THE STREET LIGHT MANAGEMENT SYSTEM
What is the Internet of Things

From anytime, anywhere connectivity for anyone, we will now have connectivity for anything!

Why Internet of Things?

- Dynamic control of industry and daily life
- Improve the resource utilization ratio
- Better relationship between human and nature Forming an intellectual entity by integrating human society and physical systems

Source: ITU adapted from Nomura Research Institute
STREET LIGHTING CONTROL
WIRELESS INTELLIGENT LIGHT MANAGEMENT

SCHEDULING
Cloud based Application Server
GPRS Gateway
WILM
STREET LIGHTING CONTROL

WIRELESS INDIVIDUAL LIGHT MODULE (WILM) & HOW IT WORKS

• All light module’s driver will be connected with a WILMU which is connected to a GPRS gateway over zigbee mesh network either directly or through its peers. (Considered one GPRS gateway for every 30 ILM)

• The WILMU will monitor as well control each lamps as per the customer requirement. It will have dimming feature, ON/OFF based on the type of ballast used.

• The GPRS gateway collects data (network and status information) from all the WILMU’s and sends the same periodically over internet to cloud based application server.

• wLMS comes with a web-based application provided as a SaaS (Software as a Service) in the cloud accessible over internet. The application provides monitoring, control and analytics of light modules. The light can be logically grouped in clusters for ease of management.
STREET LIGHTING CONTROL

WIRELESS INDIVIDUAL LIGHT MODULE (WILM)

TECHNICAL FEATURES

- LMS module with Zigbee O/P
  - Profile will be stored locally
  - RTC
  - Field programmable (Zone setting, auto/Manual setting etc.)
  - Metering feature (V,I,KW,KWH)
  - Network independent
  - Should be easily mountable with existing fixtures
  - Lamp Luminance control based on the situation
  - Should integrate with AC/DC dimmable ballasts
  - Control Relay (5A)
  - Switch ON/OFF one or more ballasts in a multi ballast fixture
STREET LIGHTING CONTROL

WIRELESS INTELLIGENT LIGHT MANAGEMENT UNIT (WILMU)

TECHNICAL FEATURES

• Communication features for the device:
  – Ability to sample a channel, measure the energy, and report whether the channel is free from interference
  – “Listen before Talk” feature
  – Acknowledgment of received frames and retransmission
  – Mesh Networking
  – End-to-End acknowledgments and retransmissions in a Mesh Network
  – Frequency agility
  – Security key generation mechanism
The Central Controller & Monitoring Centre (CCMC) shall have a web-server to receive all data from the streetlight controllers and voltage controllers.

It will be able to communicate with any Controller individually or collectively to control and monitor.

It will register all fault conditions through the instantaneous alert messages sent by the controller equipments.

Reports such as Energy Saving report, Lamp Failure report, etc will be generated on a daily basis from the readings received from the controller equipments.

The central server is capable of handling high traffic. Also different user authorization levels can be set.

GIS Mapping is available as a part of the IGA, covering all streetlights and switching points. Also, details of each lamp shall be viewable in the web application software through a Google-map interface.

Optional bulk messaging facility is available, for any common changes to be effected into the controller equipments.
LIGHTING MANAGEMENT SYSTEMS

WEB BASED APPLICATION

PERSONAL CONTROL

• Adjust an individual light or group of lights for on/off, scene control, or continuous dimming
• Manually adjust light levels
• Provide individuals with direct control of selected work area lighting, even after hours

DEMAND MANAGEMENT

• Adjust lights within a reduced output range during a Demand Response event
• Automatically calculating potential load reduction prior to the start of a DM event
LIGHTING MANAGEMENT SYSTEMS

WEB BASED APPLICATION

DEMAND MANAGEMENT

• Reducing light levels in a uniform pattern using scene-based control
• Gradually reducing light levels to avoid occupant disturbance (requires dimming ballasts)
• Receiving email notification for scheduled start and end times of Auto DM events
• Scheduling DM events effective immediately or at a later time
• Adjusting lights within a prescribed reduced range during a DM event
• Should be complied with ZLL (Zigbee Light Link)
• Being ECBC compliant
PROJECT REFERENCE

MILITARY ENGINEERING SERVICES (MES), BANGALORE
PROJECT SCOPE

ELMEASURE SCOPE

Supply, Installation and commissioning of

- Light Control Module Unit (LCMU)
- Zigbee over GPRS Gateway
- Lighting Management System (LMS) software

MES SCOPE

- Supply of LED with 0-10V Driver
- GPRS Enabled SIMs for Gateways
PROJECT DETAILS

PROJECT VALUE: 13.25L

PROJECT SCOPE: 208 LED lamps to be Monitored and controlled

SOLUTION BENEFITS:

• Individual Lamp controlling – ON / OFF / Dimming
• Monitoring individual lamp burn hours, energy consumption, Lamp Failure
• User Configurable Schedules to control lamps
• Analytics, Reports
SAMPLE
SCREENS
Street Wise Energy Graph-Daily

Elmeasure Pvt Ltd
707, 4th Phase
Yelahanka New Town,
Bangalore, Karnataka
India

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