SmartGasNet™

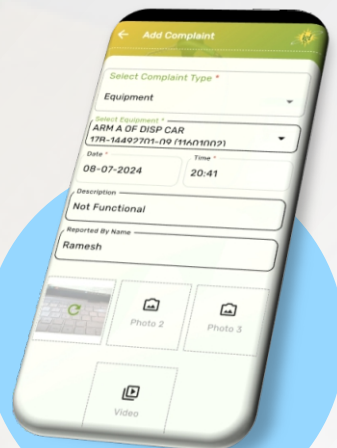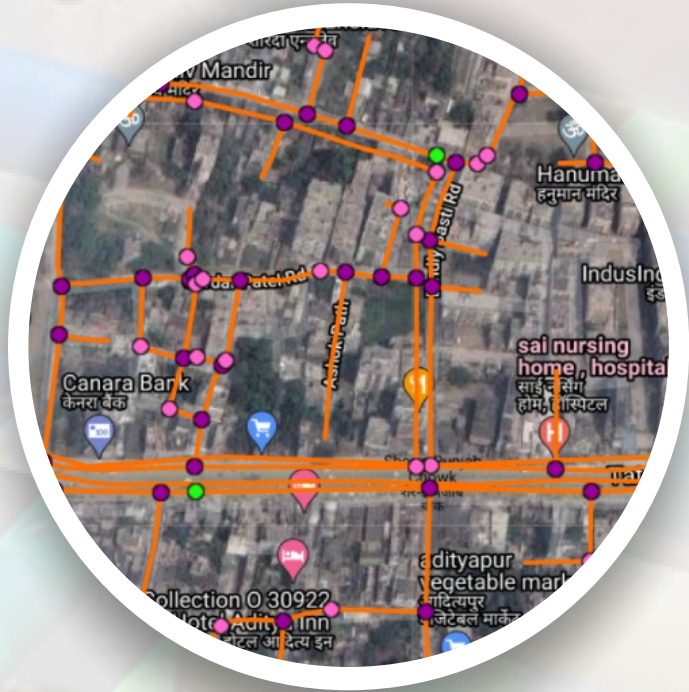**Web, GIS & Mobility based Project Management Solution for**

City Gas Distribution

Our Web and GIS Based Solutions

PCMS™
Pipeline Construction
Management System

PAMS™
Pipeline Asset
Management Solution

SmartSafeNet™
Pipeline Integrity
Management Solution

SmartGasNet™
Web, GIS & Mobility Based Project
Management Solution for City Gas Distribution

SmartUtilitiesNet™
Solution for Urban, Rural &
Irrigation Water Distribution

Unistal Systems Pvt. Ltd., with 32+ years of expertise, is a trusted leader in Web, GIS, and mobility based Project Management Solutions for the Oil & Gas and Utility sectors. Our flagship PCMS™ and SmartSafeNet™ empower pipeline operators with traceability, verifiability, and completeness across planning, execution, operations, integrity, and risk assessment. For City Gas Distribution, SmartGasNet™ delivers an end-to-end solution for execution, maintenance, incident reporting, and CRM, driving efficiency and reliability. The solutions offered are AI-enabled with a Live GIS Digital Twin.

SmartGasNet™ (Web, GIS & Mobility Based Project Management Solution for City Gas Distribution) : Solution for City Gas distribution projects covering Design, Construction (Steel/MDPE/ Riser), Materials Management, Progress Monitoring, AOM, GIS Visualization, Network Outage Management, CRM covering Consumer acquisition to registration, Last Mile Connectivity, Consumer Billing and Complaints. CNG Station asset installation module, CNG station Equipment Complaints, Civil Complaints, Calibrations, Gas Loss/Gain, Engine Fuel Flow/Rate. CNG LCV Tracking with live GIS tracking, Gas reconciliation, generation of vendor AOM and Penalties.

PCMS™ (Pipeline Construction Management System): Solution for midstream Oil & Gas pipeline projects covering pipe tracking, construction monitoring, QC, GIS visualization, material management, abstract of measurement, documentation, and land records management.

SmartSafeNet™ (Pipeline Integrity Management Solution): Solution for Risk Assessment using ASME B31.8S-regulation for Piggable and Non-Piggable pipelines. Solution covers Pipeline Asset master, CP Monitoring, Corrosion Coupon and ER Probe, Anomaly register (ILI), Scrapper Pigging with residue analysis. Facilitates aggregation of Historical and Direct assessment from field and SME inputs for every threat & consequence to generate historical & reliability based results. Reports are generated on tables, PDF and visualized on GIS. Generates risk mitigation measures, corrective action report, threat history, financial loss report etc.

