



ConnectM
a Sasken and IDG Ventures company

ConnectM Energy Technology Solution 2012

*To be India's leading **M2M platform and solution company***



Key Facts

- 50,000+ Assets Under Management
- 20+ customers: 75% customers are big multinational corporations
- Managing 5000 cell sites on our M2M platform
- 3 Mn sq.ft of Enterprise Office space Energy Management through our platform
- Winner of Logica's India Innovation Partner award
- Winner of IBM Smart Camp for innovative start-ups
- Patent pending technology
- Centre of Excellence for Sierra Wireless
- Global Investors: IDG, Sasken



IDG Ventures India and Sasken Communication Technologies have together committed to invest 6M\$



- ▶ Sasken is a Telecom R&D Services major
- ▶ 3500+ people, 200M\$ in Revenue
- ▶ Listed on BSE and NSE in India

- ▶ 150M\$ early stage VC Fund
- ▶ Global network of 220 invested companies, 1B\$
- ▶ 9 companies in the India portfolio

ConnectM, Members of the Board

Rajiv Mody, Chairman of the Board

- ▶ Chairman and CEO, Sasken
- ▶ Founded Sasken in 1989
- ▶ Sasken is now a 200M\$ public-listed company

Dr G Venkatesh

- ▶ Executive Director & CTO/CSO, Sasken
- ▶ His role at Sasken has spanned from Technology, Engineering, Telecom and as head of the Product Division of Sasken

Murali Ramalingam, Managing Director

Sudhir Sethi

- ▶ Founder, Chairman & Managing Director, IDG Ventures India
- ▶ Leading venture investor in technology space in India; On the Board of Global Indian VC Association and UTI Ventures; Member NASSCOM Regional Council; DQ "Top 10 IT Professional"; Red Herring Top 5 Venture Investor; Seed investor and Board Member Mindtree Consulting; Served on Board of Infotech Enterprises.

T C Meenakshisundaram

- ▶ Founder, Managing Director, IDG Ventures India
- ▶ Formerly, Chief Financial Officer and President of Corporate Services at Venture Infotek, a leading payments processing company in India



Our Customers ...

Telecom



IT, ITES, BFSI, Industrial, FMCG

ConnectM portfolio of M2M Applications

Industry Verticals				
Construction		Packaging		Fleet
	Telecom Towers		Banking	
Mechanical		Utilities		Office Buildings

Readily Available Solutions

- Remote Monitoring of Telecom Towers
- Remote Monitoring of DG Set & Energy Management
- Remote Monitoring of UPS/Batteries
- Remote Monitoring of DG Set Energy Management
- Automated Meter Reading for Water, Energy and Gas meters
- Fleet Management Solution
- Remote Monitoring and Energy Management for Bank ATMs
- Wireless Energy - Building Management System (EBMS)
- Remote Monitoring of Industrial Assets (Cranes, Batching Plants, Chemical Plants)





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ConnectM EMS

ConnectM Total Energy Management Solution (EMS) includes:

1. Intelligent Indoor Lighting control
2. HVAC low-side Operations Optimization
3. Enthalpy Control Solutions
4. DG Energy Management
5. UPS Monitoring
6. Energy Sub-Metering in the Facility
7. Energy Savers for lighting and mixed loads

