



Smart Street Light Solutions



MANUFACTURER

SPowerZ Solutions Private Limited

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Marketing Partner in INDIA

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AUTHORIZED PARTNER IN UAE

**Winstar ElectroMechanical Equipment
Installation & Maintenance LLC**

P. O. Box: 120408
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www.winstargroup.org

Our Profile

SPZ

- Started in 2007 and sold over more than 80000 meters with proven quality
- In-house R&D, Manufacturing, Embedded programming – offering flexibility and customized solutions
- Manufacturing all range of meters, energy management system, Automatic Meter Reading, Retail Energy Savers, Building Management System, Smart Street Light Solutions, Utility Management etc.
- Providing turnkey Energy Monitoring and Control solutions

SBDM

- Started in 2002 with abundant techno commercial experience.
- Not a Sell and Walk away model – Sustained Service and backup support
- Associated as exclusive marketing partner in India
- Specialized in Transformer and MV switchgears supply, erection, testing and commissioning
- Marketing and service support to end clients

WinStar

- Started in 2004, with servicing utilities in UAE, Qatar and Saudi Arabia
- Specializing in Primary / Secondary Design, Testing and commissioning and retrofit of substations up to 400 KV
- Exclusive marketing / authorized partner of all SPZ products in UAE, Qatar, Saudi and Oman.