SmartUtilitiesNet™ (Solution for Urban, Rural & Irrigation Watter Distribution) : Solution for water transmission and distribution covering Materials, Construction (PE/ DI/ Steel), Monitoring, GIS Visualization, House Service Connections, Consumer Management and Billing, Operation and Maintenance.

PAMS (Pipeline Asset Management Solution): Solution for managing pipeline asset installations (Electrical/Instrumentation/Mechanical) with alerts for preventive maintenance and condition monitoring.

Our Esteemed Customers

GAIL	IOCL	BPCL	HPCL	NRL	IGGL	GSPL	GITL

GIGL	H ENERGY	HOWE-ADANI	ONGC	ADANI	IGL	PURBA BHARATI GAS	JWIL

British Petroleum	ADNOC Onshore	OQ Oman	PDO Oman	Petronas Carigali	GASCO	PGN	EXXON

SWCC	TECNICAS REUNIDAS	TECNIMONT	NIPCO GAS LTD.

SmartGasNet™ - Features

Web, GIS & Mobility Based Project Management Solution for City Gas Distribution

From City-Gate to Consumer

Diagram components: SmartGasNet CRM, SmartGasNet Riser Installation, SmartGasNet Steel Construction, SmartGasNet MDPE Construction, SmartGasNet Asset Management, SmartGasNet CNG O&M, SmartGasNet CNG Construction, SmartGasNet LCV Tracking, SmartGasNet Outage & Maintenance. Network flow: City Gate Station → DRS → FRS → Service Regulator → Domestic, Commercial, Industrial.

Web GIS Solution for CGD project management, including construction, operation, and maintenance, network outage management, asset management, CNG operations, and customer management. Workflows span from pipeline construction to customer registration.

Project definitions, design vs. actuals, materials and equipment, laying, installation, operations, maintenance, and customer connectivity within the network are recorded with GPS coordinates and relevant test certificates.

SmartGasNet Modules

- **Construction Management** (Steel, MDPE & CNG Station).
- **Materials Management** (Pipes & Fittings).
- **Consumers Management** (DMA, LMC, NGC, Riser Installation, Billing, Consumer Management).
- **O&M Management** (Consumer Requests, Asset Management, Outages, and CNG Stations).
- **Assets Management** (Preventive & Condition Monitoring).
- **Documents Management** (Reports, MTC, Procedures, Drawings).

Construction Management

Pre-Construction

Import designs using simple drag-and-drop tools on imagery. Publish detailed engineering survey features such as topography, administrative boundaries, transportation features like roads and streets, and POIs like electric poles, manholes, trees, etc.

Switch between street maps, satellite imagery, and base maps.

Generate BOQ with pre-defined attributes and costs. Save BOQ in XLS format and plans in PDF/SHP formats.
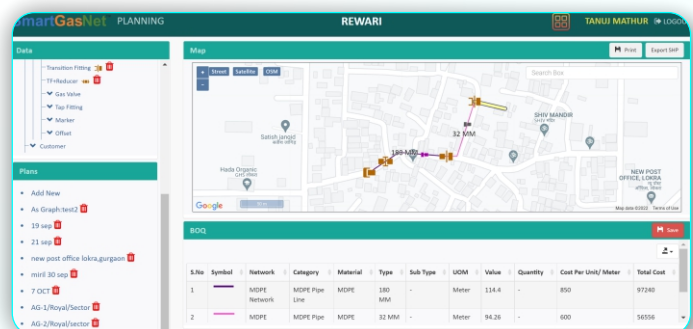
Steel Construction

What, when, how, and where of pipeline construction.

Mobile app for field data logging of all activities (C&G, stringing, welding, NDT, etc.).

- Auto-generation of e-PDFs of all activity-wise ITRs.
- Auto-generation of e-Pipebook, e-DPR, and analytics.
- Hydrotest clearance report generation.

MDPE Construction

Field mobility for construction capture. Generate daily progress, Pipe Book, MWP, fittings installation reports, crossing reports, excavation/restoration reports, hindrance reporting, contractor bill generation, and BOQ generation.

