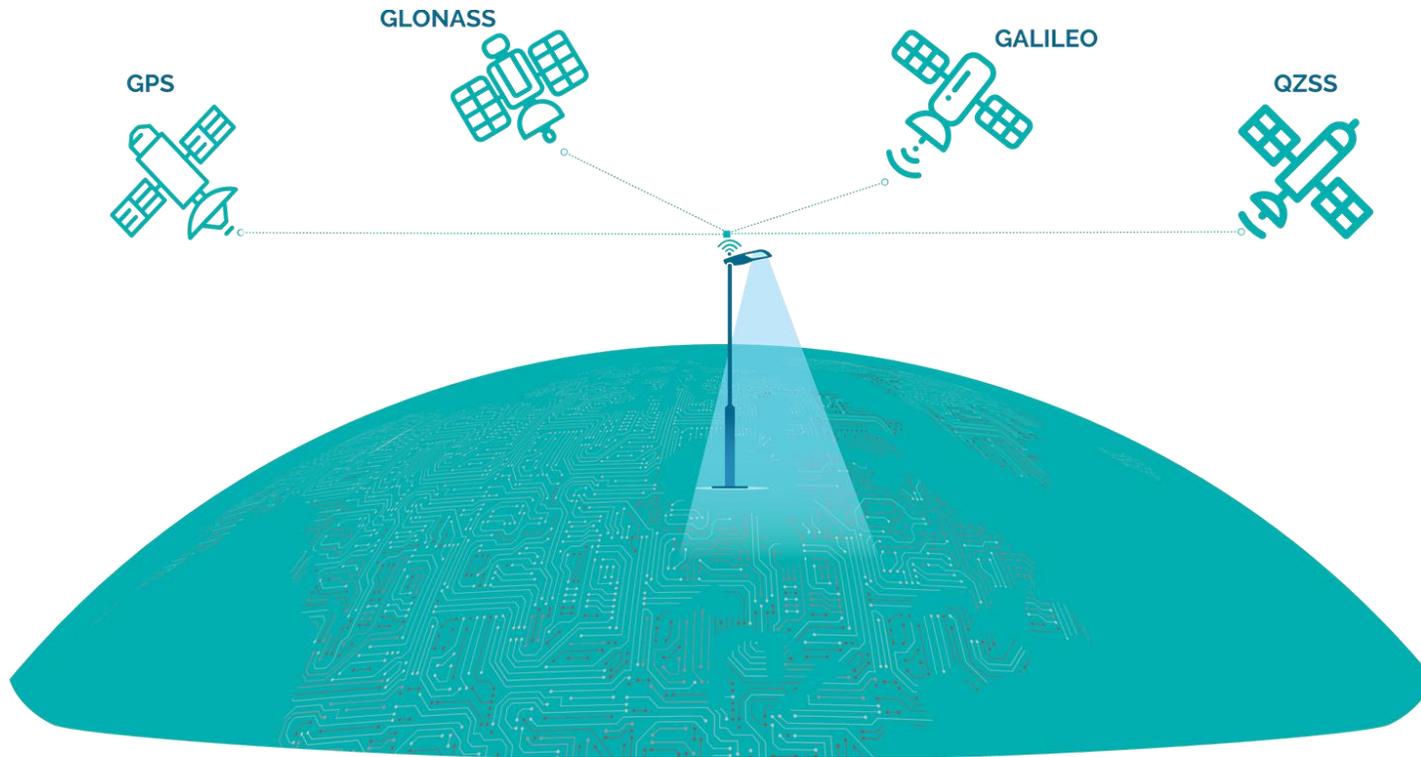
In-built GPS activates device

- True plug-and-play installation
- Device geo-locates automatically upon power, and auto-registers to your LMS
- Eliminates entire network engineering efforts

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Point level control at your fingertips

