

PUBLICATION	Energetica
DATE	8 th July 2020
EDITION	Online
WEBLINK	Intelligent Lighting: The Key to Developing Smarter Cities

Intelligent Lighting: The Key to Developing Smarter Cities



India is at the verge of attaining the title of the most populous country in the world. With the increasing population, the demand for a significant development of cities has also increased. Today Internet of Things (IoT) is taking over across all domains and lighting is not an exception. When it comes to developing any city, intelligent lighting is worthy of attention for future as it permeates every area of an individual's life—home, work, on the road and in public places.

Smart lighting plays a functional role not only in illumination, connected and intelligent lighting has the capability to improve quality of life, transform everyday experiences and services, and ensure sustainability in ever expanding global cities.

Furthermore, urban populations are expanding swiftly and according to a survey, in 1901 census India had 11.4% of its population residing in urban areas, according to 2001 census, it increased to 28.53%, and crossed 30% as per 2011 census, in 2017, the numbers increased to 34%. Approximately 60% of the world's population is predicted to live in cities by 2030 with more than 70 billion light points.

To develop smart cities, powering of intelligent lighting is very important aspect as it synchronizes everything to individual preferences. It will pre-empt the needs, complements wellbeing, energizes people, and keeps safety at first.

Today, every business, houses, buildings and public areas are destined to become smart. Street lighting has also not been an isolated domain now and has become the part of a networked urban infrastructure.

Lighting the dark is the main task of street lighting. However, intelligent street lamps can fulfill many more functions like notifications on the violation of traffic regulations and automatic penalty with the help of car numbers for littering.

Intelligent lighting also includes LED technology which not only, lowers the electricity cost, enables demand-driven lighting but also reduces CO₂ emissions.

According to a survey, half of the carbon emission is generated from the production of electricity. Lighting alone produces 17% of carbon emissions. A huge amount of 830 grams of carbon equivalents are generated by every 1 KW of electricity. A study in 830 grams of carbon equivalents shows that intelligent lighting through LED technology reduced carbon emissions by 570 million tons. That is the equivalent of shutting down 162 coal-fired power plants. Every time the energy is conserved, carbon footprint is reduced. LED lighting can reduce the usage and energy-saving appliances. A standard incandescent light burns through 50 watts of electricity per hour but an intelligent light bulb usage can only be up to 6 watts per hour.

Moreover, the intelligent lighting can be an asset for mankind which may consist solar power capabilities, digital signage, environmental condition monitoring, traffic monitoring and electric charging. Intelligent lighting may have the efficiency of getting outfitted with solar panels to power the lampposts lighting.

Besides all the major functionalities, intelligent lighting plays a major role on revamping the lights on streets. The intelligent lighting will have digital signage capabilities to alert pedestrians and vehicles. It will also adjust traffic signals to alert drivers of traffic backups via digital signage. The technology will abolish road repair or traffic crews setting up temporary signage and will also be able to observe temperature, humidity, floods, air quality etc which can be gathered and used by city personnel to learn about the prevailing conditions and execute future actions for the betterment of the safety and quality of life of citizens.

The smart street light can use inspection cameras and monitor traffic conditions. Smart lampposts may also assist in identifying suspicious behavior or enable license plate recognition. Smart street lights may include the ability to ask for a digital assistance of directions for people or can connect a person to emergency services.

Smart street lights may also act as a station for charging electric bikes and scooters throughout cities these devices, the power of which may be coming from solar panels.

While the features of intelligent lighting seem exhilarating, it needs many technologies behind the scenes, to enable and execute its functionalities.

The main idea behind smart lighting is the substitution of the traditional light which is costly and lacks in security systems, therefore mass production of smart lighting is the need of the day.