

Smart Street Light

Less power consumption, more light!





Description

Intelligent street lighting refers to public street lighting that adapts to movement by pedestrians, cyclists and cars. Intelligent street lighting, also referred to as adaptive street lighting, dims when no activity is detected, but brightens when movement is detected. This type of lighting is different from traditional, stationary illumination, or dimmable street lighting that dims at predetermined times.

Approaches for Smart Light

There are two approaches for Smart Light:

1. Group Based Control
2. Individual Control



Group Based Control

Description:

The group of LED Lights will be controlled using Smart Feeder panel. Feeder Panel controller have astronomical timer, Energy Metering and GSM/GPRS modem inbuilt along with Digital Input and Digital Output.

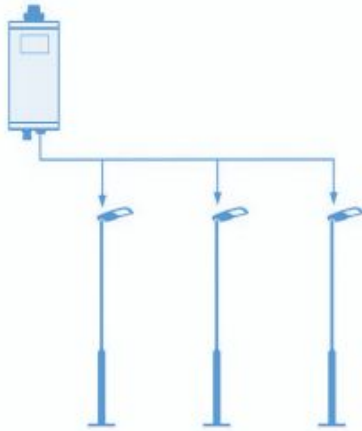
The CCMS unit is capable of switching ON and OFF the lights of networked switching points from Central Control Station instantaneously or automatically throughout the year on basis of Sunrise and sunset time depending on the geographical location of the switching point.

System Components:

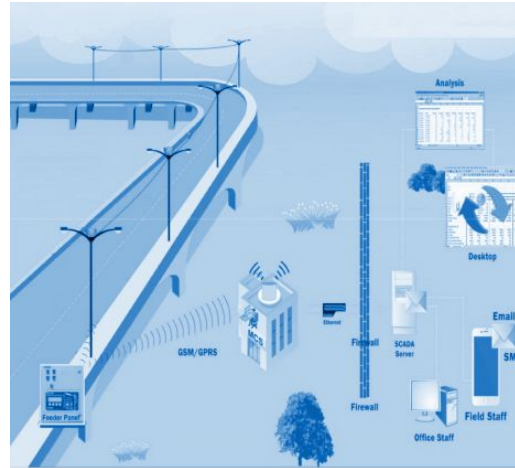
Feeder Panel controller with GSM/GPRS Modem
Lighting Management Web Based Software



Group Based Control



Each Light is connected to Feeder Panel via supply cable



Feeder panel communicates to command center via GSM / GPRS

Individual Control

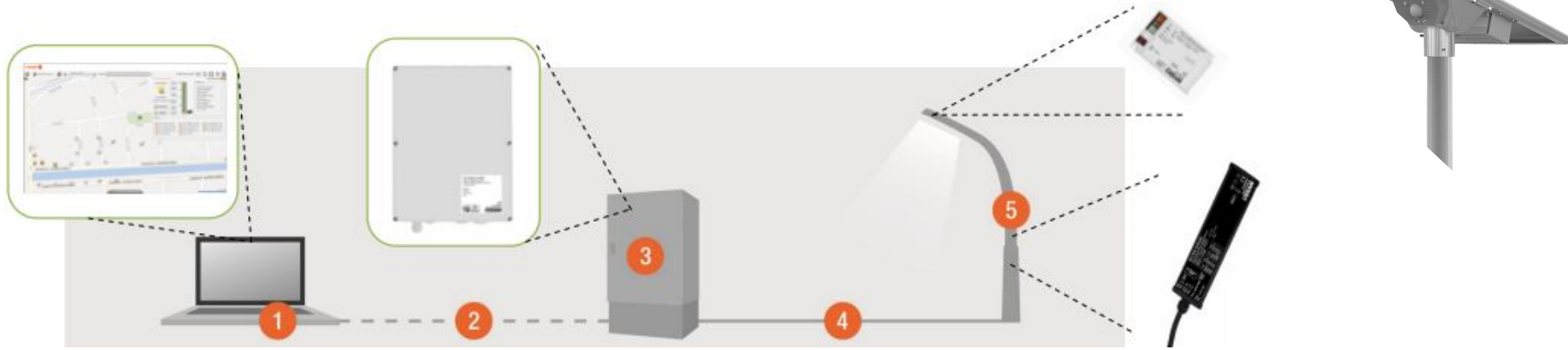
Networking gives operators remote access and advanced functionality, including the ability to dim street lights and control their run time by scheduling them to switch on/off as conditions (such as shorter/longer days) warrant.