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Pole 038
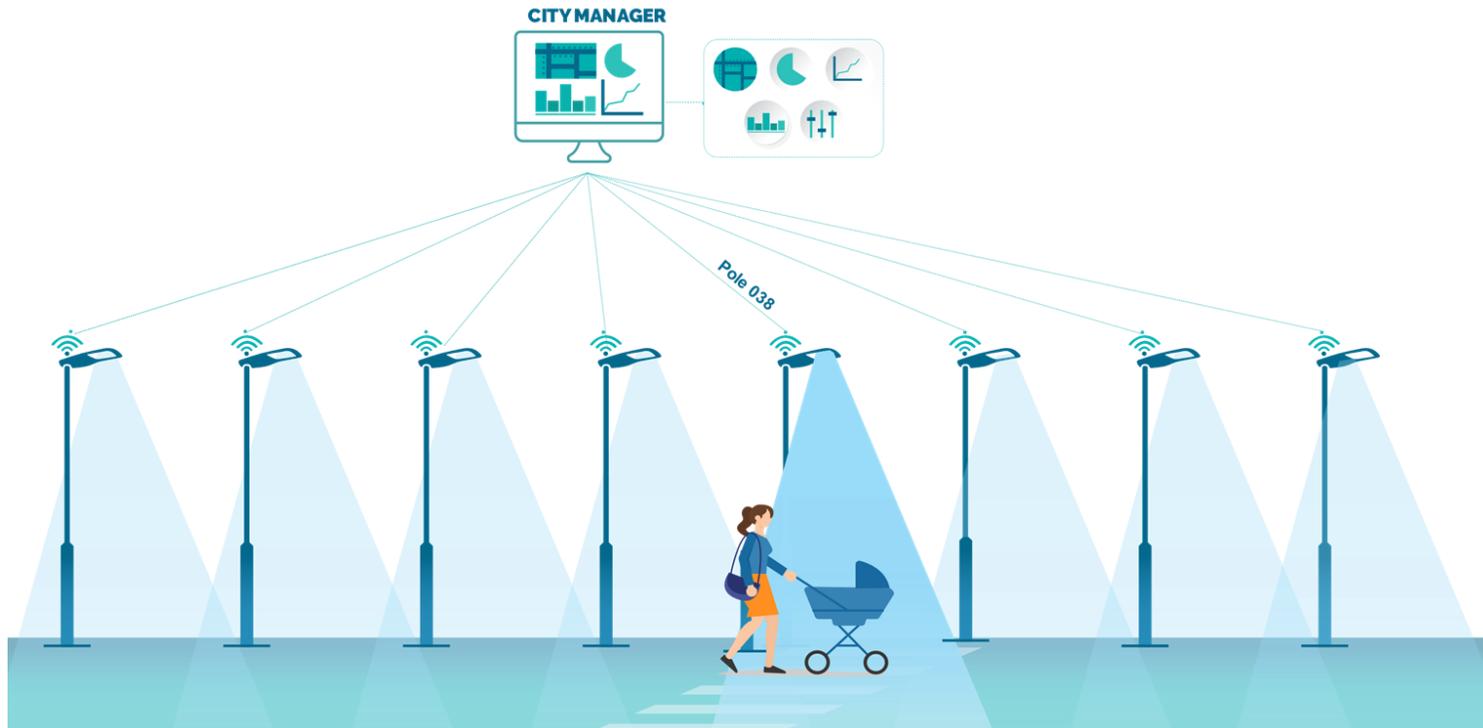
Manage each light individually

- Switch or dim each luminaire using custom light scenes

- Set different light levels for main roads, traffic junctions and zebra crossing.

- Maintain flexibility to adapt light profile to future city needs.