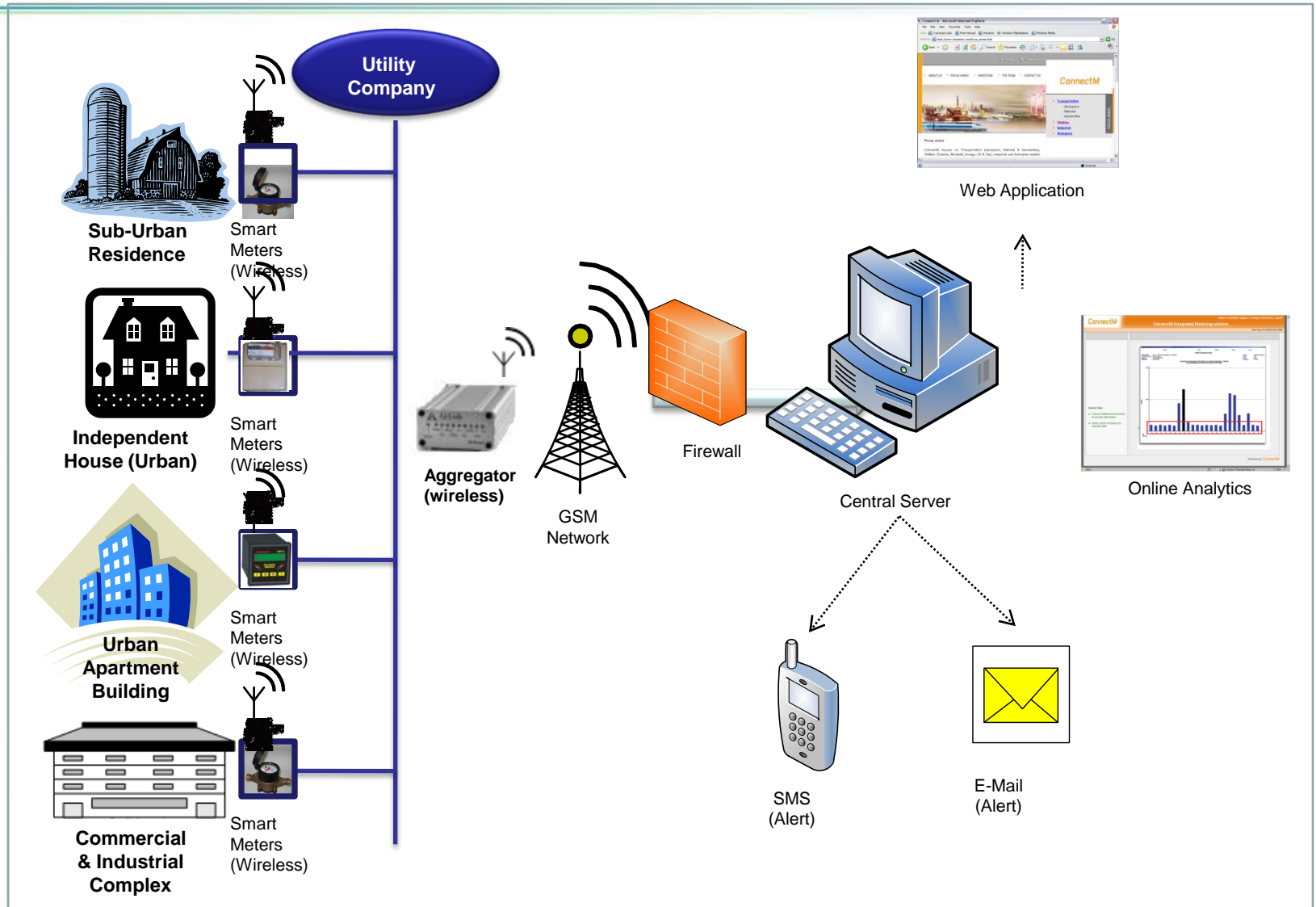
Offices
IT Parks
Commercial Space
Malls
Hotels
Hospitals
Manufacturing
Process
Industry