Our Energy Management / Control Products

TURNKEY SOLUTIONS



Energy
Auditing/Billing
Solution



Automatic
Meter Reading
Solution



Smart Street
Light
Solution



Electrical
Distribution
Monitoring Solution



Retail
Energy Saver
Solution

A La Carte PRODUCTS



SPMD300

Energy Meters / Demand
Controllers



SPMD301

DC / Solar Multi-Channel
Meters



SPDC/101/201/401



SPU/SPUX/SPUG/101

1 Phase / 3 Phase Utility
Meters



SPU/SPUX301



APFCR

Auto PF
Controllers

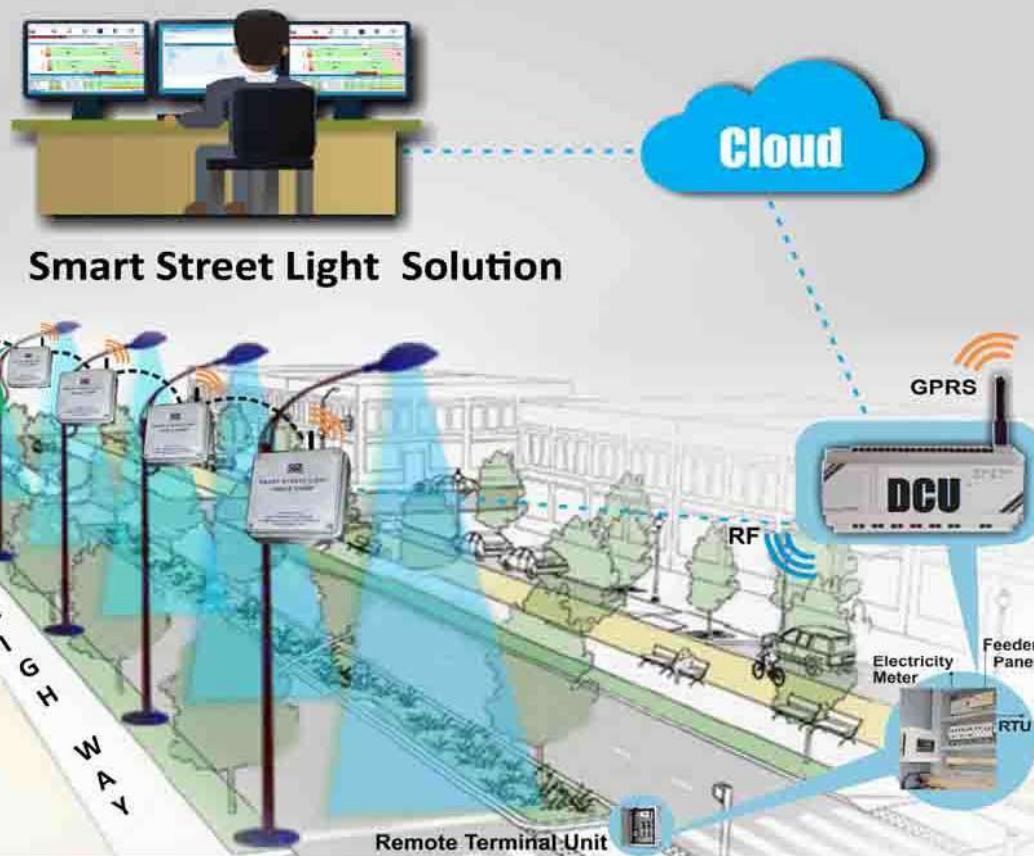


ATS
Controller

Similar Key Projects Handled – India & UAE

- ▶ Vellore Region – 18 Municipalities – Web-based Investment Grade Energy Auditing – ONLINE
 - 3800 Single Phase Feeder Pillars & 300 Three Phase Feeder Pillars
 - 48000 Poles with GPS Location – mapped
 - Complete energy details of all street lights and Energy Auditing by auditors team – in progress
- ▶ Greater Chennai Corporation – Zone 8 – 10 Feeder pillar controller – ONLINE (Working from 15/09/2016)
- ▶ Greater Chennai Corporation – Zone 5 – 2 Feeder pillar and 75 Individual Poles – ONLINE
 - Working since 28/07/2016
- ▶ POC working since December 2014
- ▶ Sharjah Electricity and Water Authority – SEWA – POC running since September 2017
 - 1 Feeder pillar and 10 poles
- ▶ ON / OFF from mobile and also protocols can be set with daily ON / OFF Timings
- ▶ Kalpakkam – AMR – for around 4000 houses – Working since 2010 – WITH POWER LINE COMMUNICATION

Smart Street Light Solution – Overview



► Feeder Pillar Box

- Three Phase Smart Meter
- 3 Relay contacts
- GPRS Modem
- ZigBee Coordinator
- Transceiver Controller

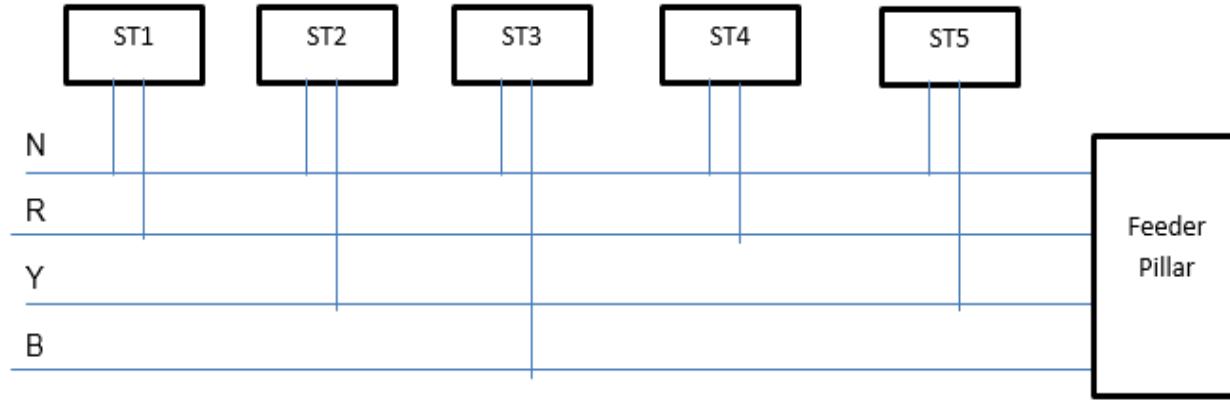
► Pole Unit

- Smart meter
- Relay contact
- ZigBee communicator
- Transceiver Controller

► Central Monitoring Station (CMS)