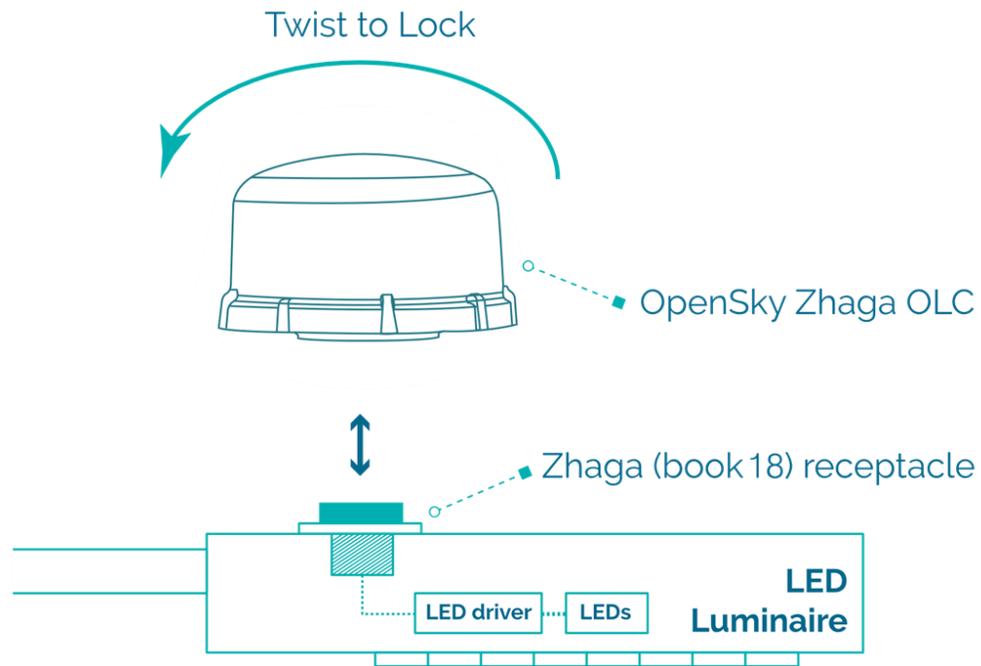- Receive meaningful alerts and insightful data of every street light

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Finer control over Dimming & Switching
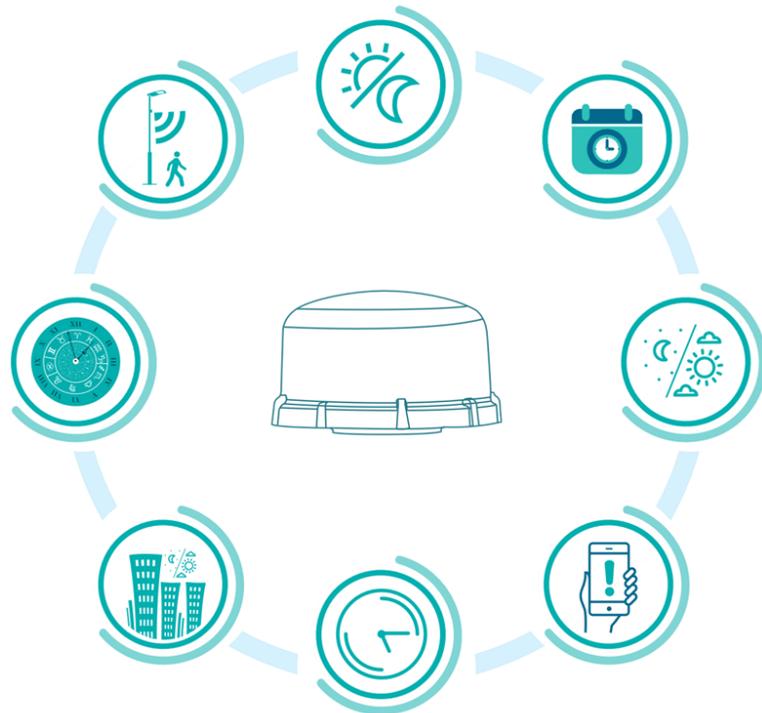
Regulate light levels as situation demands

- Photocell
- Twilight (Photocell / Ambient Light Sensor)
- AstroClock (Astronomical Clock)
- Time-based Light Scene
- Calendar-based Schedules
- Central ALS (Photocells in City)
- Adaptive (Motion Sensor)
- Autonomous Mode

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Standardized interface, Luminaire agnostic