All of the above on Wireless platform

**we have expertise on retro-fit projects.*

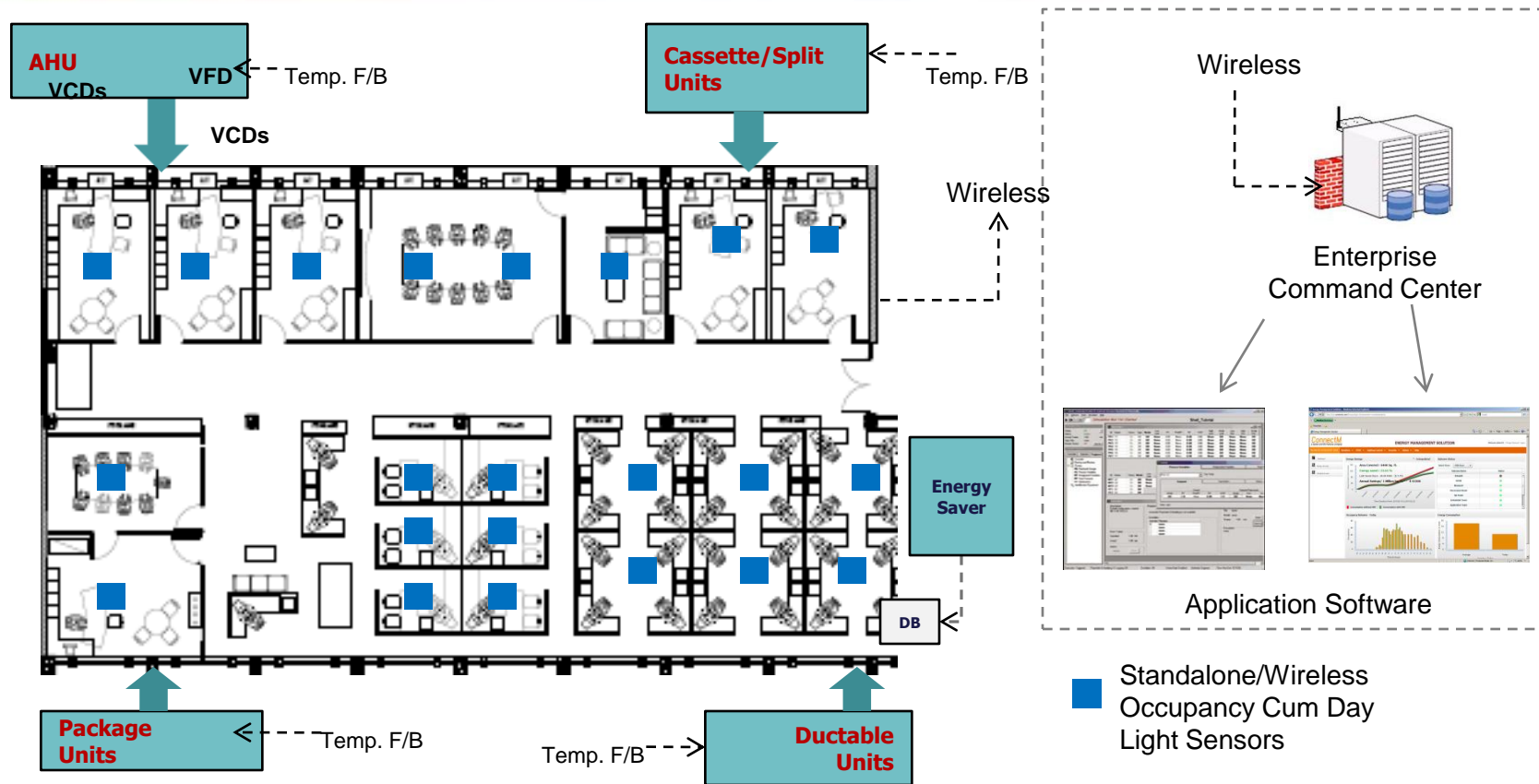


What we do



Enhance productivity | Improve utilization of assets | Maximize availability
Minimize operating cost | Optimise energy consumption

