

# IOT REMOTE MONITORING SYSTEM FOR CONSTRUCTION EQUIPMENTS



# tor

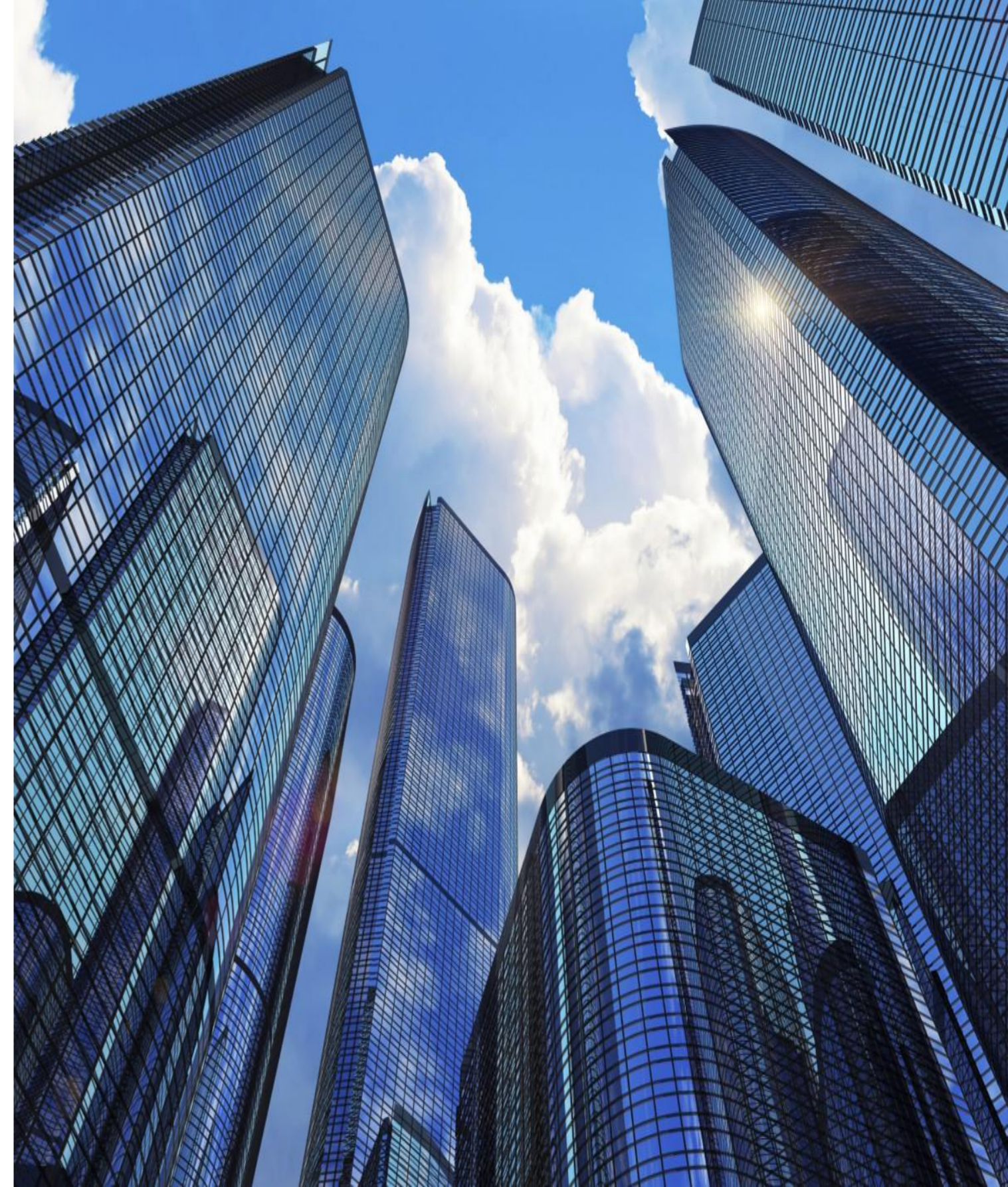
By **kloudq**

**TALK TO YOUR MACHINES**

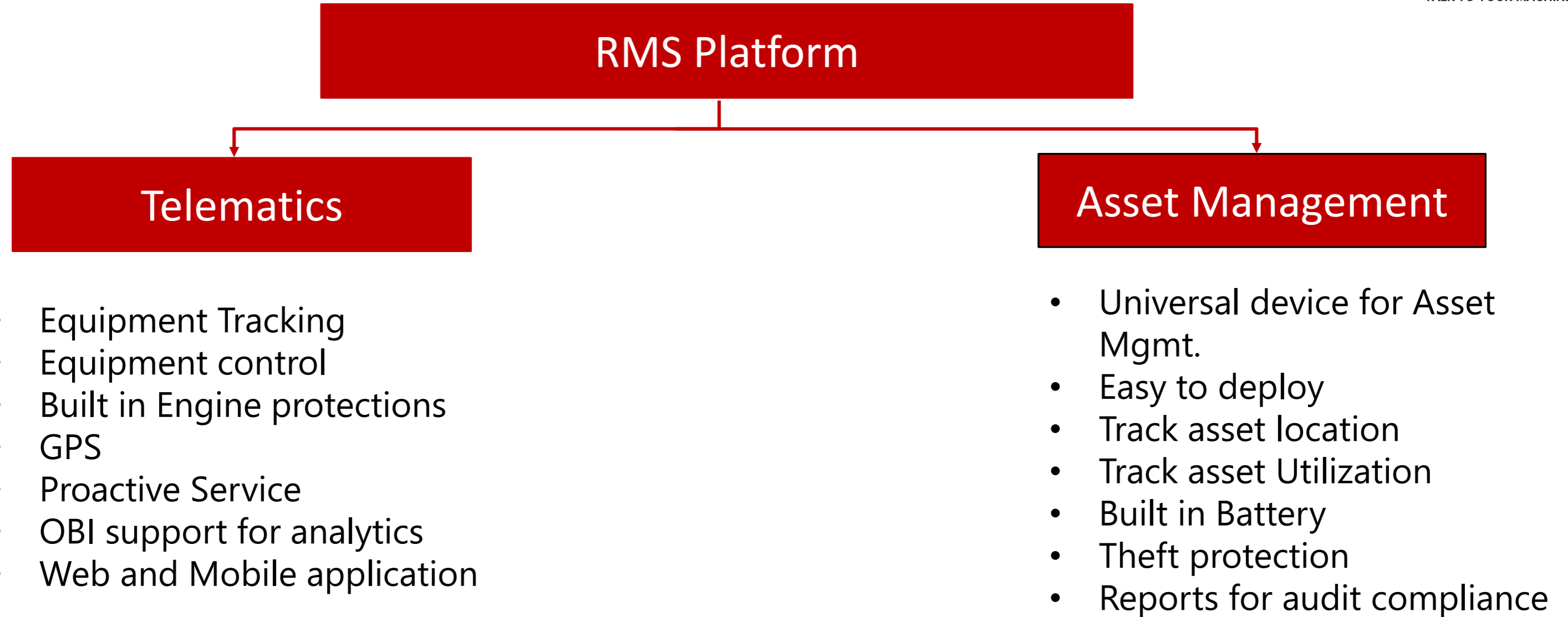


# About Us

- Kloudq offers a wide array of innovative cloud-based Industrial IoT solutions and tailor-made SaaS solutions with the potential to empower and transform your business
- One of the leading IIoT companies in India with more than 25000+ connected devices, 1 Billion+ device hits, 60000+ hours of operation and 25+ Applications
- Flawless compatibility with a wide variety of industrial equipment, easier to adopt & adapt
- With over 7 years of real field learning, we can proudly say that our platform is one of the most robust & reliable IIoT platform in the country today.