- Software with control

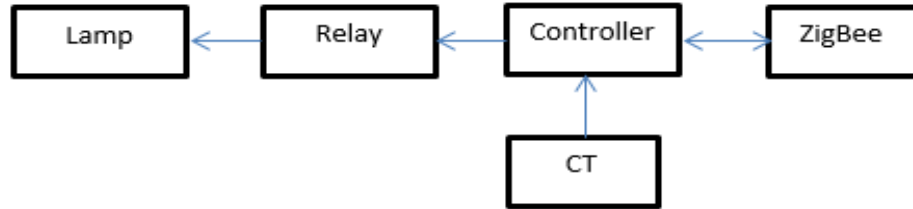
Concept - Brief



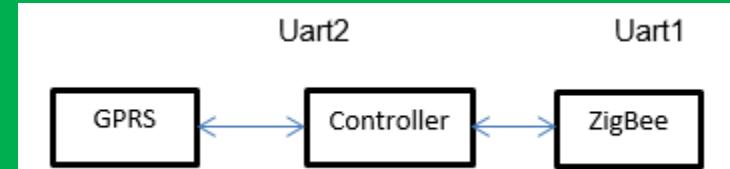
#ST- Street light

- ✓ Any Number of Streetlights can be integrated under a feeder pillar
- ✓ If the Total current is within 80 Amps, we will be using smart meter with whole-current CT
- ✓ For above 80 Amps, we will be using CT operated Smart meter
- ✓ Option to monitor and control individual poles

Each Street light controller contains



Each Feeder Pillar controller contains



Module front fascia

SMART STREET LIGHT THREE PHASE WITH GPRS



THREE PHASE STATIC MFM



GPRS



Sai PowerrZerve, Chennai | info@spowe



SMART STREET LIGHT SINGLE PHASE

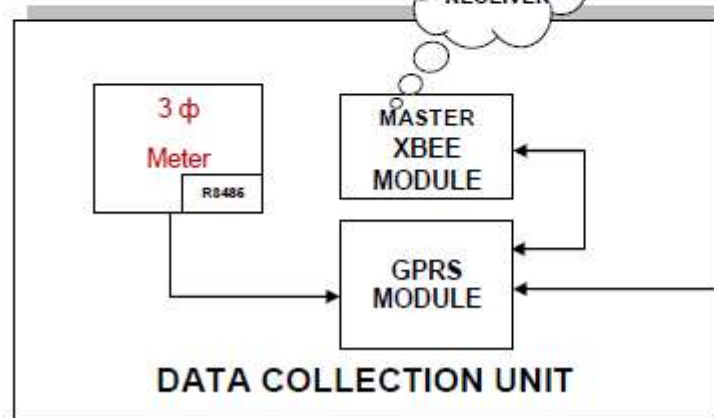
Manufactured by,
Sai PowerrZerve, Chennai.
info@spowerz.com | 044-43192660
www.spowerz.com



WIRELESS
TRANSMITTER

WIRELESS
RECEIVER

EZERVE WEB
PAGE



Brief description

► Feeder Pillar Monitoring Kit

- Three Phase Power Quality Analyzer including energy consumption analysis
- ZigBee Coordinator
- Controller to communicate to-fro of each street light
- GPRS Modem
- 3 Relay contacts to switch ON / OFF independently each phase from the feeder pillar

► Street light (Pole) Monitoring kit

- Single Phase Multifunction Meter
- ZigBee based communication
- Energy Saver Module

The Unit Contains:

- ✓ Single Phase Energy Meter with in-built CT
- ✓ Measures
 - Voltage
 - Current
 - Frequency
 - Power Factor
 - KW
 - KWH (Consumption)
- ✓ In-built Relay contact to ON / OFF Light
- ✓ ZigBee Based wireless communication
- ✓ IP protection for outdoor installation
- ✓ LED indications to identify
 - Light is ON
 - Supply Available

