



## How Smart Lighting Is Revolutionising How We Relate, Live and Work

DANIEL on November 18, 2015 at 11:50 am



Like smartphones, smartwatches and thermostats, home light bulbs and lighting systems have grown exponentially smarter over the past couple of years.






There is now a wide range of intelligent and connected lighting solutions that you can install in your home and control with your smartphone or even automate with simple programming.

Before we dive into specific smart lighting technologies and the companies behind them, I will highlight a few important lighting trends that will provide a general idea where this new facet of Internet of Things technology is headed.

### THE MANUFACTURE OF LED IS POWERING CHINA'S GROWTH – RESEARCH SHOWS

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## THE MANUFACTURE OF LED IS POWERING CHINA'S GROWTH – RESEARCH SHOWS



via Philips.com

Let's face it, hardly any country can match China's production capacity, especially in LED lighting equipment. Over the past couple of years, China's LED market has grown fast, with LED manufacturing companies like MLS Electronics, becoming the largest LED super power on the planet.

The world has embraced LED technology not only because of its power efficiency and low heat output, but also because of the long life, affordability, and versatility of LED bulbs. The Chinese lighting market is expected to hit \$30B by 2016, with a market share of 21% according to a report by Lighting.com.

### FOR CLOUD-BASED LIGHTING, THE SKY IS THE LIMIT

If you've been keen enough, then you must have noticed that the whole movement of connectivity and Internet of Things is slowly taking control to the clouds. New smart lighting systems emerging in 2015 and expected in 2016 (see applications of smart lighting) are being optimised to function on the cloud.

If anything, software services in the cloud will handle control and automation functionality such as dimming, switching, and colour tuning. Which, of course, is expected to make it easier and more efficient to monitor room occupancy, system usage, and energy consumption.

Cloud-based applications for smart lighting may still be out of our reach, but there are emerging startups vigorously working on this idea.

In short, for remote lighting, cloud computing is the future.

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The inception of Wi-Fi revolutionised how we do business, how we socialise, and how we access the Internet around the globe. The Internet is paving the way to the Internet of Things, and it is just a matter of time before Wi-Fi paves the way for Li-Fi.

Li-Fi is a data transmission technology that uses LED to transmit data at speeds of up to 10 gigabits per second in laboratory conditions. Google's super-fast Fiber only provides 1 Gigabits per second.

This [technology is still being developed in laboratories](#), and it still has drawbacks, but this is the big change smart lighting will bring humanity.

## THE LITTLE-KNOWN APPLICATIONS OF SMART LIGHTING AND SMART BULBS

The fastest growing trend that is pioneering the automated smart home and lighting are the use of smart light switches and dimmable colour-changing LED bulbs. The Philips Hue, for instance, is a remote-controlled lighting system that uses the standard screw-fit lightbulbs whose brightness and On or OFF status can be monitored and adjusted via a smartphone application.

### 1. GREENWAVE REALITY CONNECTED LIGHTING SOLUTION



[GreenWave Reality](#) is an Internet of Things company that has put its focus on developing a smart lighting solution for homes that comes with a pocket-friendly price tag. Its latest \$200 smart home lighting kit includes four LED bulbs with a gateway and a remote control unit.

The system connects to the cloud via a hub and for a little more money, it can include an energy management and a surveillance system. One of the best features of this smart lighting kit is that it is Z-Wave, 6LoWPAN, and ZigBee-ready for integration.

### 2. LIFX



A successful [Kickstarter campaign](#) in 2012 is proof enough of just how ready the world has been for a simplistic yet dynamic IoT smart home lighting system like that of LIFX since 2012. This system features smart LED bulbs that connect directly to the Internet via Wi-Fi. In 2013, the company sought \$100,000 to manufacture Internet-ready bulbs that could easily be controlled with a smartphone app and instead got over \$1,314,000 in pledges. These bulbs connect directly to the Internet of Things via Wi-Fi and offer has over 1,000 shades of white alone and a maximum brightness of 1,000 lumens. These bulbs retail for \$39.99 today.

