OVERVIEW- WHY STREET LIGHTING CONTROL?

Energy savings is undoubtedly a key driver in the move to managed street lighting systems and energy efficient lamps, converting a streetlight system to a managed one through the use of TOVYA-Street light monitoring solution has significant operational and environmental benefits.

Streetlights and other outdoor lighting should be made more efficient as part of a comprehensive strategy to reduce CO2 emissions including cleaner options for electricity generation, vehicle emissions, more energy efficient buildings, and smart electric meters combined with smart appliances which shift electricity use from peak to off-peak periods.

Managed streetlight networks represent a major opportunity for local governments to reduce their electricity use and carbon footprint.

The managed system will extend lamp life, eliminate the energy needs of old ballasts, eliminate the need to maintain and replace photo control caps, and eliminate the need for road crews to make site visits to check for lamp failures – cost effective O&M. Finally the managed system will allow for dimming all or only sections of a city's streetlights to comply with local dark skies goals. This solution provides total control of the street lighting system, will lower energy, operations, and maintenance costs while ensuring proper roadway illumination required for public safety.

TOVYA –Street light solution

LOWER ENERGY – HIGHER EFFICIENCY; Be Energy Efficient!!!!!

Data from the streetlights will be collected by check a point controller, which manage the streetlights and communicates via PLCC & GSM/GPRS technology to the monitoring center. Internet servers will log and report energy consumption, collect information from check points & energy meter hardware fixed on the pole of street lights. This data is used to automatically dim street lights based on the inputs. Significant energy savings result from this highly efficient method of controlling lighting, which also extends lamp life and reduces replacement costs by avoiding unnecessary lamp operation. This system has the capacity to control and save electricity on even the newer energy efficient LED lamps.

The stream of data provided by the control system also enables the ability of cities to pinpoint lamp failures or malfunctions leading to lower maintenance costs, higher levels of customer service, increased safety, and inventory reductions.

SYSTEM ARCHITECTURE The major components of this system are

- ➔ Check points.
- ➔ Data Concentrator.
- ➔ Server.

Check points:

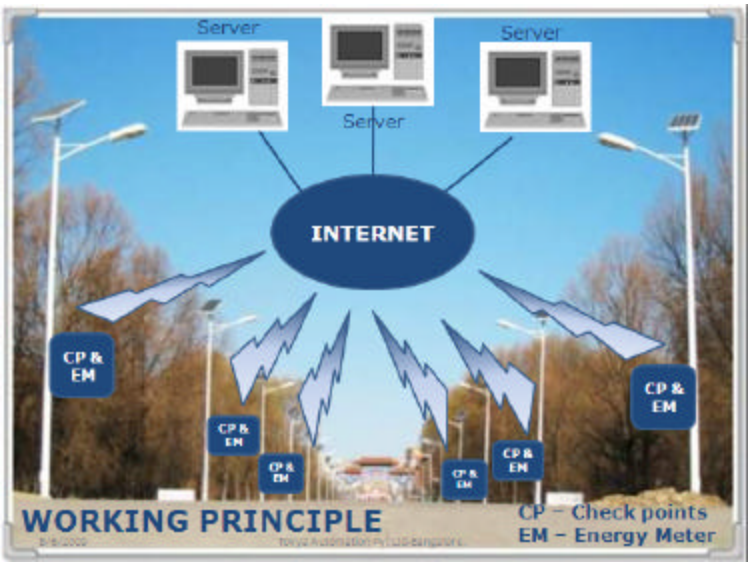
This component comprises of PLC modem, Micro-controller, Energy meter with it. This unit shall be mounted on to the light pole/lamp area to perform its function. Each light pole has one check points. Check points are the device that are attached to the lighting fixtures & used for sending and receiving information from the data concentrator.

Data Concentrator:

This component consists of Micro-controller & PLC Modem as a system. Data Concentrator is a device that initiates communication. Receives data from check points using PLC modem & sends it to server via GPRS/GSM. *One data Concentrator communication with 64 check points.*

Server

Receives data from concentrator via GSM/GPRS, stores the data which enables user to monitor the details from a remote location via internet.



KEY FEATURES

Street Lighting - Key features	
Switching	Promote regular switch ON / OFF of lighting plant
	Command switching ON / OFF either individually or groups or whole lamps
	Assign option to vary switching times for certain or group of lamps
Lighting	Discover number of lamps operating.
	Ascertain total operating hours of lamps.
Faults	Report range of faults like failed (exhausted) lamp, lamp cycling, faulty power factor, mains failure, under / over voltage, fuse condition and gear faults.
Dimming	Enable dimming facility (flux reduction) for individual lamps, small groups or whole system.
Real Time Recording	Control On / off times of the lighting through Data Concentrator.
	Records any manual intervention and ON / OFF switching times.
	Anticipate lamp failure by burning hours.
Energy	Display total energy consumed at predefined user intervals.
	Save energy by reducing intensity or switching off certain lights when not required.
Alarm	Facilitate alarm to user in case of lamp failure, ballast failure and ignition failure.

APPLICATION:

Colleges & Universities: In addition to municipal streetlights, the technology of managed networks and more efficient lamps can save electricity in outdoor lighting in the quasi-public and private sectors including major complexes such as colleges and universities, hospitals, shopping centers, apartment complexes and other major users of outdoor lighting. Applying outdoor lighting efficiencies to our nation's major universities alone would have an important impact on energy savings and would set an example for students and the broader community.

Government / Municipalities: Most municipal streetlight systems are a confusing mix of ownership, maintenance and control responsibilities split between the local jurisdiction, maintenance contractors and the local utility. For example, a local government may own some of its streetlight poles and lamps while others are owned by the local utility and leased to the local government. Whether the poles are government or utility-owned, the utility is responsible for distribution and sale of electricity for the streetlights. Responsibility for

maintenance such as changing lamps, repairing damage due to collision with vehicles etc. falls either to the government, an independent contractor or the local utility. Local governments should examine the most efficient management options for their streetlights in order to provide better coordination and control when considering an upgrade to a managed streetlight system or other energy efficiency measures.

Large campus's for power generation: This is a solution to address the problem of global warming by retrofitting existing buildings with energy efficient products designed to decrease energy use significantly and cut carbon emissions. The ultimate goal is to reduce greenhouse gas emissions 20 to 50% from existing buildings – which globally account for nearly 40% of greenhouse gas emissions. The company will see a return on its investment over a long-term period via the accrued electricity savings.

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