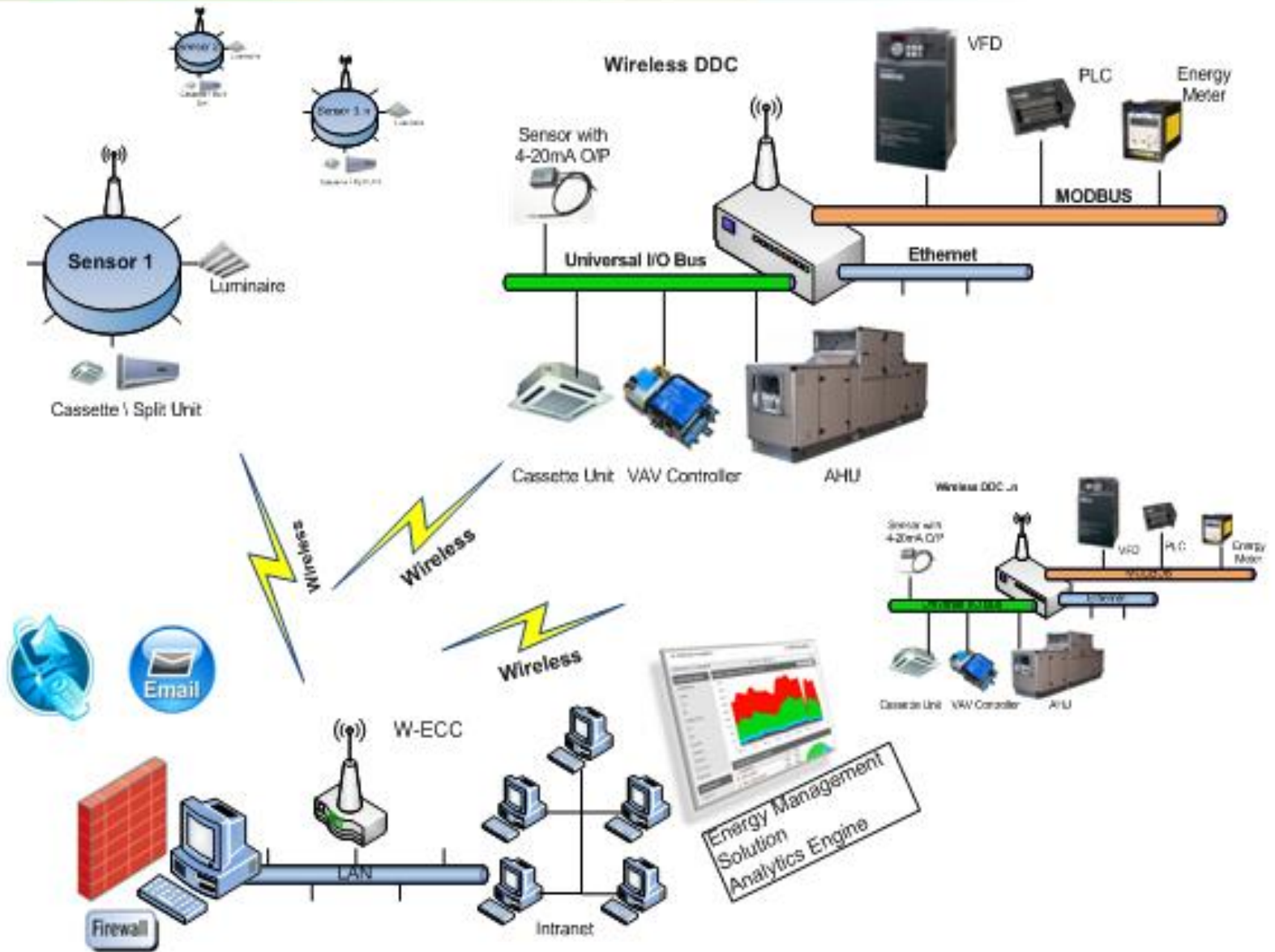
Solution Diagram



Features:

- VFDs will be installed at the AHUs to control the speed of the motor depending on the temperature feedback
- VCDs will be installed at specific ducts which opens/closes according to the pre-set time
- If user wants to change the timing of the open/close of the ducts, he needs to do so using the panel at AHU
- VCDs will be installed inside the blowers of AHU to prevent short cycling. This works on the logic where it will close once only one motor is switched ON
- We have not considered occupancy sensors for this floor, as it is general shift

EMS Architecture

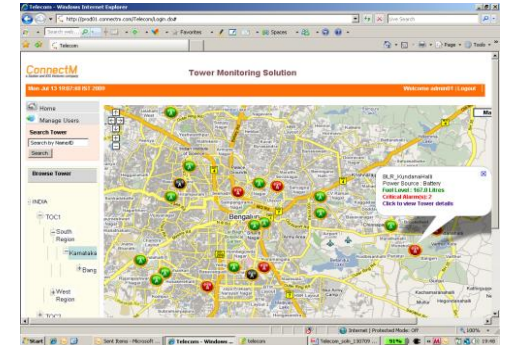
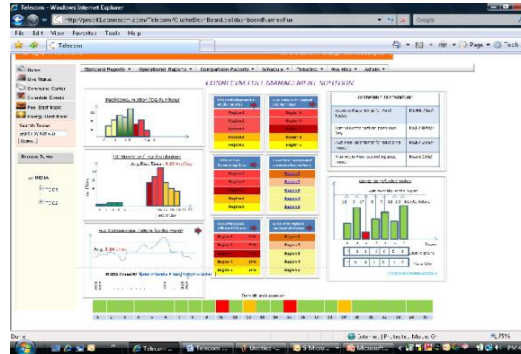
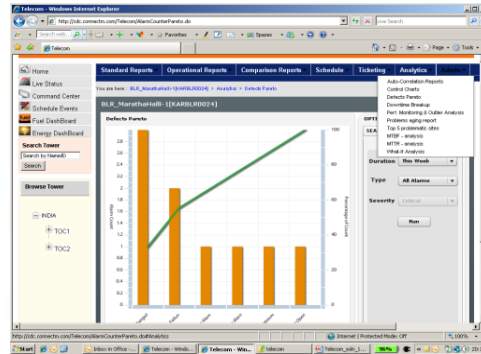


