

Nextlight[®]: main characteristics.

Nextlight[®] synthesizes an effective combination of hardware and software, perfectly compatible with the existing, plug & play (that is as an additional module with respect to the existing infrastructure and easy to install by a qualified electrician), as well as' retrofit-compatible with **any type of outdoor LED lamp** currently present/existing on market.

It consists of designed and developed hardware – entirely in-house designed and developed - which is then suitably integrated with IoT technologies and cutting-edge communication systems.

The system allows large energy savings through the modulation of light intensity (and therefore of the energy supplied) in accordance with real needs (presence of traffic) and allows you to remotely monitor and control the light points.

The solution adapts the intensity according to actual traffic conditions (car, pedestrians, animals, objects, and any kind of movement), thus promoting high energy savings up to 70%, while ensuring the highest level of safety without altering the perception of those passing through.

The Nextlight[®] hardware module is plug & play and retrofit compatible with any existing LED lamp. It can be connected to existing lampposts as well as for new installations. Once connected to the lamppost, the module is online thanks to a gateway router (approx. one every 2000 modules) which creates the connection network. The communication protocol is LoRaWAN. An integrated motion sensor detects the presence and adapts (communicating wirelessly with other streetlamps) the intensity of the light which is reduced to a minimum when and where there is no traffic.

The sensors are sensitive to any type of movement that has a reasonable minimum volume. The data on energy consumption and recorded traffic movements are then conveyed to a cloud space where NEXTON[®] collects and organizes them to be presented on the dashboard which can be consulted on any device with an internet connection.

Components and Pilot Test

LoRaWAN is a protocol which defines communication protocol and system architecture. The protocol is an official ITU-T Y 4480 standard of the International Telecommunication Union built for low power and long-range applications.

The hardware component of the pilot test consists of the following elements:

- The module to be installed on the light pole

The Nextlight[®] module main components are:

- A movement detection sensor. (Several types can be adopted, PIR sensor or radar motion sensor)- procured.
- A Controller
- A PCB (electronic printed circuit board)- Intellectual property of NEXTON[®].
 - An antenna
 - Radio-transmitter module
 - Wi-Fi module

- An IP65 box, weather-proof and outdoor agents resistant.
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All proudly and completely ideated and developed by the team

There must be a concentrator that permits the communication with the cloud and the controllers, this is referred as:

- LoRaWAN Gateway (to allow communication between devices) with 4G slot.

How Nextlight[®] works

The presence of traffic (vehicular, pedestrian, bicycle, or any other relevant object that crosses the sensor detection area, etc.) is detected through the motion sensor and this triggers the light intensity in such a way as to modulate the luminous intensity of the lamp according to real needs and on the basis also of a series of pre-coded and customizable settings related to the different needs of those who adopt it and according to the application area.

The motion sensor receives the signal that goes in the LoRaWAN controller: now from one part it is sent instantly to the lamp driver that changes the light dimming and on the other side to the radio interface that communicates to the cloud for internal processing.

The end-to-end principle can be now illustrated in few lines: the motion sensor receives the signal that goes in the LoRaWAN controller: now from one part it is sent instantly to the lamp driver that changes the light dimming and on the other side to the radio interface that communicates to the cloud for internal processing.

The hardware basic components are purchased separately and are then assembled according to our drawings and design standards by selected technical partners specialized in the production of large volumes and equipped with specific machineries. Finally, they are configured by NEXTON[®] members according to the user's needs.

The module must in fact be properly configured on a firmware and software level (activities in charge of NEXTON[®]).

Check the software here: [Link](#)

Due to the highly structured technology behind the solution, 2 different versions of the device have been developed:

1. *Nextlight[®] 1.0* → each node works independently
2. *Nextlight[®] 2.0* → each node can communicate with each other.

Contact us to know more: info@nextonideas.com