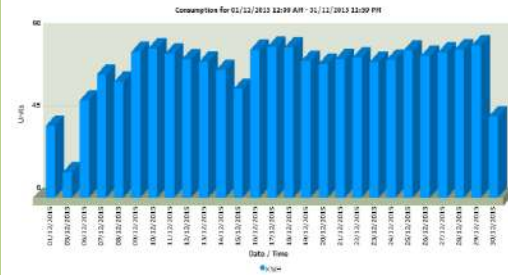
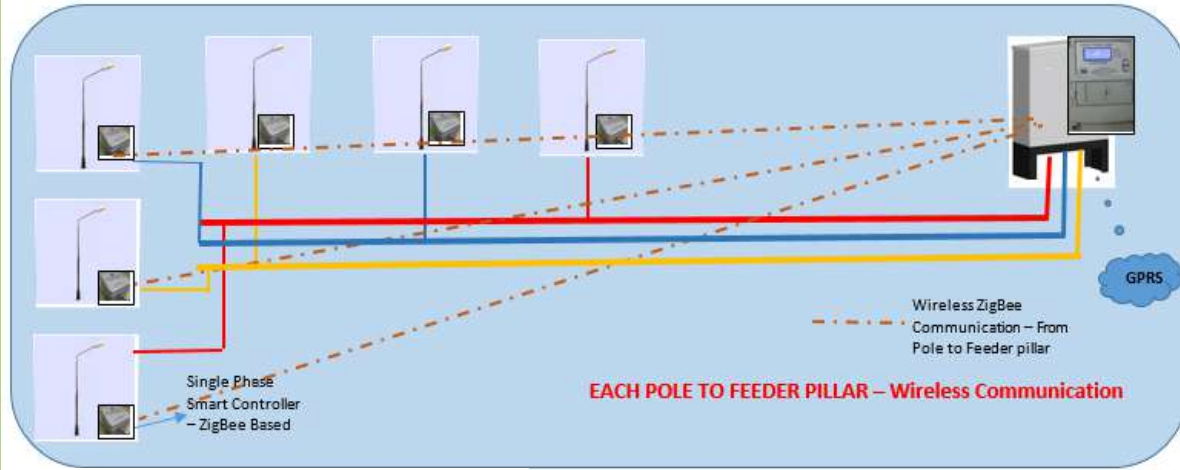


Advantages:

- ✓ Two way wireless communication between pole and smart meter in feeder pillar
- ✓ Power factor of each pole can be determined
- ✓ Any cable fault / non burning can be identified based on voltage in poles
- ✓ Switching ON / OFF poles from Remote location possible
- ✓ Easy identification of light fitting fault/ no supply at fittings
- ✓ Continuous monitoring of ON/ OFF Status
- ✓ Fitting failure alert provided through SMS

Features Include

- ▶ Energy Saving from the feeder pillar Level
 - Voltage reduction technique
- ▶ Energy Saving at the Pole level (if required)
- ▶ Timing of ON / OFF at various slots can be defined in the central software
- ▶ Complete wireless (ZigBee based) solution
- ▶ GPRS communication from the Feeder pillar level to the central monitoring station
- ▶ Fault identification with alarm
- ▶ Can integrate with photocell
Movement sensor if required



Software Contains:

- ✓ Data Collector
- ✓ Remote monitoring
 - Feeder pillar wise
- ✓ Remote control
 - Feeder pillar – each phase
 - Each pole identified under feeder pillar
 - ON / OFF / Status
- ✓ SMS Alerts
 - ON Time
 - OFF Time
 - Over Current
 - Low / High Voltage
 - EB Failure
 - Single Phasing in Feeder pillar
- ✓ Email Reports
 - Daily report
 - Critical alerts
 - Min / Max of voltage, current, KW