Enthalpy Solution for AHUs

- We utilize the ambient temperature to cool the facility
- The fresh air ducts are controlled based on the differential in ambient temperature
- The chilled water consumption is optimized
- We have seen savings in the range of 25% - 50%
- Excellent solution for winters and rainy seasons



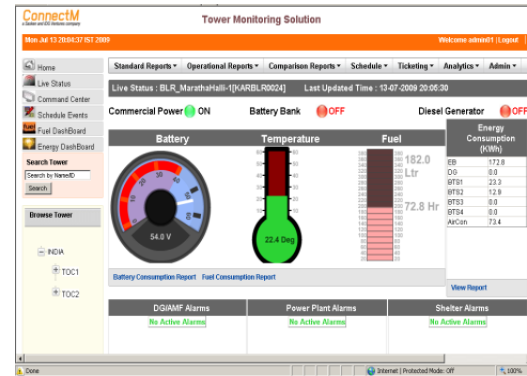
Diagnostics & Reporting Capability



BLR_Marathahalli-[KARN00024]

OVERALL CONSUMPTION - Last Week's Data

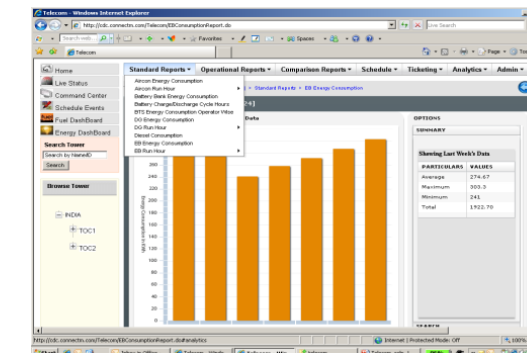
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3	2009-07-07	2009-07-07	00:00	0.0	
4	2009-07-08	2009-07-08	00:00	0.0	
5	2009-07-09	2009-07-09	00:00	0.0	
6	2009-07-10	2009-07-10	00:00	0.0	
7	2009-07-11	2009-07-11	00:00	0.0	



BLR_Marathahalli-[KARN00024]

Tower Details - Cluster Level

TOWER ID	Tower Name	Power Source	Fuel Level	Analysis Run Hours	Critical Alarms	Minor Alarms	Major Alarms	Total Alarms	OS P. Operable
KARN000101	BLR_Magal Road (Magal Road)	Battery	-	0	2	0	0	2	2
KARN000102	BLR_Marathahalli	Battery	-	0	2	3	0	5	2
KARN000103	BLR_Sunandahalli	Battery	-	2	4	2	0	8	2
KARN000104	BLR_Layalpet (Shenoi's)	Battery	-	0	1	2	0	3	2
KARN000105	BLR_Dussehra Road (Dussehra Road)	Commercial Power	-	0	0	0	0	0	2
KARN000106	BLR_Lady's Road (Shastri's)	-	-	0	1	0	0	1	2
KARN000107	BLR_Marathahalli-1	Commercial Power	-	0	0	0	0	0	2
KARN000108	BLR_Dussehra Road (Dussehra Road)	Commercial Power	-	0	0	0	0	0	2
KARN000109	BLR_Dussehra Road (Dussehra Road)	Commercial Power	-	0	0	0	0	0	2
KARN000110	BLR_HSR Layout	Commercial Power	-	0	1	0	0	1	2
KARN000111	BLR_Cantonment	Commercial Power	-	0	2	2	4	8	2
KARN000112	BLR_Marathahalli	Commercial Power	-	0	1	1	2	4	2
KARN000113	BLR_Marathahalli	Battery	-	2	4	3	0	9	2
KARN000114	BLR_Basavanthnagar	Battery	-	0	0	1	1	2	2
KARN000115	BLR_Chandra Layout	Battery	-	0	0	0	1	1	2



