

Indoor Positioning System

Energy Saving Solution

Indoor Positioning Systems (IPS) builds on the integrated technology suite from Acuity Brands' Atrius Platform to provide energy efficiency and low cost location tracking for individuals and equipment, using smart devices and wearable or attachable technology to locate people and assets indoors. IPS provides facility occupancy and analytics to better inform facility and energy use decisions: where and how long people dwell in a location/area, first time and repeat visitors, how people move through indoor space, areas they enter and leave, and movement and occupancy patterns over both time and space.

Smart LED Lighting Builds the Foundation for Energy Efficiency

IPS Smart LED Lighting provides a close to 3-year Return on Investment from energy savings alone. Visible Light Communication (VLC) and Bluetooth Low Energy (BLE) technologies embedded in the LED lighting framework create an exceptionally accurate system for indoor positioning and lighting based networks.

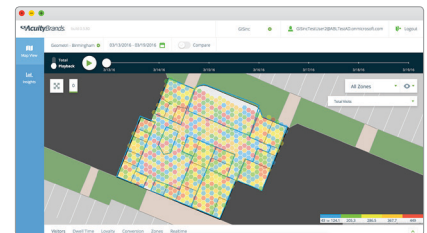
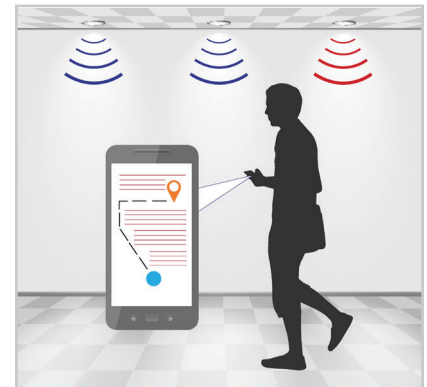
- Wireless light-dimming capabilities result in additional energy savings
- Communicates with any mobile device equipped with a camera and Bluetooth®
- Precision location accuracy anywhere there is a light fixture
- No additional equipment – uses existing lighting infrastructure, resulting in quick and simple LED deployments
- Battery-free Bluetooth sensors, resulting in low maintenance costs
- Lighting network supports multiple sensor types (smoke, voice, motion, etc.) and are able to respond to localized events
- Sensory Networks – provides a spatially distributed autonomous network of devices using built in sensors to monitor physical and environmental conditions.

Indoor Positioning System Increases ROI with Visualization, Navigation, Analytics

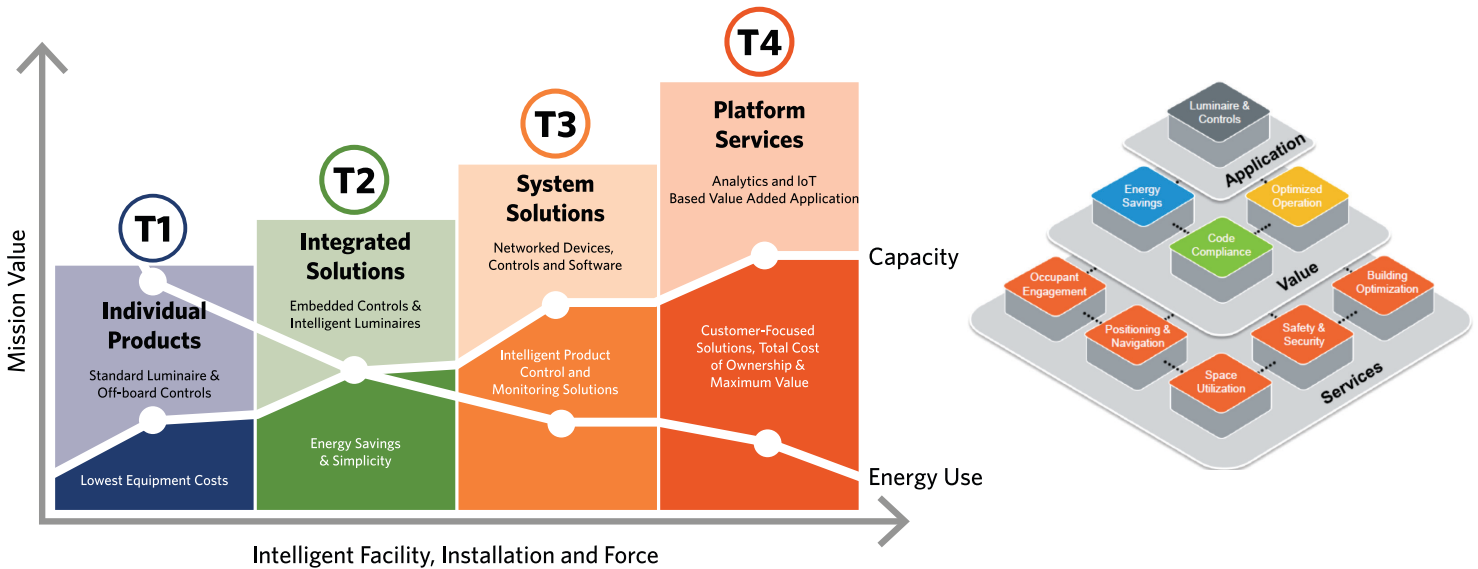
IPS uses a powerful combination of spatial and statistical engines that are designed to be flexible, easily customizable, and rapidly adaptable to emerging hardware paradigms.

