INTELLIGENT AND SUSTAINABLE URBAN LIGHTING SYSTEM

TECNOLOGÍA PATENTADA

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RESUMEN

Researchers of the University of Alicante have developed a system that allows to control the urban lighting of a city intelligently, reducing its energy consumption.

The technology uses the existing infrastructure and controls the level of lighting required based on the human presence in the area. This system is scalable and can be implemented in any urban area.

The research group is looking for companies acquiring this invention for: licence agreement or technical cooperation.



INTRODUCCIÓN

Urban lighting in cities is an unavoidable need, but it also represents a considerable cost. Light pollution has a relevant impact on the environment.

Nowadays, urban lighting systems uses the luminaires at certain predetermined times. This implies a continuous and uniform illumination of the area at night.

In recent years, more sustainable and intelligent urban lighting strategies are being developed, such as systems based on the detection of people using infrared sensors installed in each luminaire. This type of systems supposes a lower consumption since they regulate the intensity of the light and increase it only to the moments in which there is human presence.

However, this option requires the installation of a large number of sensors, which implies a significant cost.

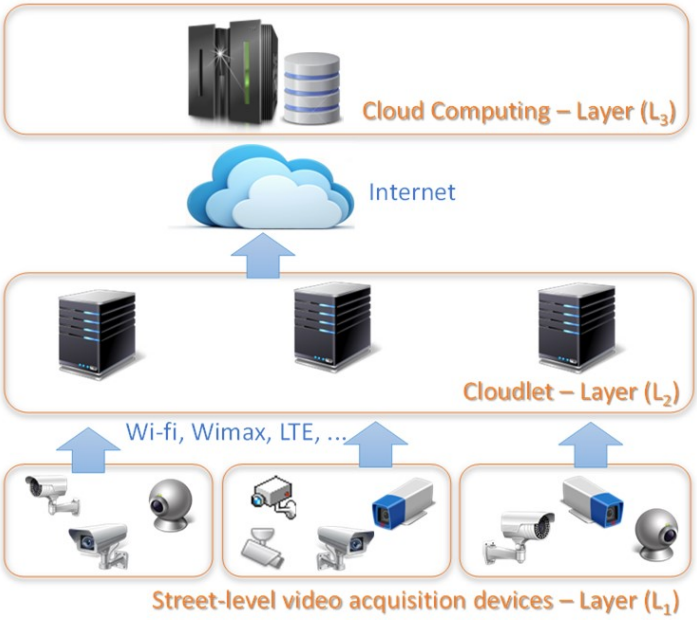
DESCRIPCIÓN TÉCNICA

This invention combines the advantages of the Internet of Things (IoT) and Cloud Computing systems for the design of a highly scalable system that is capable of graduating the light intensity based on human presence in a determined area.

The system is based on the use of the large number of traffic and security cameras on public roads, for the detection of human presence in an area.

For this, a distributed system is defined. The system architecture consists of different levels:

- At the first level, there are acquisition sensors, consisting of image or video cameras, and actuators consisting of variable intensity luminaries.
- At the second level, are the Cloudlet processing platforms that will be deployed in a context close.
- At the third level are the remote servers accessible via the Internet.



VENTAJAS Y ASPECTOS INNOVADORES

- The system allows **advanced video and digital image analysis** based on remote processing that ensures greater security over the real presence of people in the area. This method is more effective than detection by infrared sensors.

- The system obtains a **considerable reduction in energy consumption** by decreasing lighting when there is no human presence in the area, which occurs during most of the night.

- The system does **not require an added infrastructure**, since it takes advantage of the image capture systems already existing on public roads to analyze the presence of people.

- The **distributed processing of images** is an advantage because it allows covering the volume of analysis necessary to control a wide area.

- The system is **highly scalable** and can be used both in confined spaces and in large cities.

- The system allows **the integration of additional services** under the same platform.

INNOVATIVE ASPECTS

The main innovation of the system is that it combines different elements of the Internet of Things (IoT) paradigm and Cloud Computing for the design of a highly scalable and efficient intelligent lighting system.

The system integrates existing image or video acquisition devices on public roads with remote computing platforms Cloudlet and Cloud Computing that assist the necessary advanced processing.

The computational methods developed take advantage of this infrastructure to distribute the processing among acquisition devices, Cloudlet platforms and remote systems through the application of Mobile Cloud Computing.

ESTADO ACTUAL

The research group has developed a functional prototype of the system. The system is ready to be deployed in an urban area. In any case, the specific characteristics and requirements of the company will be analyzed to determine the best way to implement the system.

APLICACIONES DE LA OFERTA

The technology can be applied in this cases.

- Information Technology Sector.
- Installation and maintenance services of urban lighting networks.
- Local councils and public entities.
- Enterprises, shopping centers, health centers and entities that manage large spaces that have a network of luminaires.

COLABORACIÓN BUSCADA

Researchers are looking for companies acquiring the technology for implementation in their products or services. It is possible to reach license agreements.

DERECHOS DE PROPIEDAD INTELECTUAL

This technology is protected by **utility model**.

- Patent title: SISTEMA DE ILUMINACIÓN INTELIGENTE"
- Number of application: U202131571
- Date of application: 30/04/2019

SECTORES DE APLICACIÓN (6)

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