View date-wise progress of the MDPE network created, fittings installed, and excavation/restoration/pneumatic testing.
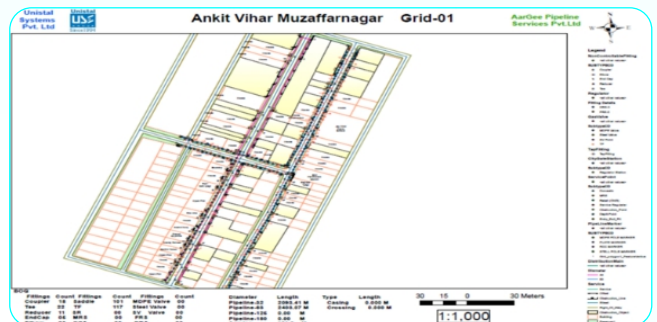
Benefits:

- Real-time monitoring of pipeline laying.
- Geo-referenced features and pipelines.
- Auto-generation of unique IDs for line segments and fittings.
- Quick preparation of as-builts.
- Enables quick inspection and approvals.
- Simple field data capture using a mobile app in offline mode.
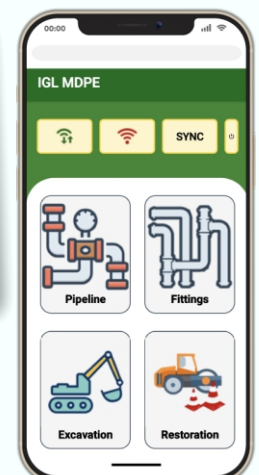
Riser Installation

- Mobile field map (GIS) based TF identification.
- Click on TF to enter riser installation details.
- View previously installed length (compare with building height).
- Enter the consumer BP number to link to TF/SR.

CNG Station Construction Management

Fully configurable web and mobility module for managing structure construction projects through a digitized system, sub-systems, disciplines, and activities.

Features:

- Simple-to-use mobile application for field supervisors to enter daily work quantities.
- Online approval facility for QC inspectors.
- Monitoring reports for project or system, sub-system, and equipment details, vendor-wise reports and management dashboards for overall progress monitoring.

Material Management

Material Tracking: Track pipes and fittings from PO, dispatch, warehouse, project store, issued for construction, and consumed.

Material Reconciliation: Reconcile design BOM/BOQ with actual utilization. Reconcile contractor/

LMC-issued materials with consumed materials. Track meters/regulators in stock, issued to LMC, and installed at consumers. Track meters/regulators damaged or replaced.

Benefits:

- Monitor material issued and used in real time
- Reconciliation statements on the fly
- Measurement sheets for approving contractor bills
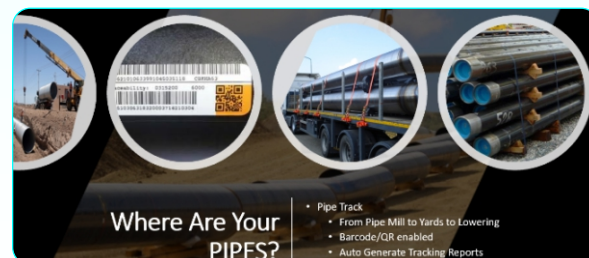
Consumer Management

Consumer Survey: Mobility based consumer survey facility.

Consumer Registration: Register consumers with KYC and security deposits (as per schemes).

LMC: Last-mile connections with fittings and pipe consumption, including extra pipe charges.

Consumer Management: Manage disconnections, reconnections, temporary disconnections, mutations, and complaints.

Consumer Billing: Auto bill generation for registration, gas deposit, and gas billing. Meter reader app (with handheld POS/printer) for metered billing. Online payment gateway and SMS integration.
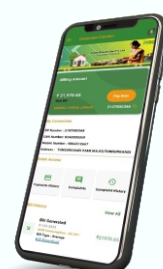
Benefits:

- Each customer is linked to the network.
- Auto SMS alerts and notifications.
- List customers from the application based on City/GA/Area/Block/Apartment.
- Thematics showing the distribution of customers, CNG stations, and commercial establishments.
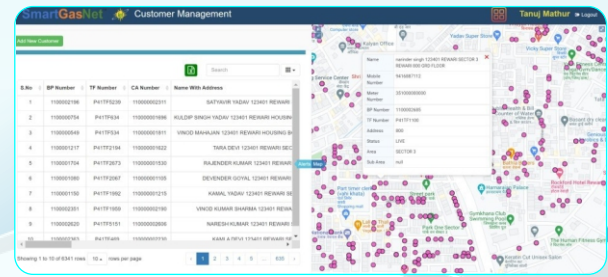
Operation and Maintenance Management

Consumer Requests

Manage consumer requests for no gas, low pressure, disconnections, reconnections, etc. Manage planned and unplanned outages, including leakage and outage management. Complaints management (Control Room Center).

