Case Study: Everlight

Executive Profile

EVERLIGHT Electronics Co., Ltd. was founded in 1983 in Taipei, Taiwan led by Chairman Robert Yeh, EVERLIGHT Electronics Co. have over 32 years of R&D experience for reliable capability. With immediate service and an excellent brand reputation, EVERLIGHT has taken top five in the competitive LED market.

Summary

Everlight, one of the global leading manufacturers of LED lighting components, joined the Taiwanese municipality's tender as both system integrator and LED light bulb supplier. With a goal of replacing 8,000 mercury vapor street lights with LED, Everlight deployed Billion Smart Outdoor Street Light Control and Management System (LCMS) to overcome the difficulties of remote installation and elongated construction, limited transmission coverage, and hazardous environmental factors. Everlight was not only able to meet the municipality's target by saving up a vast amount of energy, but also provide instant maintenance service to broken street lights and increase traffic safety

Location: Miaoli County, Taiwan
Date: 2015

Challenges

Everlight wanted to search for a remote lighting control system to monitor a broad range of street lights in Miaoli, Taipei, without massive manpower. The company had a trail on ZigBee wireless communication technology but failed. Because to deploy ZigBee as a wireless system, construction needs to drill holes and install wireless nodes on top of every street lamp. The process requires a significant amount of time, efforts, and money by hiring several

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workers and lifted trucks to complete the deployment of 8,000 street lights. Everlight realized that without a signal repeater, wireless service coverage and transmission bandwidth are comparatively a lot less powerful than power-line communication, whose reception can go far as long as there is a power loop on the ground. Moreover, a wireless signal is quickly interrupted by different objects in an outdoor environment, such as trees, buildings, and even raindrops. Everlight found that wireless signals frequently showed as undetected in rainy weathers. Perhaps a row of street lights are broken during the midnight on a rainy day; the fact that administrator cannot receive out-of-order notification in real-time will put pedestrians' safety on risks by affecting vehicle owners' sight.

Our Solutions

To efficiently solve these deficits, Everlight adopted Smart Outdoor LCMS to ease the construction. Workers deployed SG7200 Intelligent Powerline Lighting Control Box at the bottom of each street light lamp to avoid hiring lifted trucks and time-consuming installation. Unlike ZigBee Segment Controller and ZigBee Node, Smart Outdoor LCMS eliminated the need for transmitting repeaters and increased the range of signal coverage by connecting multiple lighting control boxes through a single power loop. The site covered five power loops on a 2.4 Km long topology road with only 1 Smart Outdoor LCMS segment controller.

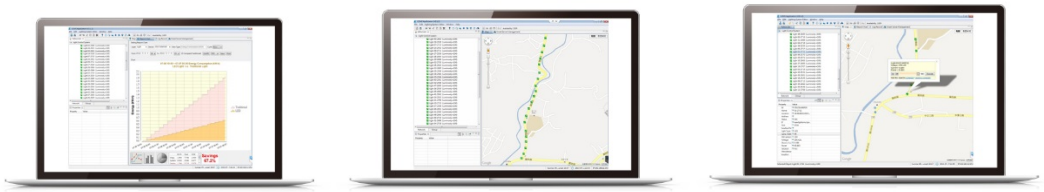
Benefits

An average of 67% energy saving is shown on Smart Outdoor LCMS after the replacement of LED lights. Smart Outdoor LCMS also resisted the noise created by running vehicles to keep the signal transmission always on-going. 50 streetlights are currently installed with Smart Outdoor LCMS and will be expected to deploy at the other 8,000 street lights replaced by LED.

As parts of Everlight's adoption to Smart Outdoor LCMS, Billion:

- Eased the hardware construction without sacrificing the quality of transmission service.
- Expanded the range of controlled street lights and signal coverage area through convenient power loop installation.
- Conquered the obstacles of object blocking and hazardous environment factors that were fatal to the delivery of wireless communication.
- Sent instant alarm notifying the out-of-order streetlights to speed up the maintenance process.

Software Interfaces



Smart Outdoor LCMS platform showed the total amount of energy saved in colors, charts and graphic interfaces. Users can self-schedule to see different comparisons according to a variety of times, dates, and sites. On the system report, the interface presented 67.2% of the energy that were saved after the replacement of LED street lights.

Smart Outdoor LCMS provided a Windows platform to oversee the operational status and the locations of 50 street lights. When clicking on individual street lights, a small window showed the current, voltage, and power consumption of each street light fixture for convenient remote monitoring.

Site Installation

One SmartServer Segment Controller was installed a 2.4Km street section to control 50 geographically-scattered street lamps without any problem. SG7510 Intelligent Powerline Lighting Control Box was deployed underneath 50 street light fixtures to control power on and off, collect voltage and energy-saving data, and monitor street light status. No need for lifted trucks, drilling holes and can prevent unpredictable hot weathers.

> *" Smart Outdoor LCMS provided the signal stability and connection consistency that couldn't be supported by our original ZigBee solution with for our 8,000 street lights project".*

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