- Provides easily distributable facility maps and analytics to determine facility occupancy use at any time and location to adjust lighting and HVAC controls
- Sends alerts in defined areas such as conference rooms to “turn off the lights” based on occupancy information
- Enables visitors to pinpoint where they are standing within a facility from their smart phones
- Visitors receive turn-by-turn walking directions from their location to any searchable location within the area
- Includes administration tools to manage, edit, and publish indoor maps, navigation routes, and search lists for smartphones
- Custom features and applications can be easily added using software development kits (SDKs)

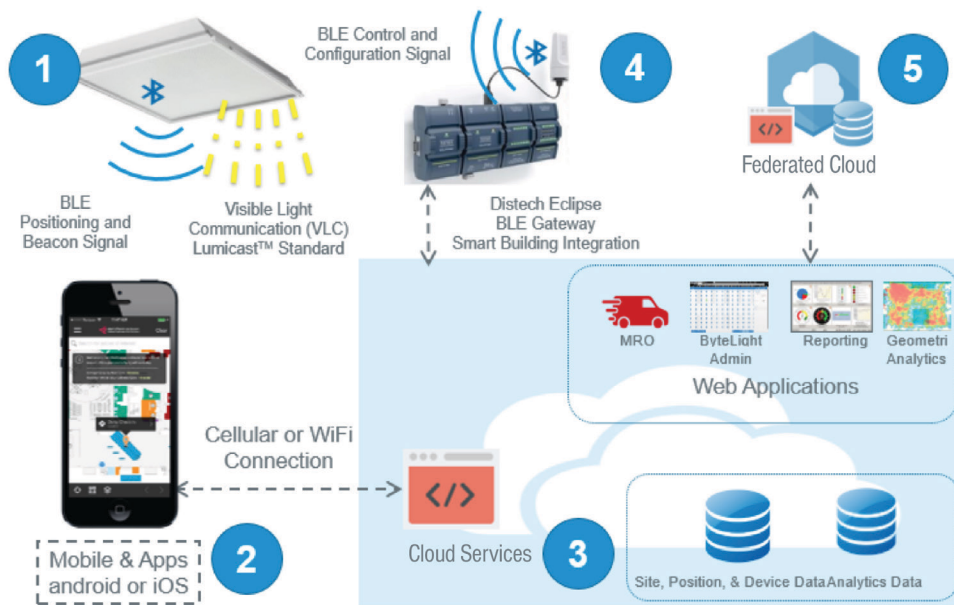
GeoloT™
PLATFORM



Indoor Positioning System Enhances LED Retrofit ROI with IoT Enabled Capabilities for Intelligent Facilities



ByteLight Indoor Positioning Platform Technology



1. Intelligent LED luminaire with VLC & BLE
2. Mobile Software (SDK or Demo Applications)
3. **Atrius Insights** enables multi-site analytics
4. Local BMS integration & group controller
5. Link to **Federated Cloud**

Did you know? Widespread use of LED lighting has the greatest potential impact on energy savings in the United States. By 2027, widespread use of LEDs could save about 348 TWh (compared to no LED use) of electricity: This is the equivalent annual electrical output of 44 large electric power plants (1000 megawatts each), and a total savings of more than \$30 billion at today's electricity prices.

Source: <http://energy.gov/energysaver/led-lighting>