*Relevant: [The "Works With Nest" 15 Best Compatible Devices](#)*

### 3. BELKIN WEMO

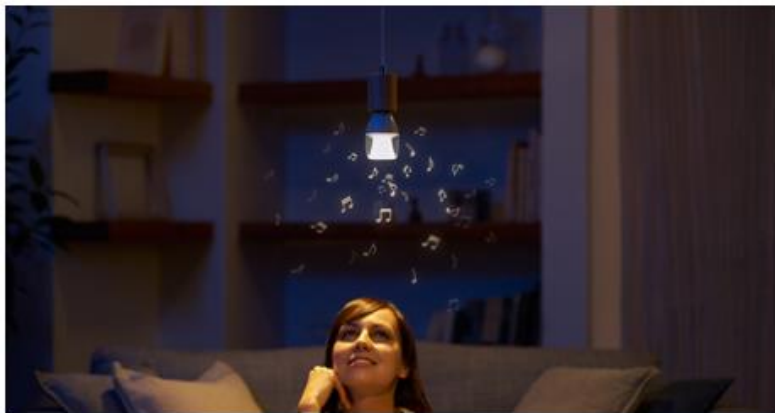


One of the market-dominant smart lighting systems today is made by [Belkin](#). The company came up with a great smart bulb idea to dim manually or automatically by adjusting to a simulated occupancy feature.

This system also takes control of various appliances including radio and TV, turning them on and off at different times even when you are not at home—a technological twist to the idea of the movie Home Alone to keep buglers away.

The LED bulbs, which cost a measly \$49.99 per set, should last up to 25 years and can be controlled over the Internet using a WeMo mobile application.

### 4. SONY LED LIGHT BULB SPEAKER – LIFE SPACE UX



A new entrant in the connected smart bulb industry is a seasoned name in electronics and device manufacturer—Sony. Sony's [Life Space UX LED bulb](#) has a unique feature—a speaker inside the bulb.

You can connect your smartphone to the 360 lumens smart bulb via Bluetooth and get to control not only the brightness of the bulb but also increase and decrease the volume of your music using a simple SongPal application.

These bulbs, which are only available in Japan at the moment, are also NFC remote enabled.

## 5. ELGATO AVEA



If you are looking for connected smart bulbs that do not need to connect via Wi-Fi, Elgato has the solution. The [Elgato Avea](#) is marketed as 'able to switch up the light mood in your living room' by offering easy pre-set tone changes from calm Provence to fairy woods and everything in between right from your iPhone, iPad or iPod. This smart home lighting system is also perfect for people looking for a system compatible with the Apple HomeKit. The 7W LED bulbs connect with Bluetooth Smart directly and come at a reasonable price of just \$39.99.

## 6. OSRAM LIGHTIFY



The [smart home lighting system made by Osram](#) is a lot more than just a light bulb; the company manufactures a range of smart lighting systems including light strips, lamps, and outdoor garden lights that offer up to 16 million colours. All these come with preset colours, a colour picker, and a presence simulation system that enhances home security even when you are away. The lights have a dedicated Android and iOS application that lets you control up to 50 bulbs at a go. What makes Osram Lightify stand out is its massive customisation capacity—you can control almost everything



## 7. MISFIT BOLT



Misfit offers a ton of features that rival those offered by big industry players today—brightness, temperature, and colour control—at an amazingly low price of \$130 per set.

The wireless connected smart bulbs can transform any room into any lightscape as it enables the user to select colours or pictures on the app and apply them to the 13W gallery-quality bulb. Because the [Misfit Bolt](#) connects via Bluetooth, no Wi-Fi is necessary.

They also present the option to control the lighting using a smart wearable fitness companion called Misfit Flash. How cool is that!

## 8. PHILIPS HUE



The [Philips Hue](#) fuss-free smart home lighting system from one of the pioneering names in the lighting industry is a thing of dreams. This is a lighting system that does everything you can imagine, and more. Using a simple desktop, iPhone or Android app, you can easily control the brightness, colour, and temperature of individual bulbs in a room, choosing colours from images and [connecting the lights to IFTTT recipes](#). This lighting system is also wearable-ready, meaning that you can control it from your Apple Watch as well as Pebble smartwatch. A starter pack includes three 600 lumen LED bulbs, a smart switch, a choice of Hue Lux or Hue Beyond lamp and a bridge.

If you would prefer a portable smart light system e.g. for your balcony or to take to the beach during a party, the [Philips Hue Go](#) is perfect. It is a bowl-shaped lamp that lets you control the tone, colour, and brightness and comes with a bedside alarm feature and a 3-hour battery life on a single charge. For just \$99.99.

