Lighting Sustainable Cities

IoT-enabled Lighting Leads the Climate Change Battle

Internet of Things (IoT) has ushered in a new era of unique technological opportunities, changing the way we collect and harness information from common devices we use in everyday living. The total number of IoT connected devices installed worldwide is projected to reach 75.44 billion by 2025[1] and will dramatically impact our lives, bringing about greater convenience and comfort, as well as valuable insights from data analytics to help protect the environment.

City planners are striving to transform urban spaces into smart cities where devices deployed are connected effortlessly, managed intelligently and optimised to maximum efficiency. To reduce the strain on the environment, many progressive countries and cities are also on the lookout for environmentally friendly solutions that will reduce the consumption of natural resources and emissions of greenhouse gases, to counter climate change. Two critical examples of drastic climate change: fire in Amazon rainforest and melting ice in the North Pole.

Lighting is ever-present and all around us. Smart lighting is a candidate for reducing energy consumption as it significantly reduces energy consumed by lighting systems that will have far greater impact on the environment beyond cost savings.

Organisations can be a part of this by adopting IoT technology into their building lighting systems, joining in the movement towards environmentally friendly and sustainable development for smart cities.

Our Smart Lighting was conceived with energy optimisation in mind, as a solution to building sustainable smart cities. The solution transforms individual lighting systems into smart IoT sensory networks making it environmentally friendly while simultaneously serving as data collection points to improve future demand planning, township design, facility management and monetisation opportunities for owners.

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Transforming Ordinary Lights into an Intelligent Sensory Network

Our solution delivers smart lighting without the need for any additional broadband network infrastructure. It also uses a deterministic communication protocol that eliminates the risk of message loss as opposed to collision detection-based protocols. Large-scale estate lighting installations and scalability for future network expansion become fuss-free.

Each smart controller is able to connect up to 400 dimmable LED luminaires with embedded smart motion sensors. It communicates wirelessly with neighbouring nodes to form a multi-hop mesh network. The sensor antenna and digital signal processing will overcome blind spots and maximise bandwidth efficiency. It is suitable for indoor and outdoor usage.

Sensing, Predicting and Optimising through Data Analytics

Data collection by the smart sensors allows the system to identify failing luminaries, resulting in predictive system maintenance. Facility managers will be able to greatly improve productivity, reduce cost and provide a better quality of service to building occupants.

It will revolutionise your lighting system by providing on-demand lighting, superior user experience, integration with CCTV surveillance system for improved security, air-conditioning optimisation via temperature information and data analytics to derive actionable insights such as retail shopper traffic, space utilisation and maintenance schedule.

Rethink, how your office and factory premises lighting can be intelligently empowered to provide:

- Predictive on-demand lighting for safety, where the path ahead is lighted up in advance

- Proprietary soft dimming with no abrupt brightness change, delivering superior user experience

- Tamper-proof, light default to full brightness on detection of tampering with automatic alert

- Integration to CCTV surveillance system for motion-triggered recording and alert to security personnel

- Collection and transport of temperature and other sensor data of interest. The temperature data can be leveraged for air conditioning optimisation, bringing even greater energy savings

- Activity data collection and data analytics to derive actionable insights such as retail shopper traffic, space utilisation and maintenance scheduling

Our Smart Lighting delivers significant energy savings of more than 50% on top of LED savings, reduces waste through increased luminaries' lifespan, reduces carbon footprint as well as collects data to aid urban city planners in creating a more sustainable and eco-friendly living environment, a natural toolkit for any Smart City.

As the award winner of the Institution of Engineers Singapore (IES) Engineering Achievement Award* 2018, we fervently innovate to deliver lighting for safety and comfort in an environmentally friendly manner, meeting the needs of future smart and sustainable cities.

References

1. https://www.statista.com/statistics/471264/iot-number-of-connected-devices-worldwide/

**Institution of Engineers Singapore (IES) Engineering Achievement Award 2018 celebrates the most outstanding accomplishments of engineers in Singapore in the past year and recognises their significant contributions to stimulating engineering progress and enhancing quality of life in Singapore.*