The first Portuguese Smart City
A pioneer smart street lighting system in Europe

Évora Municipality

GOALS

In the 21st century, the world is looking for new ways to reduce energy consumption. The future of the planet depends on our ability to change to more sustainable and resource-consuming standards of living.

With this assumption, *EDP Distribuição* (a subsidiary company of EDP, the Portuguese electric utilities company) developed the InovCity concept of an intelligent city, based on the InovGrid smart grid project, towards an intelligent distribution system based on energy remote management. "Évora InovCity" was the first InovGrid project installation of a significant size.

The city of Évora was chosen to be the pioneer and ARQUILED proudly joined in to replace traditional lamps with LED technology.

Project implemented in 2010.

InovCity project

Provide the electrical grid with information and equipment capable of automating network management, improving service quality, reducing operating costs, promoting energy efficiency and environmental sustainability, as well as enhancing the penetration of renewable energies.

INSTALLED SOLUTION

The system installed in Évora, namely in Praça do Sertório, surrounding areas and the Eco-Track, was the first to be developed in Portugal in the field of smart street lighting management - a national example of sustainability. Environmental gains and energy savings are maximized, not only thanks to LED technology, but also as a result of the management technology that connects the luminaires through sensors.

ARQUILED's intervention focused on the area named Praça do Sertório (Sertório square), more specifically in the replacement of historic lanterns by Arquihistoric luminaires and in the development of a solution that establishes a balance between the various lighting specifications, including the existing light output and the Color Reproduction Index (CRI), maintaining the necessary levels of visual comfort and safety.

To this end, an LED module was developed with intelligent technology and network communication with the Arquigest system, capable of replacing the traditional lamps to a luminaire that preserves the historic and classical design. This smart system, the first developed in Portugal in the area of street lighting management, was implemented in 44 lanterns (old lamps), together with an advanced control, management and monitoring system. Each luminaire has a unique identification on the network and can be controlled individually or in groups.

On the other hand, the luminous flux regulation is characterized by a dynamic control system that, depending on the pedestrians or road traffic and the ambient light, manages the luminous flux avoiding unnecessary energy consumption.

It allows to decrease the level of illuminance during night periods of less activity and without risk of losing any functional and safety qualities of the street lighting systems, not limiting the scope of the lighting devices and ensuring the adequate sense of security.

If, on the one hand, LED Street Lighting made it possible to reduce energy consumption by approximately 50% in the light source itself, on the other hand, motion sensors contributed to reduce energy consumption by up to 80%, reducing the emission of gases with greenhouse effect into the atmosphere, in proportion to energy expenditure.

total nr. luminaires **44**	consumption reduction **446 K KWh**
better quality **LIGHTING**	bigger **SAFETY**
decrease energy consumption **up to 80%**	smaller **ENVIRONMENTAL IMPACT**

BENEFITS

The implementation of the smart management system in the "Arquigest" street lighting has resulted in several advantages for the municipality of Évora, such as:

- Lesser maintenance costs for street lighting infrastructures;
- A significant reduction in energy consumption;
- An increased useful life;
- Quick return on investment (payback);
- Renovation and improvement of street lighting quality;
- Greater sense of security;
- Minimization in the environmental impact, with decreased CO_2 emissions.

ARQUILED

Arquiled is a general LED lighting manufacturer, specialized in professional luminaires for street lighting, systems and services.

Headquartered in Mora-Alentejo, is a Portuguese industrial company, pioneering the market since 2005, that designs and develops its own products and solutions.

ARQUILED is committed to develop smart management solutions focused on reducing energy consumption and decarbonization, contributing to sustainable urban clusters.

Arquiled, Projectos de Iluminação, S.A.
T: +351 217 971 964
E: sales@arquiled.com

Arquiled Colombia S.A.S
T: +571 756 00 96
E: info@arquiled-light.com.co

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