Twist to Lock

OpenSky Zhaga OLC

Zhaga (book 18) receptacle

LED driver ···· LEDs

LED Luminaire

Fully Compliant to Zhaga Book 18 Standard

- Plug and play installation
- No special tool or training needed
- Works with any Zhaga compatible luminaire/ street lighting fixture
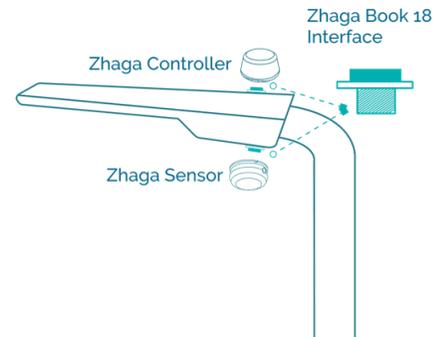
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Interoperable – No Vendor Lock-in

Zhaga

D4i

Z D4i

STANDARDIZED
PHYSICAL
INTERFACE

+

STANDARDIZED
COMMUNICATION
PROTOCOL

=

Zhaga Book 18
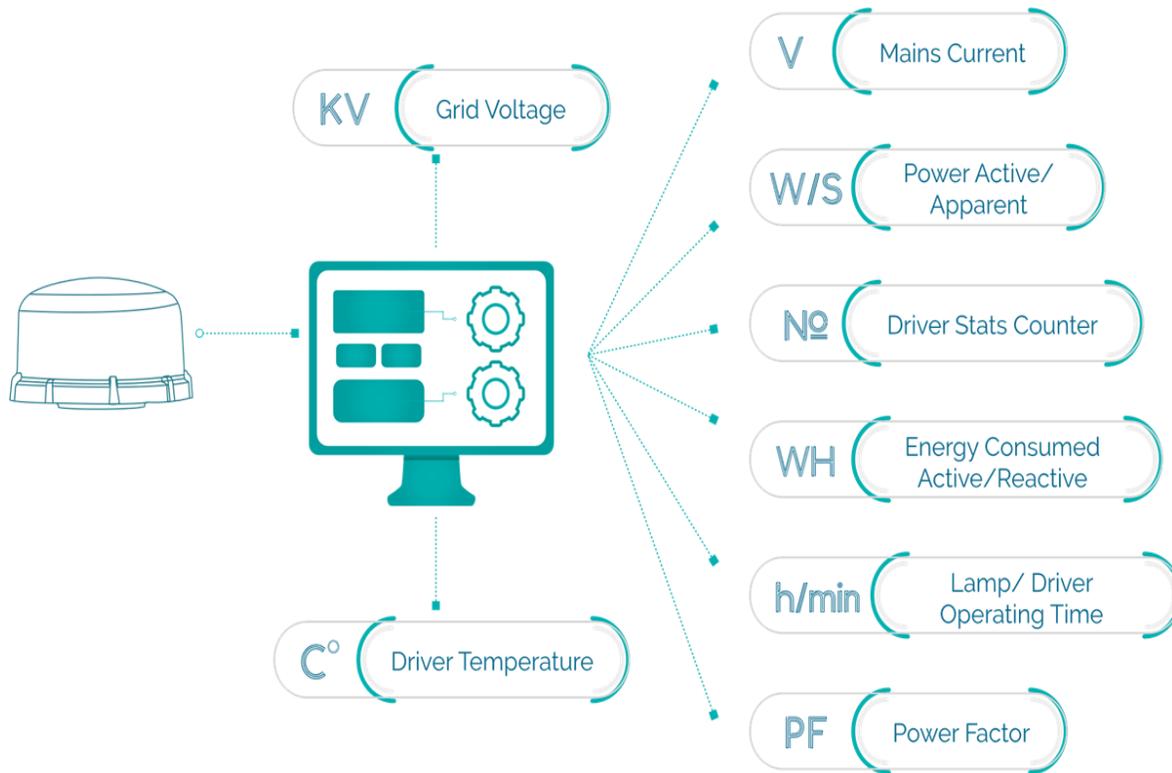Interface

Zhaga Controller

Zhaga Sensor

DALI · D4i · Z

Open architecture enables excellent interoperability

- Select any Zhaga street light fixture of your choice
- Use multiple vendors in a single project
- Integrate any D4i or LSI based motions sensors