This network-based control yields an additional 30 percent energy savings beyond just LED replacement, along with greater operations and management savings

Smart lighting helps cities save energy, lower costs, reduce maintenance—all while better serving citizens and reducing energy use and CO2 emissions.



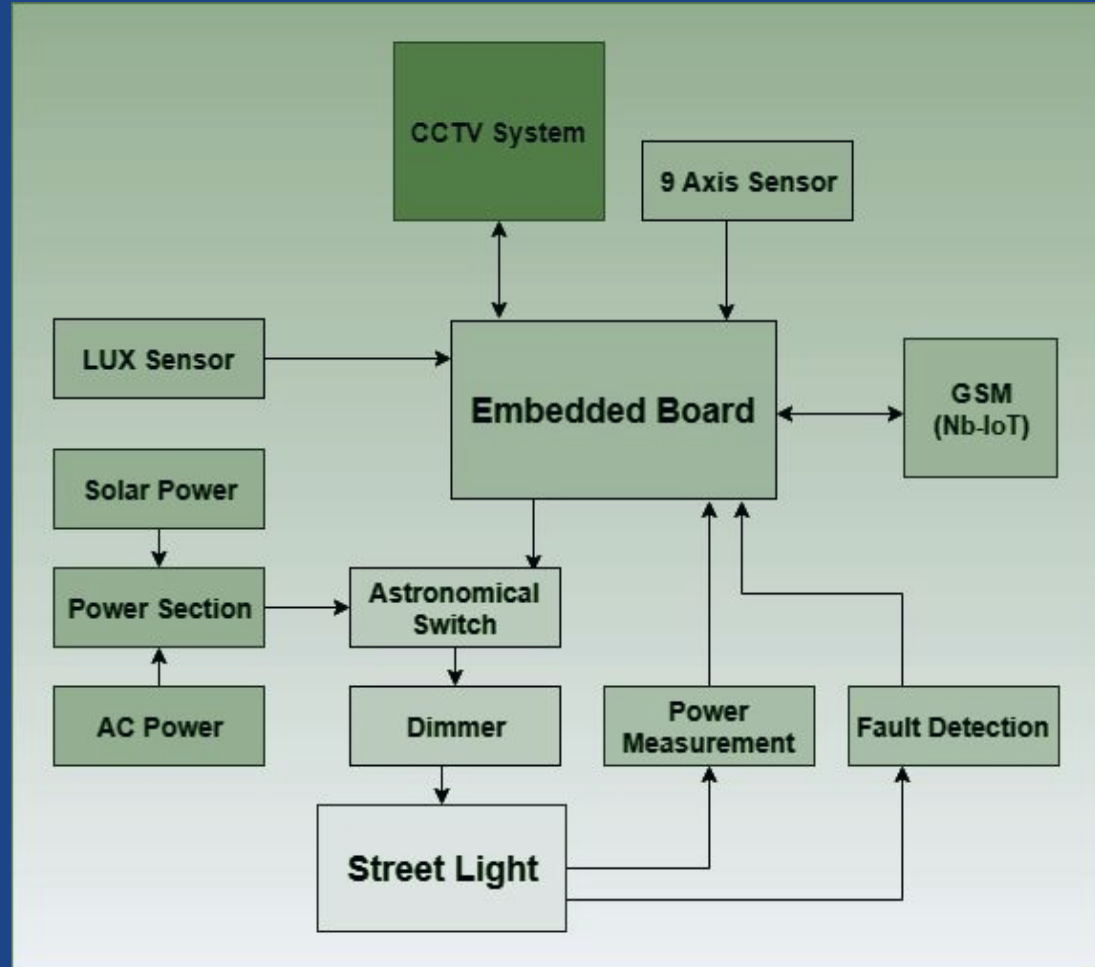
Implementation of Smart Light



Simple System Infrastructure of Smart Light

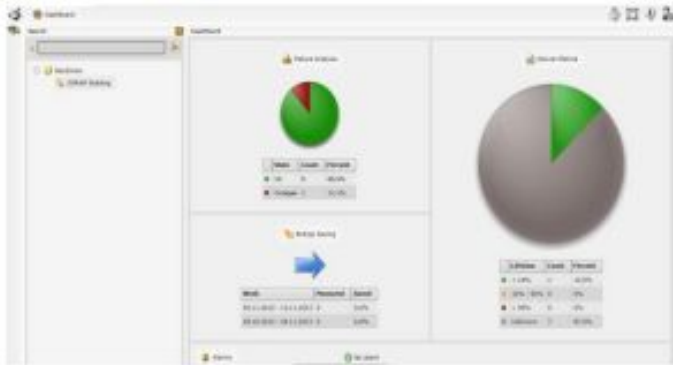
1. Smart Light Control Software
2. Internet protocol (IP): e.g. by GPRS, Ethernet or fiber optics
3. Smart Light Control Gateway: control and monitor up to 200 luminaires
4. Power line: communication utilizing mains supply cables
5. Luminaire or Pole Controller connected via DALI or 0- 10V