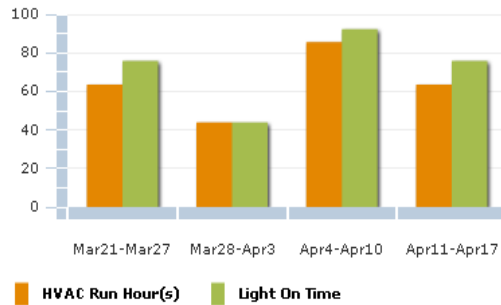
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OVERALL CONSUMPTION - Last Week's Data

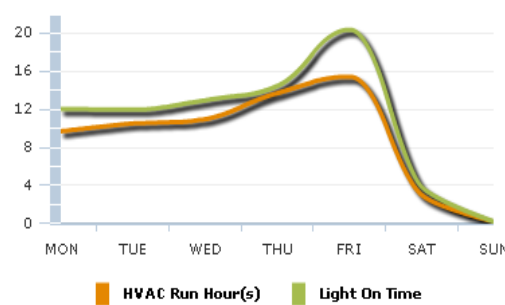
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Energy Management - Dashboard

Comparison between weeks



RunHour pattern for last 7 days



Energy consumption for last 7 days

HVAC | **Light**

Energy consuming locations(HVAC)

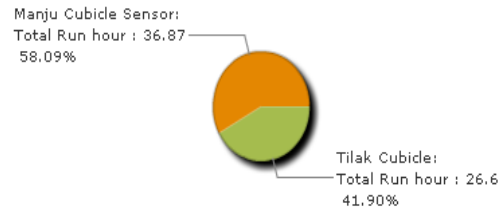
Location Name	Run Hour
Manju Cubicle Sensor	36.87
Tilak Cubicle	26.6

Live Monitoring

Live status of favorite sensors

Location Name	Status	
	L...	H...
Board Room (Left)	●	●
Gokul Cubicle Sensor	●	●
Tilak Cubicle	●	●
Rajkumar Chougule	●	●
Manju Cubicle Sensor	●	●
Murali Cabin Sensor	●	●

Occupancy comparison for last 7 days



Communication Status

Sensors not communicating more than a day

Location Name	Day(s)	Last Communication



ConnectM Differentiation

- Energy saving\$
 - Quantifiable Savings in Lighting & HVAC consumption when integrated with e-metering



- Innovative Technology
 - Wireless Sensors with Direct Digital Controller (DDC)
 - Energy Management Software can access PAN India assets

- Wireless
 - Non intrusive retro-fit implementation
 - Flexibility in usage
 - Unique Network ID for Lamps, Sensors, AC units



- Analytics
 - Self Learning Algorithms
 - Enhanced dashboards for Reporting, Monitoring & Control



Case Study

- Problem
 - Lights and Cassette units were controlled based on pre-set schedule which was generally 20-22 hrs/day and did not take into consideration the variance in occupancy levels. This lead to rise in energy consumption.
- Solution Implemented
 - Wireless Sensors were installed strategically in workstations, cabins, meetings rooms etc. across 3 buildings.
 - The sensors controlled all the cassette units and lights based on occupancy though a centralized software. The Sensor to Cassette ratio was 1:1.
- Benefits
 - Energy Savings
 - Total Automation
 - Remote control of assets (Lights and HVAC)



Case Study: ROI

Particulars	Actual Readings		Remarks
KWH for consumption of lighting before installation	23,069		from meters installed
KWH for Low Side HVAC consumption before installation	29,712		from meters installed
KWH for High Side HVAC consumption before installation	121,309		given by client team
INR for Lighting before installation	INR	128,033	
INR for Low side HVAC before installation	INR	164,902	
INR for High side HVAC before installation	INR	673,265	
% savings in Lighting	8%		
% Savings in Low side HVAC	31%		
% Savings in High side HVAC due to lighting	0%		
% Savings in High side HVAC due to Low side HVAC	12%		calculated from meter reading
Savings per month in KWH from ConnectM System	25,606.23		
Savings in INR per month from ConnectM System	INR	142,115	
Savings in INR per year from ConnectM System	INR	1,705,375	
ROI in months	18.2		