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Advance health monitoring data

- KV — Grid Voltage
- V — Mains Current
- W/S — Power Active/ Apparent
- № — Driver Stats Counter
- WH — Energy Consumed Active/Reactive
- h/min — Lamp/ Driver Operating Time
- C° — Driver Temperature
- PF — Power Factor

Achieve Predictive Maintenance

- Pairing Smart D4I Driver delivers advance luminaire, driver and power-grid data
- Data set includes driver temperature, input voltage/ power/ current/ power factor, etc.
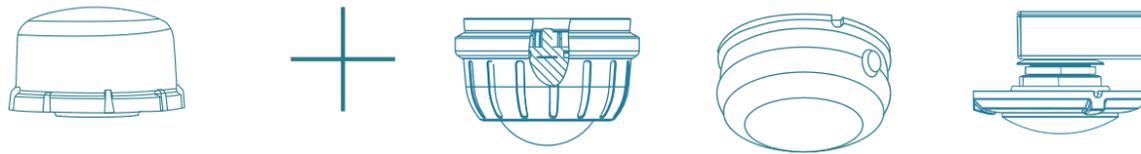- Notifications, alerts and error logs

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Smart City Ready

Smart City Systems

Open APIs

Open APIs
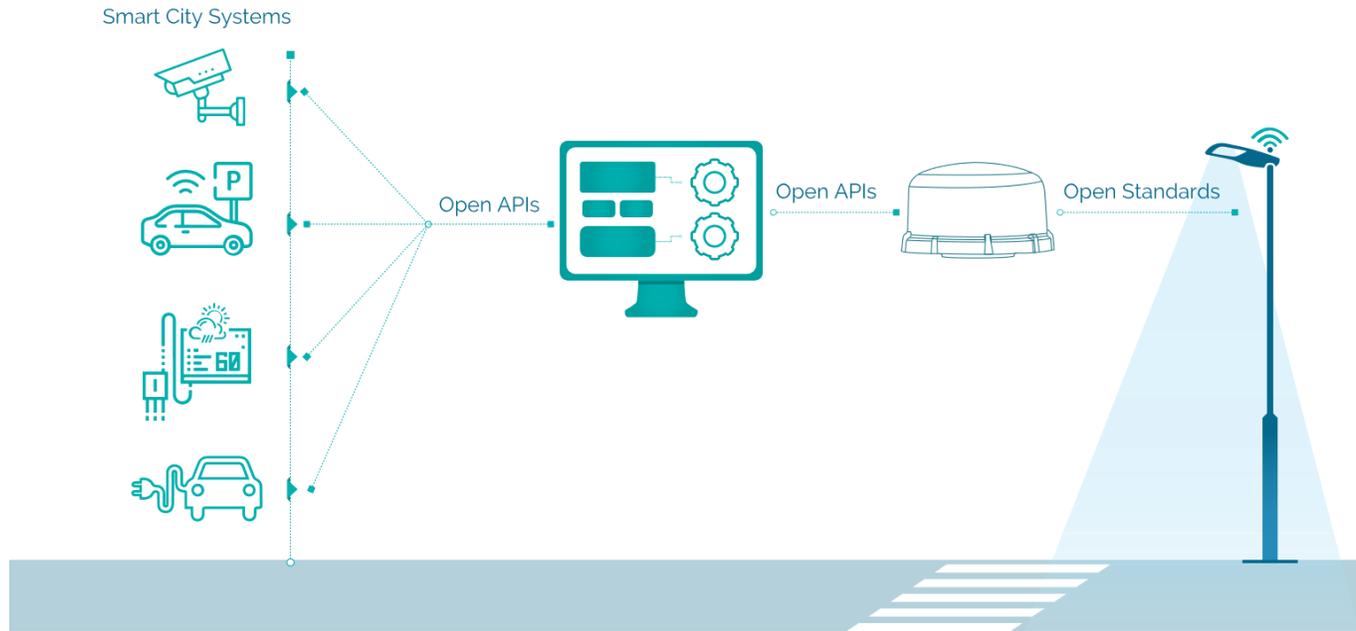
