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Your light's getting smarter

A data system that is being used to cut energy usage in office buildings may soon be found in street lamps and traffic systems, enabling urban centers like Singapore to become truly "smart" cities.
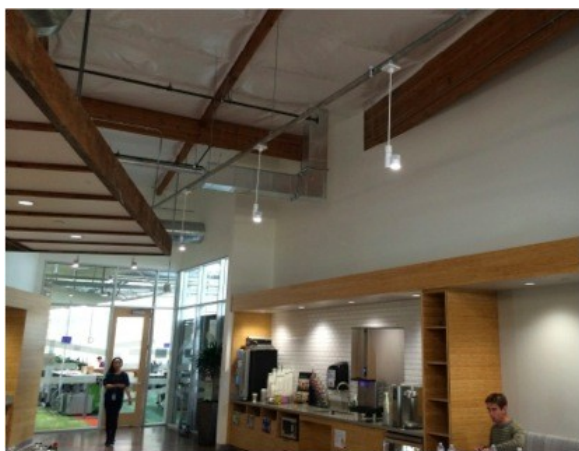
Enlighted's technology at use in Google's campus at Mountain View, California. Image: Enlighted

Singapore Business News | Thursday 16 April 2015

It tells you how often a space is used, how many people are using it at any time, and therefore how cold or bright it should be. The best part? It costs you nothing to install.

These are just some of the applications of a new system of wireless sensors that Enlighted, a United States-based data company, is bringing to Asia. It has the potential to help reduce a building's energy bill by a hefty 60 to 85 per cent, since it can tell when lights or air conditioning should be turned off.

The company, which has three offices in the US, India and France, has been making forays into the Asian market because of the region's economic growth. It now has about 2,000 employees around the world.

In a recent interview in Singapore, Christian Rodatus, Enlighted vice-president, noted that in a commercial building, 25 per cent of energy consumption is used for lighting, 50 percent is air-conditioning and heating, the remaining 25 percent is anything that are operated through power plugs.

"The business case of savings is usually good enough to pay for the entire network," he said.

This is how Enlighted's offering works. A network of sensors the size of a one-dollar coin can be installed in the ceiling or near other lighting fixtures, and the sensors – embedded with micro-processors – will send information on motion, temperature, energy consumption back to servers every second.

Based on the information, Enlighted can tell the system to act in different

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ways. For example, the sensors can be told to dim the lights in the hallway to, say, 20 per cent of full power unless there are people moving.

The system can also pick up data on occupancy and efficiency of space usage, using a combination of motion and heat sensing. This provides plenty of useful information for space planning, Rodatus said.

"We can understand how human beings move in a building, how occupied any space is at any time," Rodatus added. "If a space is never used most of the time, can it be converted to something else?"

Another example of an application is "daylight harvesting", which is becoming the norm in the fields of lighting, sustainable architecture and energy efficiency. It refers to a lighting system that switches on and off at certain times of the day. For example, lamps near desks that are by a window and get a lot of natural light won't be switched on in the mornings.

"It's really about technology and data more than it's about lighting," Rodatus said. "You can think of us as an Internet of Things company."

> **"**
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> If a space is never used most of the time, can it be converted to something else?
>
> Christian Rodatus, vice-president, International of Enlighted

No upfront investment

Enlighted is so confident of its technology that it has started offering it under what it calls a "Global Energy Optimization" (GEO) programme.

What this means is customers do not have to pay anything upfront, and Enlighted will fit the facility or building with energy-saving LED lights as well as sensors.

Enlighted makes its money by getting back a portion of the money saved from their customer's energy bills.

"Our customers get a guaranteed monthly savings on their energy bills, and we get a portion of that to fund our investment," Rodatus said.

Enlighted engineers go into a building, look at the current lighting fixtures, their energy usage, the burn rate of the lights, just to name a few indicators. Based on these metrics, they know exactly how much the current lighting system costs a customer and the approximate energy bill.

This proposition is attractive to many companies, Rodatus said, adding that the company already has more than 200 customers globally, with the biggest being U.S. telecommunications giant AT&T.

The firm is using Enlighted's data technology across its entire real estate portfolio of more than 200 buildings across America.

The installation process – which can only be done at night to avoid disruption to the tenants - was done in two and a half years, Rodatus said.

Having done its first major installation in 2012 for Hewlett-Packard, Enlighted's data technology is now found in eight countries outside the U.S., including Singapore, China, India and Chile.

Smart cities

Apart from commercial buildings and educational institutions, the technology can also be used in many other settings such as in the streets, public and government facilities.

Singapore, where the government is refashioning the city into a "Smart City", in which digital technologies and data are used to maximise performance of public infrastrucutre**,** and to engage more effectively with its citizens. The applications are boundless, Rodatus said.

"You can use it to give you information on pedestrians, improve traffic systems, and you can design your street lighting to optimize your municipal energy usage," Rodatus said.

"The government is also doing a lot in terms of creating a Smart City and in the green building space so this market is ripe to adopt technology like ours," he added.

This is why EDBI, the corporate investment arm of Singapore's Economic Development Board, decided to invest about $5 million in Enlighted in 2013, when the company was just starting to look at Asia.

Rodatus said that Singapore is also a great place to try to sell the technology to the rest of Asia.

"Have you seen the construction that's going on in the region?", he said. "We're very excited about the prospects of bringing our technology here. There's so much going on."

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