Advantages:

- ✓ Energy Auditing done automatically
- ✓ Decision Making based on reports easier
- ✓ Helps Maintenance teams
- ✓ Problems easily identified
- ✓ Solutions can be analyzed with available data
- ✓ Graphical representations for easier analysis
- ✓ Email / SMS alerts
- ✓ Auto trip in case of any critical points – auto protection
- ✓ Demand reduction analysis
- ✓ Scalability options can be analyzed with data
- ✓ Power factor corrections can be analytically designed and verified
- ✓ Remote ON / OFF – leading to energy saving

Monitoring Console (IoT based)

MONITORING CONSOLE

- ▶ Will have option to monitor all street lights independently
- ▶ Option to set timing (ON / OFF)
- ▶ Option to set Voltage ranges based on timings
 - Switch ON the light at 7 PM (change the timing to 5:45 PM in winter period)
 - Highest voltage from 7 PM to 10 PM
 - Lower the voltage from 10 PM to 1 AM
 - Further reduce from 1 AM to 4 AM
 - Increase the voltage from 4 AM to 5:45 AM
 - Switch off at set timings
- ▶ Find the voltage, current, THD parameters of each feeder pillar
- ▶ Determine LT line losses incurred in comparison with street lights vs feeder pillar

DISTINCT PRACTICAL FEATURES

- ✓ Local controller will be placed in the feeder pillar with Real Time Clock
- ✓ Local copy of the Timings set in the remote server will be available.
- ✓ In case there is a communication failure, the local controller will continue to function as normal
- ✓ Data will be logged and restored in central server as and when communication resumes
- ✓ A request for Switching ON / OFF is sent from the central server too at the same time, this will ensure ON / OFF operation – even when there is a power shutdown temporarily in the feeder pillar

Other key reports

- ▶ Burn hour reports
- ▶ Fault detection and reporting through Email / Console
- ▶ Energy Saver – based on set rules
- ▶ Real time control
- ▶ Load balancing and load scheduling
- ▶ **Will look at option to upgrade it in existing cabinet**
 - (inside the Pole light fitting)
- ▶ **Daily Alerts**
 - SMS
 - EMAIL

- ▶ Access from mobile
- ▶ Access rights for each login
- ▶ Set Email / SMS
 - Daily ON / OFF timings
 - Outage reports
 - Critical alarms
 - Minimum voltage
 - Maximum Voltage
 - Minimum Current
 - Maximum Current
 - Consumption
 - Power Factor (Range)



Energy Saving Options (LED fitting as well as others)

➤ **Set Protocols for Switching ON / OFF individual lights**

- ✓ Each light can be controlled and timings can be set
- ✓ Alternate lights can be switched ON / OFF based on the required lux level
- ✓ Movement or photo sensor can be integrated at critical points
- ✓ Lux meter can be integrated in select locations

➤ **Install Voltage regulating auto transformer for non-LED fittings**

- ✓ Auto transformers can be installed in pole level or feeder pillar level
- ✓ Voltage tapping can be set and reduction of voltage can be triggered based on
 - ✓ Timings
 - ✓ Other protocols as mentioned above

Energy Saving for LED Fittings

- ▶ Need to integrate with the LED fittings
 - Require Manufacturer's support if LED fittings are already available
 - Few sections of LED fittings should be switched ON / OFF
 - Controller should be integrated along with the fitting
 - The timing options can be provided from the remote server (Set through Mobile or Laptop)



Screen shots from Chennai Corporation - India

EZerve

A Complete Energy Monitoring Solution



A EMS product by SPZ

Login As

User Name

Password



Location Name	Location Details	Priority
Anna Nagar		
GCC - Zone8		1
New Avadi Road		
FC - Avadi Road		2
Outer circle road		
FC - Inner Circle Road		3
Annai Sathya Nagar		
FC - Annai Sathya Nagar		4
EVR salai		
FC - EVR salai		5
Thirukumaran Puram		
FC - Thirukumaran puram		6
Dr. Alagappa Road		
FC - Dr. Aleppe Rd.		7
Purasawalkam High Road		
FC - Purasawalkam		8
Macnicholas Road		
FC - Mc Nicholas Road		9
G - Block		
FC - Pulla Avenue		10