Open Standards

Built on Open Standards & APIs

- Works with a range of IoT and Smart City systems

- Selected examples:
  - Cisco Kinetics
  - Siemens Atos
  - SixData luxData.light
 - Osram LumIdent

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On-Demand Adaptive Lighting
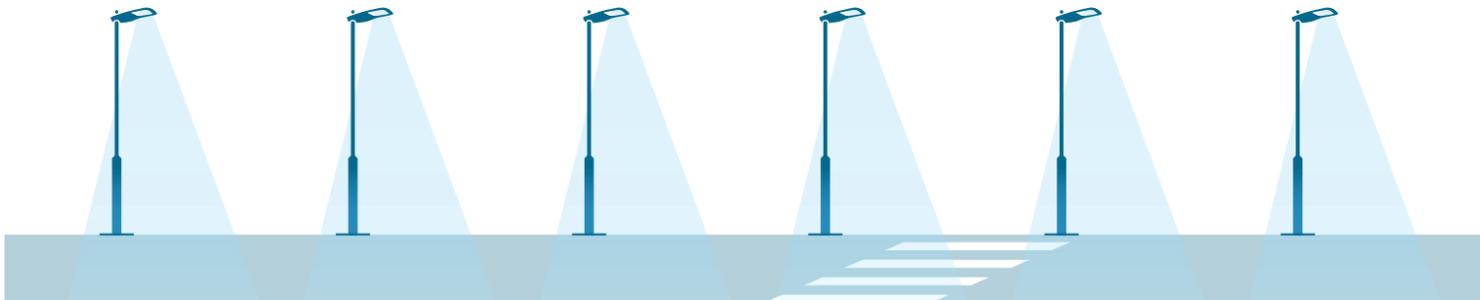
Connects with any DALI D4i and LSI-based motion sensors

- Light-on-demand based on presence detection
- Suitable for pedestrian, bicyclist and road traffic
- Motion sensors improve public safety perception

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Safe circle-of-light – automatic neighbour trigger

Beta

Open IoT

Motion Sensor

Neighbor Trigger
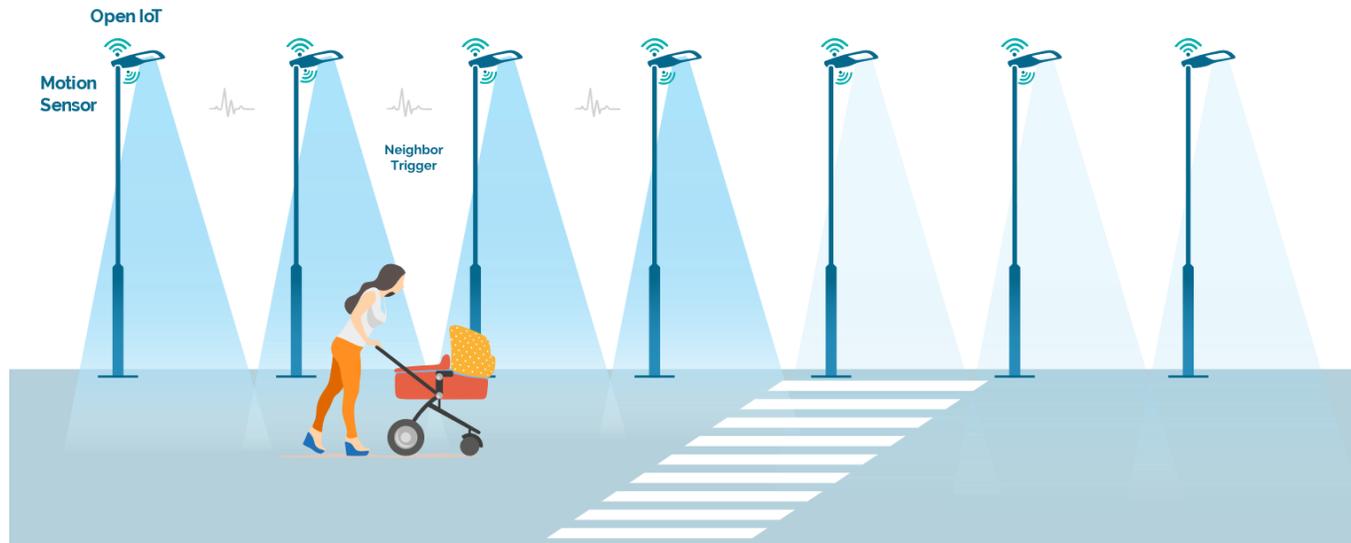
Experience light-on-demand

