Smart Tower Monitoring Solution (STMS)











Building IOT Enabled World

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TOWER MANAGEMENT CHALLENGES

- Multi-vendor Power Management Systems
- Equipment misuse
- Tampering of Devices
- Fuel Pilferage
- No Central Monitoring
- Inability to track equipment maintenance
- No Operational Visibility
- Reactive maintenance / No Fault Tracking
- No Dashboards / Reports





STMS SOLUTION

- Universal Modem
- Universal Data Logger & Management Device
- Compatible with existing tower equipment
- Collects data in real-time
- Two-way protocol for controlling and monitoring towers
- MQTT enabled
- Central Data Repository
- Single Dashboard with real-time trackers
- Historical reports
- Tamperproof Design
- Easy Installation





UNIVERSAL MODEM - HIGHLIGHTS







HARDWARE SPECIFICATIONS

- Multiple I/O RS-232, RS-485, Ethernet, WiFi, USB
- Variable Voltage Power Circuit
- USB Dongle for 3G/4G modem
- Internal WiFi Antenna
- 3 LEDs For Power, System and 4G Connectivity
- Firmware based on open source SDK
- Weather and Tamper proof housing



Universal Modem



MODEM HARDWARE



UM Version 1



Version 2 (Currently Shipping)



MODEM SOFTWARE

- Integrated with 20+ power equipment make and models
 - Delta, Emerson / Vertiv, Intelux etc.
- Supports stream read and MODBUS over serial and TCP port
- Integrated with Big Data core for telemetry and state data exchange using MQTT
 - Supports two-way communication
 - OTA firmware upgrade
 - Telemetry data logging
 - Configuration management
- Supports SMS command-based communication (diagnostics)
- Modem can store one week of telemetry data (in case of network outage)

Indio works with vendors of Tower companies to provide seamless integration of universal modem with site power management assets.

FULL STACK OFFERING

Smart Tower Monitoring System (STMS)

- Fully integrated single box solution; acts as an overlay to existing telecom site infrastructure
 - Energy meter (AC & DC)
 - Sensors
 - Access Control Unit
 - Asset Management System
 - Video Surveillance System
- Cloud based system to manage and monitor tower sites
 - Monitor faults or alarms,
 - Collects energy utilization from Mains, Battery or Diesel Generators
 - Integrate with Tower Management System (TMS) or Tower Operation Center (TOC)





USECASE-TELECOM SITE AUTOMATION





FULL STACK RMS



- Tenant-wise energy measurement, Fault detection and Sensor based monitoring
- Energy Meter
 - AC & DC Energy Measurement
- EB Grid and Faults
- DG Grid and Faults
- Sensors
 - Humidity
 - Temperature
 - Wind
 - Aviation Light
 - Fuel level
 - Intruder alarm
- Access Control
- Asset Monitoring
- IP Camera

Project 1 (Smart Energy Meter Solution)





Project 2 (Smart Site Access Solution)















Energy measurement controller card



SOLUTION – ARCHITECTURE



TELECOM SITE DEPLOYMENT





EMS-RMS



Current Transformer



Fuel Sensor



Access Control



Temp & Humidity



Wind Sensor



Camera





TELECOM SITE – SENSORS





Site Photo

Wind Sensor

Fire & Smoke

Dashboard (EMS)





Site View (EMS)



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						6п-3	CH-4	K I ♥	Y I Ψ	B 1 4	R∣↓	YI↓	B∣↓	Power↓	Voltage *
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STMS0007867 STMS0009107 STMS0003078	ONLINE ONLINE ONLINE	29-01-2020 11:10:33 29-01-2020 11:10:36 29-01-2020 11:10:31	GRID GRID DG	3.896 1.492 0.037	2.515 1.063 1.257	0 0 0	0 0 0	R 1 • 1 3 3 3 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 1 0	3 2 0	R ↓ 238 243 0	239 244 0	B I↓ 237 246 0	Power↓ 0 0 2	Voltage ∗ 53 54 54
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Showing 1 to 5 of 5 entries

Previous 1 Next

Inventory (Map View)





Dashboard (Limited RMS)

ZAIN001

06-Aug-2019 14:38:...

Intelux

MEW + DG + Battery

IHS0004987



Load	Consumption	Alarm Report	Energy Consumptio	n Detail	Site Down	Site Availability	Ene	rgy Detail F	Report S	ite Down Su	mmary			
	4987	Dat	e: 06-Aug-2019	06-A	ıg-2019	Filter Re	port							
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	Site Id	Opco Site ID	Transaction Date	Power Vendor	Power	Model Site	Туре '	toom Temp (°C)	Wind Speed	I Humidity (%)	EMS Temperature (°C)	Bat1 Temp (°C)	Battery Voltage (V)	Battery Charging Current (Amps.)
	IHS0004987	ZAIN001	06-Aug-2019 14:58:	Intelux	MEW + DG	6 + Battery Hut	Þ	22.90	17.20	30.4	32.70	39.20	53.80	1.10
	IHS0004987	ZAIN001	06-Aug-2019 14:56:	Intelux	MEW + DG	6 + Battery Hut	Þ	23.00	14.00	30.2	32.70	39.20	53.80	1.20
	IHS0004987	ZAIN001	06-Aug-2019 14:54:	Intelux	MEW + DG	6 + Battery Hut	Þ	22.70	21.20	30.7	32.70	39.20	53.80	1.20
	IHS0004987	ZAIN001	06-Aug-2019 14:52:	Intelux	MEW + DG	6 + Battery Hut	Þ	22.60	21.90	31	32.70	39.20	53.80	1.10
	IHS0004987	ZAIN001	06-Aug-2019 14:40:	Intelux	MEW + DG	+ Battery Hut	ь	22.90	16.20	30.6	32.70	39.20	53.80	1.10

Hub

22.90

18.30

30.5

32.70

39.20

53.80

1.20





Inventory Management



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01-11-2019 31-10-2024	⊖ No	Date of Deployment		Ol-01-2020	8	8451496475	RSN417HCEA	Air Conditioner (NEW) Hitachi	5
01-11-2019 31-10-2024 Date of Expiry dd-mm-yyyy		21-01-2020							



Thank You!

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