ConnectM M2M Other Applications deployed

Industry	Client	Solution	Benefits
Utilities	JUSCO	Automated Water Metering	Automated meter readings at water distribution zones in Jamshedpur. Enabled customer to get accurate data and integrate with their SAP. Made billing process completely automated and reduced manual intervention
Construction	HCC	Batching Plant Automation	Enabled real-time data collection and transmission of their concrete mixing plant to help customer to manage inventory better. Reduced planning time from months to real time. Data integration with SAP was made possible in real-time with out manual intervention and data accuracy was 100%
Construction Equipment	Electromech	Remote Monitoring and Diagnostics of Industrial Cranes	Enabled real-time monitoring of cranes for Emech at their customer locations to analyze usage patterns, diagnose break-downs, and avoid warranty claims due to abuse. Monitor critical parts of the cranes to avoid break-downs ensuring smoother production process.
Banking	HSBC	Remote Asset Management	Complete monitoring and control of energy assets like UPS, battery cells, Air conditioner critical to run servers and computers to avoid any down-time. Real time alerts for preventive maintenance and fault management helped customer to have information real-time and take appropriate actions. Solution resulted in improving uptime and energy savings and fuel pilferage
Water Treatment	Rochem	Remote SCADA	Helped Rochem to remotely monitor their water treatment plant and manage configurations of PLC units. Provided preventive maintenance alerts to improve efficiencies
Fleet Management	Volvo	Fleet Management	Integrated GPS tracking with the Volvo truck controller to extract information about machine run/idle time, fuel consumption, alerts that helped customers of Volvo to monitor the utilization of their vehicles and track their location accurately. Get maintenance alerts based on engine run hours.
Packaging	ITW	Remote PLC Monitoring & Programming	Enabled ITW to provide remote service to their clients where they had to visit them to make changes to PLC programs or configurations based on customer needs. This resulted in reducing cost and improved resource utilization better. Customers of ITW could see huge TAT for resolutions.

Thank You

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PIR Sensor
(Custom Designed)