Top Level System Diagram

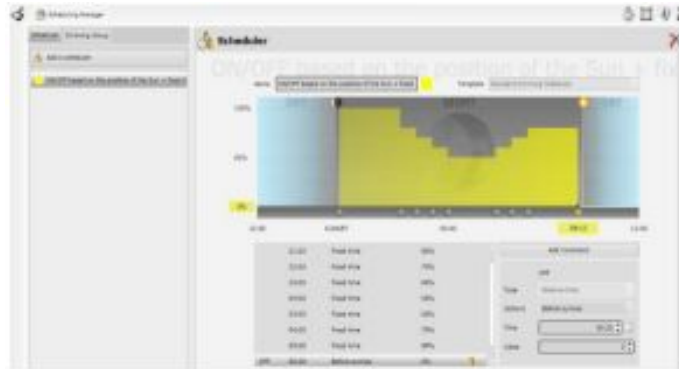


Control Software:

a fully featured, easy to use system interface



Everything at a glance



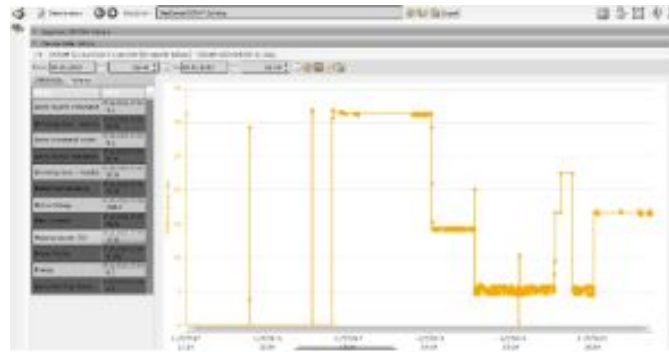
Flexible calendar for demand optimized lighting

Control Software:

a fully featured, easy to use system interface



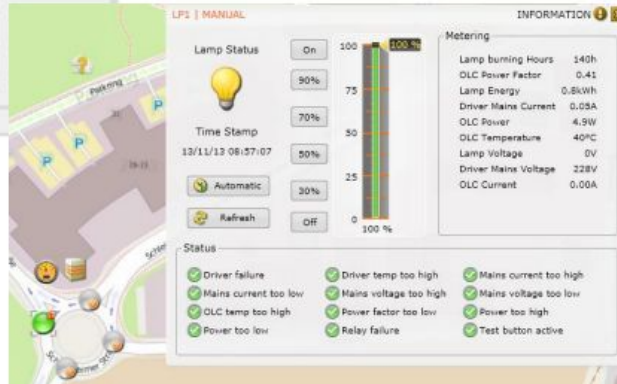
Map based visualization
(Picture based in development)



