

# A Turkish Organization Developing a Predictive, AI-powered Adaptive Street Lighting System Seeks Partners for Validation, End User Testing, EDGE AI Development and Large-Scale Deployment (EUROGIA2030 Call 29)

## Summary

|                                           |                                                       |                         |
|-------------------------------------------|-------------------------------------------------------|-------------------------|
| Profile type                              | Company's country                                     | POD reference           |
| <b>Research &amp; Development Request</b> | <b>Türkiye</b>                                        | <b>RDRTR20251005002</b> |
| Profile status                            | Type of partnership                                   | Targeted countries      |
| <b>PUBLISHED</b>                          | <b>Research and development cooperation agreement</b> | <b>• World</b>          |
| Contact Person                            | Term of validity                                      | Last update             |
| <a href="#"><b>Enrico FRANZIN</b></a>     | <b>5 Oct 2025</b><br><b>5 Oct 2026</b>                | <b>5 Oct 2025</b>       |

## General Information

### Short summary

SMARTLIGHT is a predictive, AI-powered adaptive street lighting system under the Eurogia2030 Call 29. It integrates Floating Car Data, weather, and traffic information to forecast mobility patterns and dynamically adjust lighting in real time, ensuring energy efficiency, CO<sub>2</sub> reduction, safety, scalability, and full compliance with EN 13201 standards.

### Full description

SMARTLIGHT is a predictive, AI-powered, and IoT-enabled adaptive urban lighting system designed to optimize energy use, safety, and sustainability. Unlike traditional approaches that rely on costly roadside sensor infrastructure, SMARTLIGHT leverages Floating Car Data (FCD) from platforms such as TomTom, Yandex, and Be-Mobile, integrating this with weather data and traffic information to build predictive models of mobility patterns. These models forecast traffic conditions and dynamically adjust street lighting levels in real time, ensuring compliance with EN 13201 standards while significantly reducing energy consumption and carbon emissions.

The system introduces a novel, sensor-free methodology that allows for scalable and cost-effective deployment across diverse urban environments. By eliminating dependency on hardware-intensive roadside detectors, it minimizes installation and maintenance costs while maximizing flexibility. Through the use of advanced machine

learning algorithms and feature selection techniques, SMARTLIGHT integrates both historical datasets (traffic patterns, weather, accidents) and real-time streams (vehicle counts, traffic flow, FCD) to predict mobility conditions and proactively adapt lighting. This predictive capacity distinguishes SMARTLIGHT from conventional systems, shifting lighting control from reactive to anticipatory, which enhances road safety, driver comfort, and visibility.

A central IoT-based control platform with a map-based dashboard provides municipalities and operators with real-time oversight of the entire lighting network. This includes monitoring of operational status, fault detection, and energy consumption, as well as remote and automated control of individual lighting units. Data collected through the IoT backbone continuously feeds back into the system, enabling performance optimization, predictive maintenance, and improved energy management strategies. Edge devices further support local data processing for low-latency responsiveness, ensuring reliable operation even under dynamic mobility conditions.

The SMARTLIGHT concept directly addresses Eurogla2030's objectives by advancing low-carbon and digital technologies for the energy transition. It delivers up to 60–80% energy savings compared to conventional sodium vapor systems when combined with LED conversion, while significantly reducing greenhouse gas emissions and light pollution. The system also strengthens urban resilience by adapting to varying traffic densities, weather conditions, and local requirements, ensuring safety and sustainability for road users.

SMARTLIGHT thus represents a breakthrough in predictive, AI-driven adaptive street lighting. By combining advanced data analytics, IoT integration, and a sensor-free deployment model, it provides a replicable solution that delivers measurable impacts on energy efficiency, environmental sustainability, and citizen safety—contributing significantly to Europe's decarbonization and digitalization agenda.

## Advantages and innovations

SMARTLIGHT introduces a breakthrough in adaptive street lighting by shifting from reactive to predictive control. The system eliminates the need for costly roadside sensors, instead leveraging Floating Car Data (FCD), traffic, and weather information to forecast mobility patterns and dynamically adjust lighting levels in real time. This predictive approach ensures compliance with EN 13201 standards while achieving significant energy savings and CO<sub>2</sub> reduction.