- Isolate valves to be closed for a planned outage.
- Get a list of affected customers.
- Send SMS/email notifications to customers.

Features:

- **Alert Management**
  - Capturing alerts with location details
- **Emergency response:**
  - Identifying valves to be closed
  - Identifying affected customers
  - Notifying customers
  - Resolution and status updates

- **Reports**
  - Outages
    - Active alerts
    - Pending alerts
    - Resolved alerts
  - Outages in the last week, month, etc.
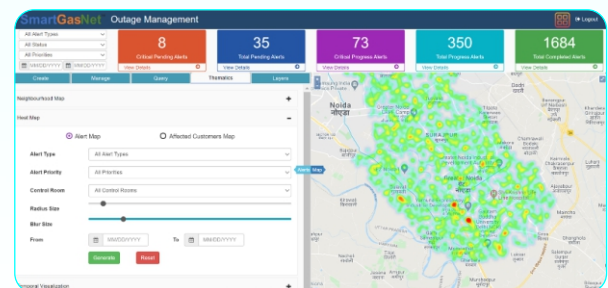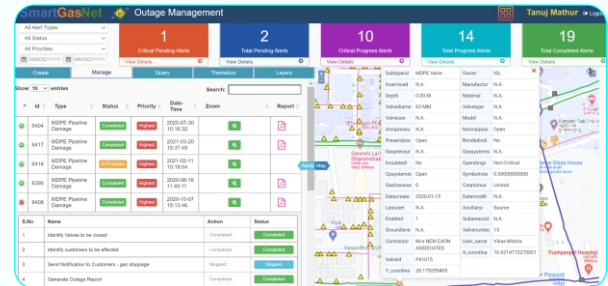
Asset Management

Steel & MDPE Pipeline Asset Management

- Auto-generation of unique IDs for all fittings and installed assets.
- Alerts for preventive maintenance and condition monitoring.
- Generation of job cards and maintenance reports.
- Mobile app for updating maintenance status.

Benefits:

- All assets in a single application.
- Search assets along with their specifications.
- One-click access to the history of consumer registrations.
- Alerts for maintenance schedules.
- Alerts for warranty renewals.
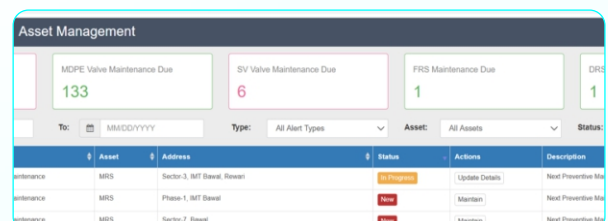
CNG Station's Operation & Management

Trace equipment and civil complaints and manage maintenance schedules.

Features:

- Managing equipment and civil complaints using digital logging.
- Routing complaints to technicians, monitoring complaints, and generating an e-logbook.
- Generating vendor measurement sheets, penalties, and ageing reports.
- Scheduling equipment maintenance, logging spare status, and dashboards with analytics.
- Digitizing energy consumption parameters, including defining gas flow rate, energy consumption, and SCADA integration for cyclic readings.
- Sending threshold alerts and generating abnormal reading reports.

CNG LCV (Light Commercial Vehicles) Tracking Solution: Efficiently manage Light Commercial Vehicles (LCVs) with a comprehensive tracking solution. Define LCV routes, schedule vehi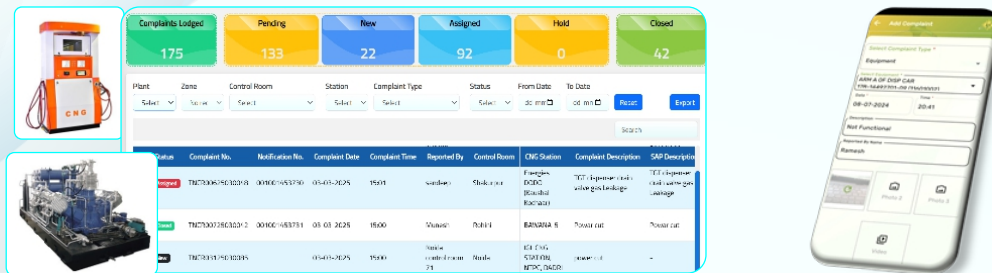cles, monitor stoppages and deviations, and ensure QR code-based driver/LCV authentication at key stations, including daily gas quantity entry and reconciliation.