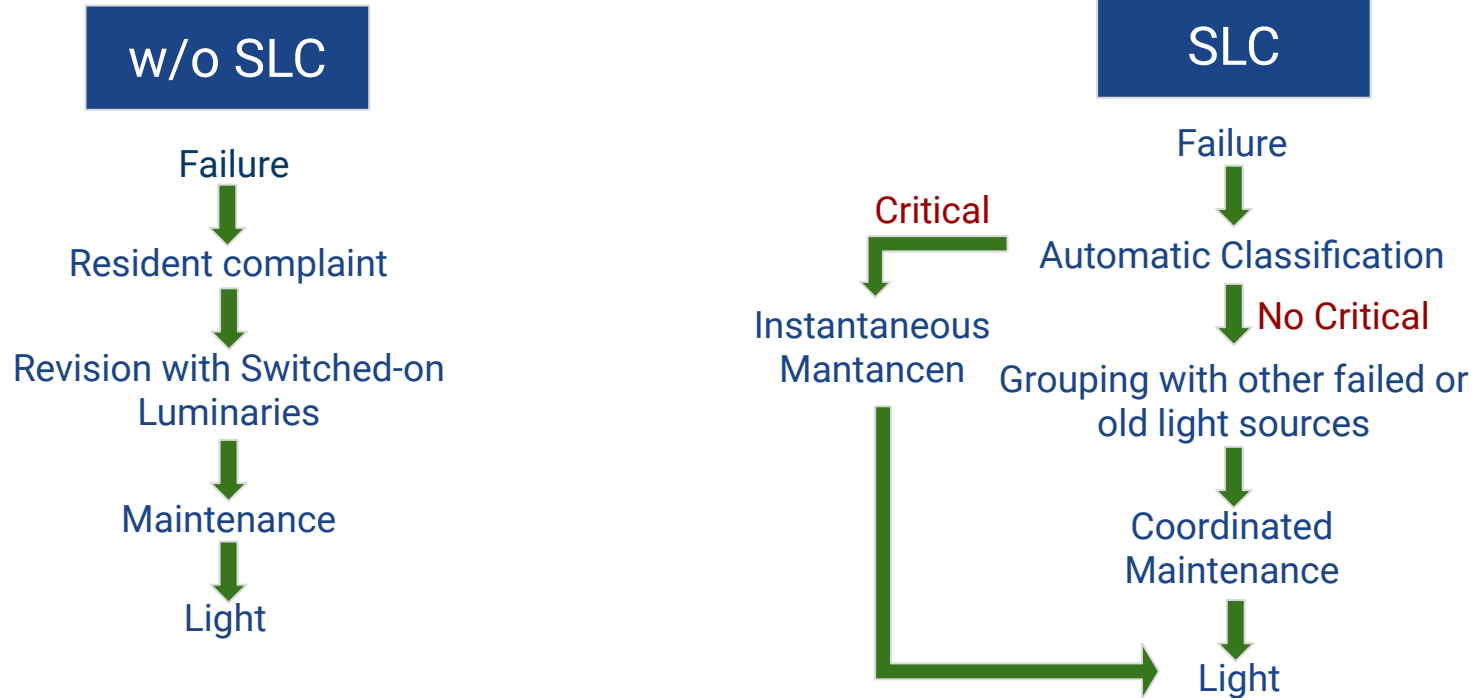
Continuous monitoring and analysis of
collected data

Smart Light Control (SLC) Software:

Real-time monitoring and status dashboard.



Optimized maintenance, going from reactive to proactive





Features

1. **ON/OFF With Timer** : This function should be operated with Astronomical timer.
2. **Fault Detection** : Identification of faulty street light LED into the system
3. **Remote ON/OFF** : ON/OFF control of street light as per traffic sensing, Helps save energy as well.
4. **9 Axis (Tilt Sensor)** : Intimation on any part such as LED not working/Driver not working/Pole Tilting etc should be recognize on the system, This will help identify the situation and maintain the system
5. **Parameter reading** : Read electrical data and parameters readings of LED Street Light such as Voltage, Current, Power factor
6. **GPS**
7. **Solar** : Solar function can be also clubbed to the system which ultimately save the energy.
8. **CCTV** : City surveillance system using CCTV on selected poles and controlling the system.
9. **Dimmer light** : This will help to dim the light on certain situation of the weather which helps to save energy.



Benefits

- Central Monitoring and reporting for individual street lights, enabling more effective maintenance
- Every light can be tagged and tracked, Improve accuracy and simplification of asset management
- Reduction in carbon emissions plus energy saving of upto 50%, rising to 80% with the introduction of smart control
- Improved emergency services :
- Emergency operations can flash nearby lights to speed first responder arriving at the scene
- Low wattage: LEDs provide significant energy savings by delivering the same or enhanced quality light at lower wattages than legacy bulbs.
- Dimming: Due to their high light output, LED lamps can be dimmed as much as 50 percent when first installed with minimal compromise in light output. In addition, operators can schedule lamps to dim as circumstances allow, such as at low traffic times, in unpopulated areas the middle of night, etc. The city of Brittany, France, for example, dims its street lights by 60 percent between 11 p.m. and 5 a.m. to save energy



Benefits

- Reduced burn time: With on/off scheduling capabilities, operators can easily modify street light operation to coincide with changing sunrise/sunset times, reducing lamp burn time.
- Remote monitoring and management: Street light management software gives operators visibility into street light operations (for example, how much energy a lamp is using) as well as control over dimming and on/off schedules, reducing the need to run lamps for long periods, deploy photocells, etc.
- Automatic outage detection: Management software provides instant outage notification, dramatically reducing the number of calls (and related costs) to the call center and cutting downtime up to 90 percent. With accurate outage information, operators can eliminate truck rolls due to false alarms, pinpoint non working lamps and quickly dispatch crews to specific lights.
- Proactive maintenance: Street light management software also provides predictive information, alerting operators to lamps approaching end-of-life, so replacements can be scheduled proactively. Utilities that periodically conduct manual surveys of their lights can eliminate this cost entirely for even greater ROI.

Thank you!