Set Alarm:	Running	Over current / 100	Single Phasing / No Power	No Load / CT Issue	Feeder OFF/No Communication	PF < 0.9	* Check CT - S1/S2 connection																	
Three Phase Connections - Current Status																								
Meter Identification	Rated		Time	Voltage Parameters			Current Parameters			Tot. KW	MD	Avg. PF	Fr.	Consumption										
	KW	T		Vr	Vy	Vb	Ir	Iy	Ib					Today	Yesterday	This Month	Last Month							
Anna Nagar - GCC - Zone8																								
3 Ph - Anna Nagar								43.00	60.00	22/12/2016 6:35 PM	226.26	210.15	225.7	12.51	16.15	17.5	9.8	10.3	-0.997	50	7.84	64.25	1222.40	163794.96
R Phase				Y Phase				B Phase																
<input type="radio"/> On <input type="radio"/> Off <input checked="" type="radio"/> Retain				<input type="radio"/> On <input type="radio"/> Off <input checked="" type="radio"/> Retain				<input type="radio"/> On <input type="radio"/> Off <input checked="" type="radio"/> Retain																
								Switch ON / OFF / Retain																

Set Alarm: Running Over current / KW Single Phasing / No Power No Load / CT Issue Feeder OFF/No Communication PF < 0.9 * Check CT - S1/S2 connection

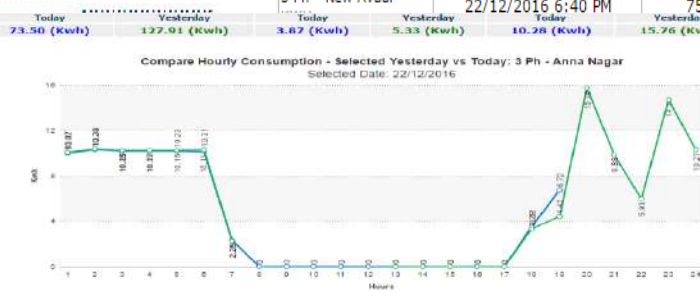
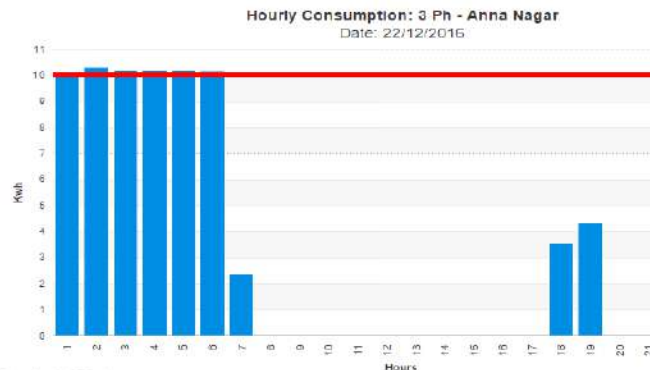
Three Phase Connections - Current Status

Auto-refresh provided. Screen Reload not required

Screenshots contd.