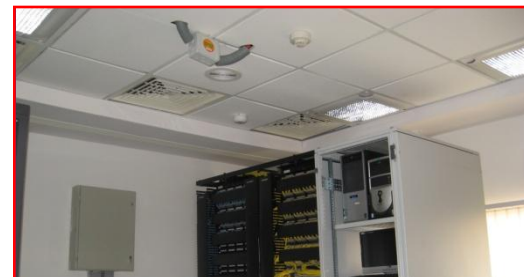


ConnectM EMS implemented in work stations

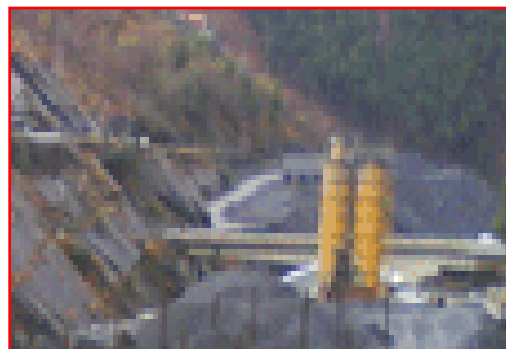


Sample Pictures of ConnectM Solution

EMS



RAM



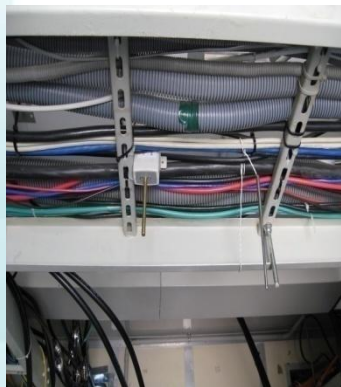
eMetering



TELECOM SITE BEING MONITORED BY CONNECTM REMOTE MONITORING SOLUTION



The ConnectM Remote Transmission Unit, this is the heart of the system



Temperature Sensor



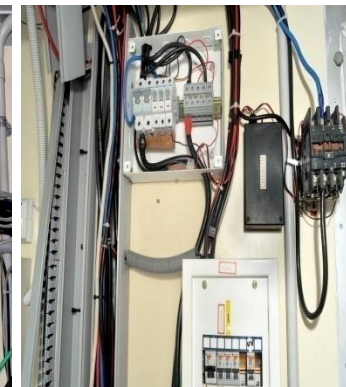
Fuel Sensor



Energy Meters



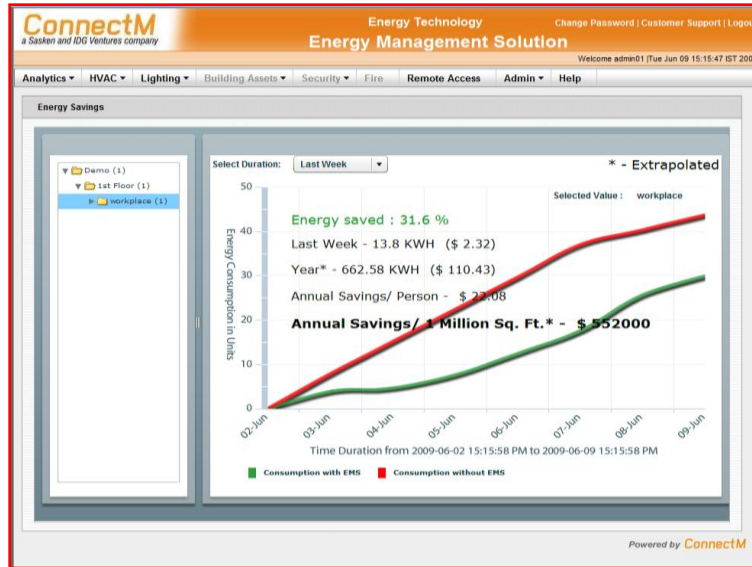
Shelter Access Management



Remote On/Off of BTS

Application Snapshots - Lighting

Savings from Live Installation at Work Stations

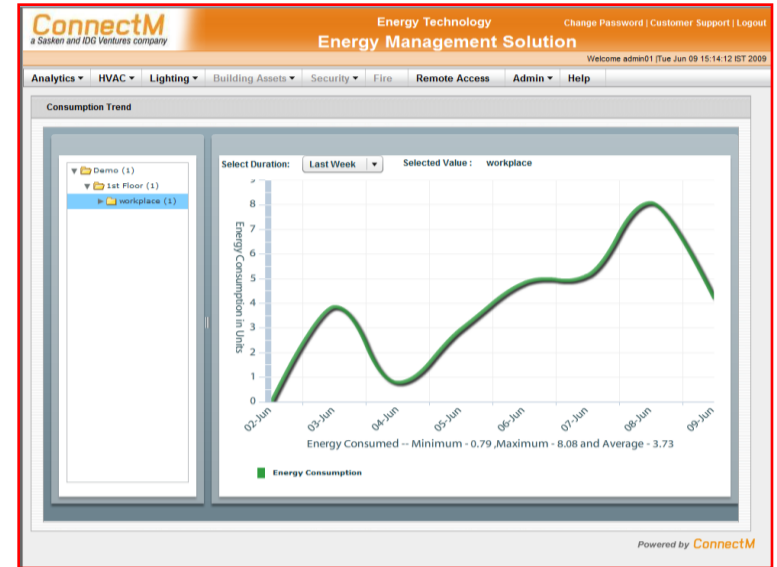


Real time status of PIRs

Lamp Status

MacID	LampName	Status
2500	1	●
2500	2	●
5100	1	●
5100	2	●

Consumption Trend Day-wise



Scheduling- for Observation/'ON' status`

Search

Search Building: Company Name Search Floor: 1st Floor Search Area: workplace

Search Results

Select	Mac ID
<input type="checkbox"/>	2500
<input type="checkbox"/>	5100

Enter Start Date and Time: [] []

Enter End Date and Time: [] []

Name: []

Mode: Observation

Status: ON

Schedule

DG set Installations



Fuel sensor



AC Meter