## THE MOST FORMIDABLE SMART STREET LIGHTING PROJECTS

### 1. TWILIGHT INTELLIGENT STREET LIGHTING

[Twilight Intelligent Lighting Controls](#)



is a market leader in the development of intelligent street lighting systems, currently serving over ten countries around the world.

The company has developed smart street lighting systems that feature remote management and wireless control of outdoor lights. Their patented presence technology is an adaptive control feature that provides on-demand lighting, meaning that the right amount of light is produced when and where it is needed.

This technology has proven that it is possible for cities to cut power consumption by up to 80% and reduce maintenance costs by up to 50%.

### 2. PHILIPS INTELLIGENTCITY SMART STREET LIGHTING



Philips, a global leader in lighting, has also partnered with a leading telecommunications giant Ericsson to develop an innovative smart lighting model that focuses on providing citizens with lighting high-quality on-demand lighting as well as improved network connectivity and performance.

The [IntelligentCity](#) system brings the benefits of mobile connectivity and LED lighting for cities, allowing the authorities to increase revenue generation by partnering with network providers to hire mobile broadband infrastructure.

*Relevant: [Top 10 Tech Companies Set Up To Disrupt Internet of Things in 2016](#)*

### 3. ECHELON CONNECTED LIGHTING



Another notable smart street lighting system is the [Echelon](#), which is in use in over 600 cities at the moment. This wired and wireless outdoor lighting system is designed to make outdoor lighting efficient, safe, and affordable through the open-standard control networking technology. Smart cities can adopt such a connected system to fulfil the primary need of casting light in the dark as well as serve as the basis of a public Internet of Things system.

This street lighting system focuses on reducing power consumption, improving safety for pedestrians and drivers through adaptive lighting, and provide benefits for RF-based and combined power line lighting architectures.

### 4. INTELILIGHT



The [inteliLight remote street lighting control system](#) offers detailed lamp-level tools of every light in a city to ensure that the right amount of light is provided when and where it is required. It also features an in-depth grid management system that provide real-time feedback on any changes in the power grid as well as advanced maintenance optimisation tools.

inteliLIGHT is a sophisticated street lighting system for smart cities that can turn lights ON and OFF automatically, dim the bulbs as required, show consumption levels, allow third-party communication through the lighting grid, and generally sense the city using inbuilt wireless sensors.

It is also designed to control other infrastructure, schedule maintenance and generate maintenance reports.



## HOW SMART LIGHTING WILL REVOLUTIONISE OUR FUTURE

The rapid adoption of smart lighting both in homes and cities around the world has opened the floodgates to inventions and ideas—some simple but revolutionary and others outrageous but optimistic.

First off, it is clear that LED is the future of lighting. The flexibility, affordability, and long performance life of this technology is what is making all the new inventions possible in the first place. In the future, our cities and massive concrete jungles will be transformed into friendlier homes as lighting will be advanced enough to make entire cities connected and adequately lit.

The energy saving properties of LED, combined with ongoing efforts to adopt renewable energies in all sectors, will lead to cleaner and attractive cities whose advanced telecommunication systems turns it into a village—literally.

### WHAT ARE THE THREATS OF SMART LIGHTING?

As individuals embrace smart home lighting systems, cities are having a hard time selling the smart street lighting idea largely because of privacy issues. Many are still apprehensive about the idea of having sensors all over cities, even if they are just used to detect motion to turn on or off street lights.

The threat of hackers and unauthorised access is another big challenge of connected lighting systems. Because smart lighting makes it possible for a manager to control home or office lighting from a single point, an unauthorised access can interfere with the system for malicious reasons if the system is not secured properly or if control is lost due to human error.

*Relevant: [How Smart Sensor Systems Will Revolutionise the Future](#)*

### THE BOTTOM LINE

In the promising future of smart homes, there's no denying that smart lighting leads the path for clever appliance connectivity and control. Even as companies innovate and build smart homes and street lighting systems, we can ignore the fact that better technologies and technology advances such as miniaturisation and integration to the Internet only shows that we can expect more progress in this industry soon. A big chunk of it is still far away from our imagination, nonetheless.

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#### DANIEL

Daniel is the resident Editor-in-Chief of the Accessories blog, and is abreast of all the latest developments. He has always been enthusiastic about technology, and this has helped him to bridge the gap between techies and mainstream readers. An avid mac user; he would never be caught without his iPad air, iPhone and Mac Powerbook. Daniel splits his time between London and Glasgow, but is always wired into accessories wherever he is.