GCC - Zone8		
Energy Meter		
Meter	Date/Time	KWH
3 Ph - Anna Nagar KWH	22/12/2016 6:40 PM	13550.15
FC - Avadi Road		
Energy Meter		
Meter	Date/Time	KWH
3 Ph - New Avadi KWH	22/12/2016 6:40 PM	7500.44
FC - Inner Circle Road		
Energy Meter		
Meter	Date/Time	KWH
3 Ph - Outer Cir Rd KWH	22/12/2016 6:39 PM	7574.39
FC - Annai Sathya Nagar		
Energy Meter		
Meter	Date/Time	KWH
3 Ph - League Club KWH	22/12/2016 6:39 PM	5747.49
FC - EVR salai		
Energy Meter		
Meter	Date/Time	KWH
3 Ph - EVR KWH	17/12/2016 7:26 PM	422.81
FC - Thirukumaran puram		
Top 5 Loads - Feeder		
Location	Meter	Units
GCC - Zone8	3 Ph - Anna Nagar [KWH]	7.84
FC - Mc Nicholas Road	3 Ph - Mehta Hosp [KWH]	6.37
FC - Inner Circle Road	3 Ph - Outer Cir Rd [KWH]	6.07
FC - Thirukumaran puram	3 Ph - Thiruk Puram KWH	3.86

HOURLY	DAILY	WEEKLY	MONTHLY	YEARLY
Select Date	22-12-2016	Hourly Target	10.00	Units
3 Ph - Anna Nagar [01]		Location: Anna Nagar - GCC - Zone8		Consumer: GCC Z8
Consumption per day		Average per hour		Peak Value
71.10 (Kwh)		3.74 (Kwh)		10.28 (Kwh)



GCC - Zone8

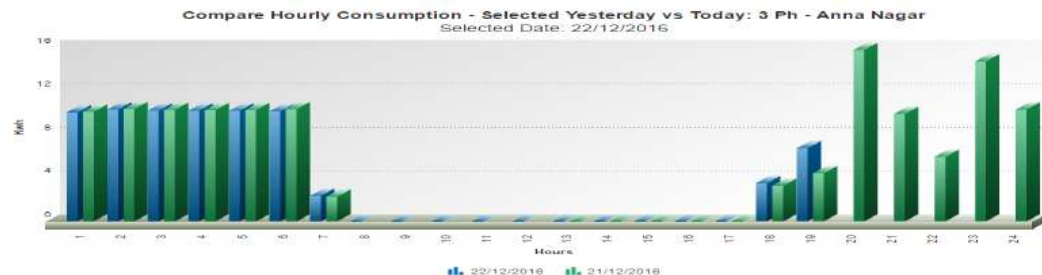
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GCC - Zone8	3 Ph - Anna Nagar [KWH]	64.25
FC - Mc Nicholas Road	3 Ph - Mehta Hosp [KWH]	54.46
FC - Inner Circle Road	3 Ph - Outer Cir Rd [KWH]	44.33
FC - Pulla Avenue	3 Ph - G Block [KWH]	30.95
Flag Staff Road Pillar	3 Ph - Flag Staff [KWH]	26.47

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Our Past EMS / Smart Street light Installations include

DLF Mini Mall	West Bengal PWD	Viveks Ltd.,	TANSIDCO	BSNL
Energy Monitoring solution with Billing for tenants in mall	Centralized Energy monitoring in Substations	Centralized showroom monitoring and control	Centralized Energy Monitoring and control with Billing	Centralized Energy Monitoring and control with Billing

Emirates Steel	Matar and Mubarak bin harder Al Muhairy Mosque
Energy (Electricity and Water) Monitoring solution as per Estidama Requirements	Energy (Electricity and Water) monitoring Solution

1. **Chennai Corporation – Smart Street Light Solutions**
2. Taj Gateway hotels
3. RR Industries Ltd.,
4. Teccipark (ECCI Info Park)
5. Hallmark Foundations
6. IGCAR, Kalpakkam
7. CEIG, TN Legislative Assembly
8. GrandMall, Velachery
9. Prince Infocity
10. Tamarai Tech Park
11. Renaissance International, Marriott Hotel in Qatar
12. Tata Consultancy Services (TCS)
13. ELCOT
14. JCBL Marrel Tippers Pvt. Ltd.,

Our Clients



THANK YOU

Kindly Contact us if interested in any of the above products.



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