Geo-Tagged Field Force Management Solution: Manage and monitor field personnel using the Geo-Tagged Field Force Management Solution. Utilize features such as a mobile app for attendance tracking, geo-fence entry and exit alerts, and automatic generation of attendance reports.

Document Management

All project-related documents, including progress reports, test reports, specifications, and procedures, are linked to relevant reports. These documents are also available in a central online document database called "Documentation." Each document is accompanied by unique metadata tags to enable easier and more specific searches. The following are covered under this section:

- Pipe information (manufacturing history, inspection documents, test certificates for pipes and plates).
- Pipe reconciliation statements.
- Material acceptance documents (joint coating material manufacturers' test certificates).
- Manufacturers' test certificates and site qualification test reports for filler materials, electrodes, epoxy, etc.
- Equipment data sheets and test certificates.
- Procedure reports, including approved procedures, job procedures, welding procedure specifications and qualifications, QAPs, and ITPs for all pipeline activities, including terminals, SV stations, IP stations, etc.
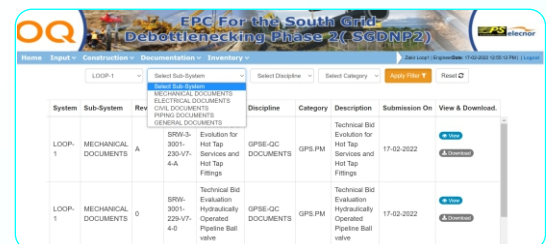
The EDMS module is searchable using metadata such as category, sub-category, document type, vendor, material, remarks, and document number.

SmartGasNet™ – Feature List

Sl.NO	Module	Feature	Description	Web	Mobility	GIS	Dashboard
1	Construction	Design	Integrate/import survey data, topography, planned routes, and engineering parameters; generate BOQ.	Yes		Yes	
		Steel Construction	Field mobility for construction capture; generate daily progress, pipe book, welder performance reports, crossing reports, and hindrance reporting.	Yes	Yes	Yes	Yes
		MDPE Construction	Field mobility for construction capture; generate daily progress, pipe book, MWP, fittings installation, crossing reports, excavation/restoration reports, hindrance reporting, and contractor bill generation.	Yes	Yes	Yes	Yes
		CNG Station	Web and mobility module for managing structure construction of CNG stations.	Yes	Yes	Yes	Yes
2	Materials	Material Tracking	Track pipes and fittings from PO, dispatch, warehouse, project store, issued for construction, and consumed.	Yes			
		Material Reconciliation	Reconcile design BOM/BOQ with actual utilization. Reconcile contractor/LMC-issued materials with consumed materials.	Yes			
3	Consumer Management	Consumer Survey	Mobility-based consumer survey facility.	Yes	Yes	Yes	Yes
		Consumer Registration	Register consumers with KYC and security deposits (as per schemes).	Yes	Yes	Yes	Yes
		Consumer LMC	Last-mile connections with fittings & pipe consumed, extra pipe charges & riser installation.	Yes	Yes	Yes	Yes
		Consumer Management	Manage disconnections, reconnections, temporary disconnections, and mutations.	Yes	Yes	Yes	Yes
		Consumer Billing	Auto bill generation for registration, gas deposit, gas billing. Meter reader app (with handheld POS/printer) for metered billing. Online payment gateway and SMS integration.	Yes	Yes	Yes	Yes
4	O&M	Consumer Requests	Manage consumer requests for no gas, low pressure, disconnections, reconnections, etc.	Yes	Yes	Yes	Yes
		Maintenance (Pipeline and Asset)	Manage leakage and outage complaints (Control Room Center). Manage network maintenance, condition monitoring, and preventive maintenance, etc.	Yes	Yes	Yes	Yes
		Maintaining CNG Station	Web and mobility module for CNG station O&M activities.	Yes	Yes	Yes	Yes
5	EDMS	DCI	Create Document Control Index.	Yes			
		EDMS	Upload Documents with Revisions	Yes			

Unistal Systems Pvt. Ltd.

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