The innovation lies in its sensor-free architecture combined with AI-powered prediction models. Traditional adaptive lighting requires dense sensor networks with high installation and maintenance costs, limited scalability, and reliability issues. SMARTLIGHT removes these barriers, offering a cost-effective and flexible alternative that can be rapidly deployed and scaled across urban areas of different sizes and infrastructures.

Another advantage is the integration of advanced machine learning and feature selection techniques, enabling the system to analyze both historical and real-time data for accurate traffic predictions. This ensures proactive adjustment of lighting, enhancing road safety, driver comfort, and energy efficiency.

The IoT-enabled control platform further enhances innovation, providing municipalities with a map-based dashboard for real-time monitoring, fault detection, and predictive maintenance. Continuous data feedback loops create a self-optimizing system that improves performance over time and reduces operational costs.

Overall, SMARTLIGHT delivers a unique combination of predictive AI, IoT integration, and sensor-free deployment. It achieves 60–80% energy savings when combined with LED conversion, reduces carbon footprint and light pollution, increases operational reliability, and ensures scalability and interoperability with other smart city systems. This positions SMARTLIGHT as a disruptive innovation in low-carbon, AI-driven urban lighting technologies.

## Technical specification or expertise sought

SMARTLIGHT requires expertise across AI, IoT, and urban lighting to ensure the development of a predictive, adaptive system. The consortium already provides strong know-how in intelligent transportation, traffic data management, smart lighting hardware, and AI-driven prediction. However, additional complementary expertise is sought to strengthen scalability, validation, and exploitation.

Key technical specifications and expertise sought include:

- **AI and Machine Learning:** Partners with expertise in traffic flow prediction, deep learning models, and optimization algorithms for real-time adaptive control.
- **IoT and Communication Systems:** Competence in large-scale IoT deployment, edge computing, wireless communication modules, and secure cloud integration.
- **Smart Lighting Hardware & Components:** Manufacturers or R&D providers for LED luminaires, Zhaga/D4i compliant drivers, and adaptive control units.
- **Energy Distribution & Grid Integration:** Utilities or technology providers to validate interoperability with energy management systems and ensure compliance with national standards.
- **Validation & Demonstration Sites:** Municipalities or public authorities willing to provide pilot sites and contribute to system validation in real-world conditions.
- **Environmental & Safety Impact Analysis:** Research partners with expertise in assessing energy savings, carbon reduction, light pollution, and safety improvements.
- **Commercial Exploitation & Scaling:** Industrial partners with strong market access to support large-scale deployment and commercialization strategies across Europe.

By integrating these competencies, SMARTLIGHT will deliver a predictive, AI-driven adaptive lighting system that is technically robust, scalable, and aligned with Eurogiga2030 objectives.

## Stage of development

**Under development**

## Sustainable Development goals

• **Goal 11: Sustainable Cities and Communities**

IPR Status

**Secret know-how**

IPR Notes

## Partner Sought

Expected role of the partner

We are seeking a company with proven experience in smart street lighting or smart city infrastructure that can actively facilitate collaboration with public authorities and municipalities in its region. The ideal partner will take a leading role in coordinating pilot deployments of the SMARTLIGHT system in real urban environments, ensuring the system's integration into existing infrastructure.

In addition to providing feedback on technical performance and system usability, the partner is expected to support engagement with local stakeholders (e.g., city councils, utility companies), act as a liaison with municipal bodies, and contribute to the strategic replication and upscaling of the solution across European cities. A strong market presence and access to regional public-sector networks will be considered a key asset.

Type of partnership

**Research and development cooperation agreement**

Type and size of the partner

- **SME 11-49**
- **SME 50 - 249**
- **R&D Institution**

## Call Details

Framework program

**Eureka**

Call title and identifier

**Eurogia CALL29**

Submission and evaluation scheme

Anticipated project budget

Coordinator required

**No**

Deadline for EoI

**21 Oct 2025**

Deadline of the call

**30 Oct 2025**

Project duration in weeks

Web link to the call

Project title and acronym

**SMARTLIGHT**

## Dissemination

Technology keywords

- **01003010 - Databases, Database Management, Data Mining**
- **01003022 - Smart Appliances**
- **01003008 - Data Processing / Data Interchange, Middleware**

Targeted countries

- **World**

Market keywords

- **02006004 - Data processing, analysis and input services**

Sector groups involved