



Internet of Things (IoT) Lighting System

Technology Overview

Lighting controls play a crucial role in optimizing energy efficiency and occupant satisfaction, but the high efficiency of LED lighting can sometimes make it challenging to achieve a substantial return on investment. Stand-alone controls like occupancy sensors may offer a more cost-effective solution, but they have limitations in terms of scalability. A modular wireless Internet of Things (IoT) lighting system with three levels of control provides a future-proof solution, allowing for functionality to be added as needs evolve.

- **Level 1 (Foundation)** includes LED luminaires integrated with occupancy and daylight sensors.
- **Level 2 (Advanced)** adds a gateway to enable scheduling and remote access.
- **Level 3 (Enterprise)** enables heating, ventilation, and air conditioning (HVAC) and grid-interactive efficient building (GEB) integration. It also provides insights into space utilization, empowering facility and building managers to make informed decisions about space usage and allocation.

Why is GSA Interested?

The technology's three-tiered modular design will enable GSA to expand functionality as needed. The manufacturer estimates reduced installation and commissioning costs over standard controls: \$0.15 for the Foundation level and \$0.23 for HVAC and GEB control. With a material cost of \$2 per square foot, the investment is projected to yield a payback period of less than 12 years.

The IoT lighting system can streamline maintenance operations. It identifies malfunctioning luminaires, notifies maintenance needs, and facilitates easy reconfiguration by on-site staff, resulting in reduced downtime and minimal disruption to occupants.

Deployment Potential

This technology is applicable across the GSA portfolio.

Green Proving Ground (GPG), in collaboration with the U.S. Department of Energy, is evaluating the real-world performance of the Internet of Things (IoT) lighting system in federally owned buildings within GSA's inventory. The technology will be provided by Signify and coordinated with other ongoing evaluations of this technology.