- Road users drive through a safe circle-of-light (Skyglow Beta)

- Motion sensing enhances public safety perception

- Achieves 60% - 90% energy savings

- Significant reduction in carbon footprint and light pollution

- Benefits local flora and fauna

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Visualize Road Usage with Heatmaps

Understand how citizens use roads

- Pairing motion sensors helps:
- Measure people's movement
- Identify areas and spots that are popular at different times
- Spot trends and patterns to adjust street lighting levels based on road usage data

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Features to improve day-to-day operations…

Integrated Light Sensor

Integrated photocell (twilight sensor) enables streetlight switching based on the naturally available ambient light

Interoperable

Supports multiple dimming protocols (0-10V, DALI, DALI 2, SR, D4I and ANSI C137.4)
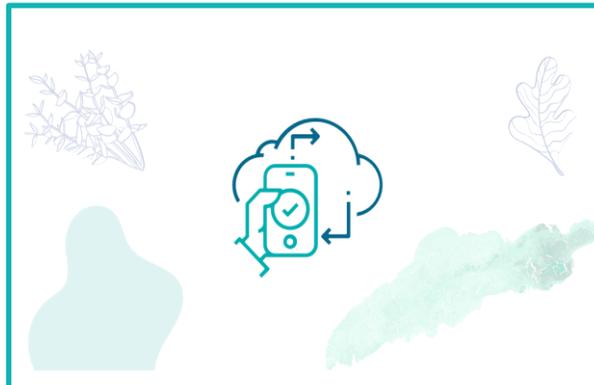
Timely Notifications

Receive all updates about your street lighting infrastructure via email and CityManager platform

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Features to improve day-to-day operations…
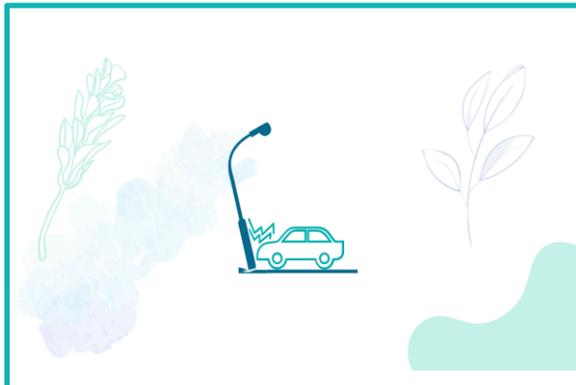
Pole Knock-Down Alert

In-built tilt sensor sends an automatic alert if the street pole suffers damage due to car crash

Over-the-Air Updates

Thanks to the faster communication with the device, software updates take place in matter of minutes

IP66 + UV Stabilised

IP66 and UV stabilised housing protects the device in the harsh environment and ensures prolonged life

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Urban Streets

Industrial Zones

Residential Areas

Train Station / Railway Lines

Ports / Sea Terminals

University Campus

Like it.

Why not give it a try?

Want to learn more?

Need datasheet?

Contact us at: <u>sales@tvilight.com</u>

We look forward to working with you!

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