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Intelligent lighting, a way for developing cities

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India is rapidly building up its infrastructure to cater to the needs of its large population, and there has been significant introducing of innovative technology in the cities across the nation, which are enabling better management and planning. Internet of Things (IoT) is one such technology that has revolutionized not just our homes but is also helping in administration and running various public functions in the urban setting. When it comes to the development of any city, intelligent lighting is the first and foremost element to notice as it permeates every area of an individual's life–home, works, on the road and in public places. Smart lighting is utilitarian not only in illumination, but it also has the capability to improve quality of life, transform everyday experiences and services, and ensure sustainability in ever-expanding global cities.

Furthermore, the urban population is expanding rapidly and according to the census in 1901, India had 11.4% of its population residing in urban areas, according to census in 2001, it increased to 28.53%, and crossed 30% as per the census in 2011, In 2017, the numbers increased to 34%. Approximately 60% of the world's

2011, 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.

For the development of smart cities, empowerment of intelligent lighting is an important aspect as it synchronizes everything to individual preferences. It will anticipate the needs of, complementing wellbeing, energizing people, and keeping 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.

Eliminate the darkness on roads and alleys, is the main task of a street light but an intelligent street lamp can fulfil 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 technologies like LED light system, which not only, lowers the electricity cost, enables demand-driven lighting but also reduces CO_2 emissions.

According to a survey, half of the carbon emissions are 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

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 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 is a boon for mankind which may consist of solar power capabilities, digital signage, environmental condition monitoring, traffic monitoring and electric charging in future. Intelligent lighting may also have the efficiency of getting outfitted with solar panels to power the lampposts lighting.

Besides all the major functionaries, intelligent lighting plays a major role in revamping the lights on streets. The intelligent lighting may have digital notification capabilities to alert pedestrians and moving vehicles. It will also adjust traffic signals to alert drivers of traffic backups via digital signage and notifications. The technology will exterminate road repair or traffic crews setting up temporary signage. It may 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 be used in the inspection of cameras and monitoring the traffic conditions. Smart poles with lamps atop, may also assist in identifying suspicious behaviour 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.

As per the expectations, smart street lights could also be able to 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 feature of intelligent lighting seems bright, it needs many technologies to get enhanced for the stimulation in a real scenario, to enable and execute its functionalities.

The main purpose 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.

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