# Platforms

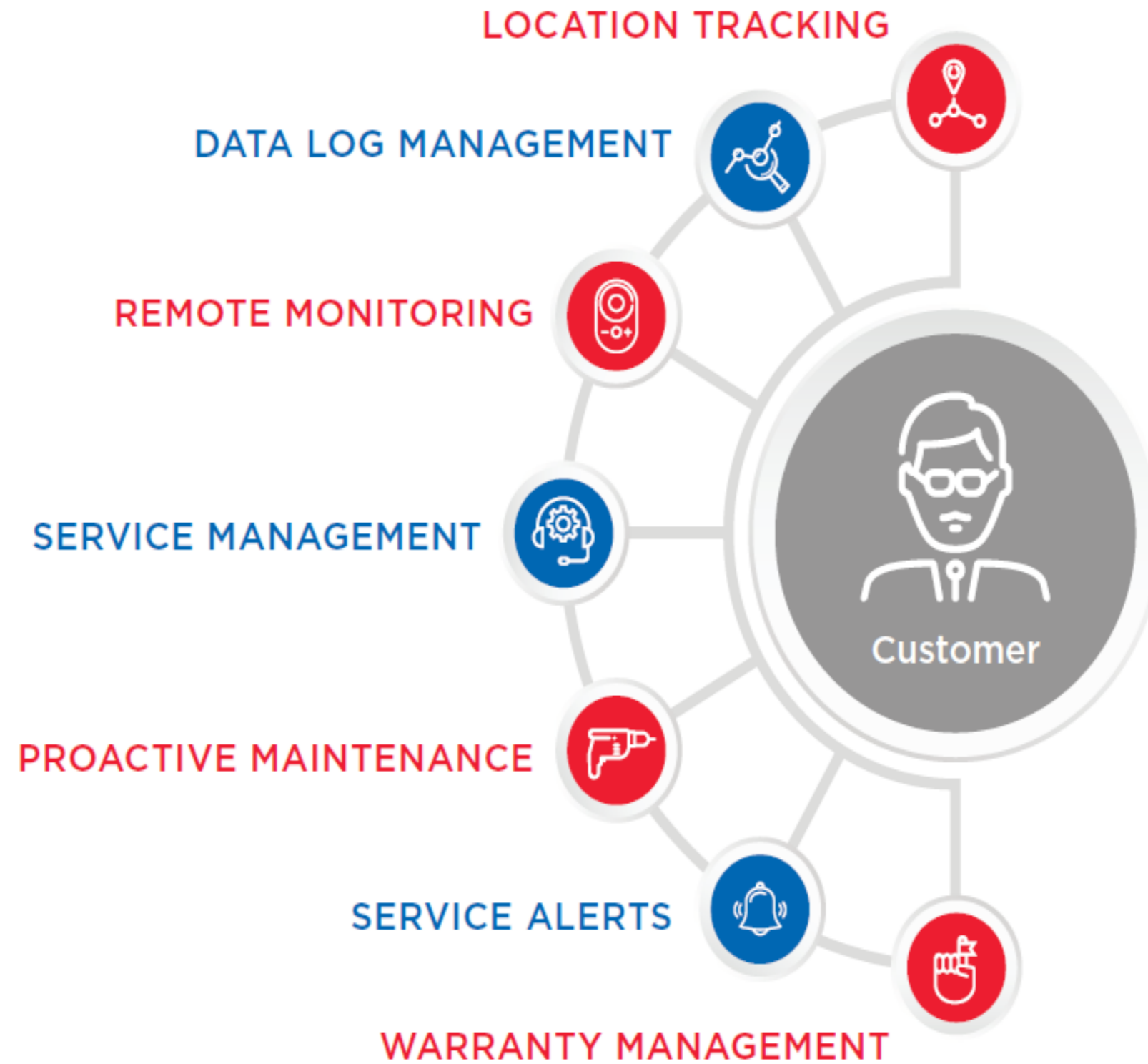


# Business Challenges

- Reactive Maintenance/Service
- Sub optimal usage of equipment
- Realtime Working-versus-idle time
- Huge losses on account of Fuel Theft
- Manual Process to Maintain Log Sheet
- Realtime Asset Performance
- Real time Asset location and Protections
- Realtime Fuel Consumption
- Unscheduled downtime leads to loss of productivity



# Solution

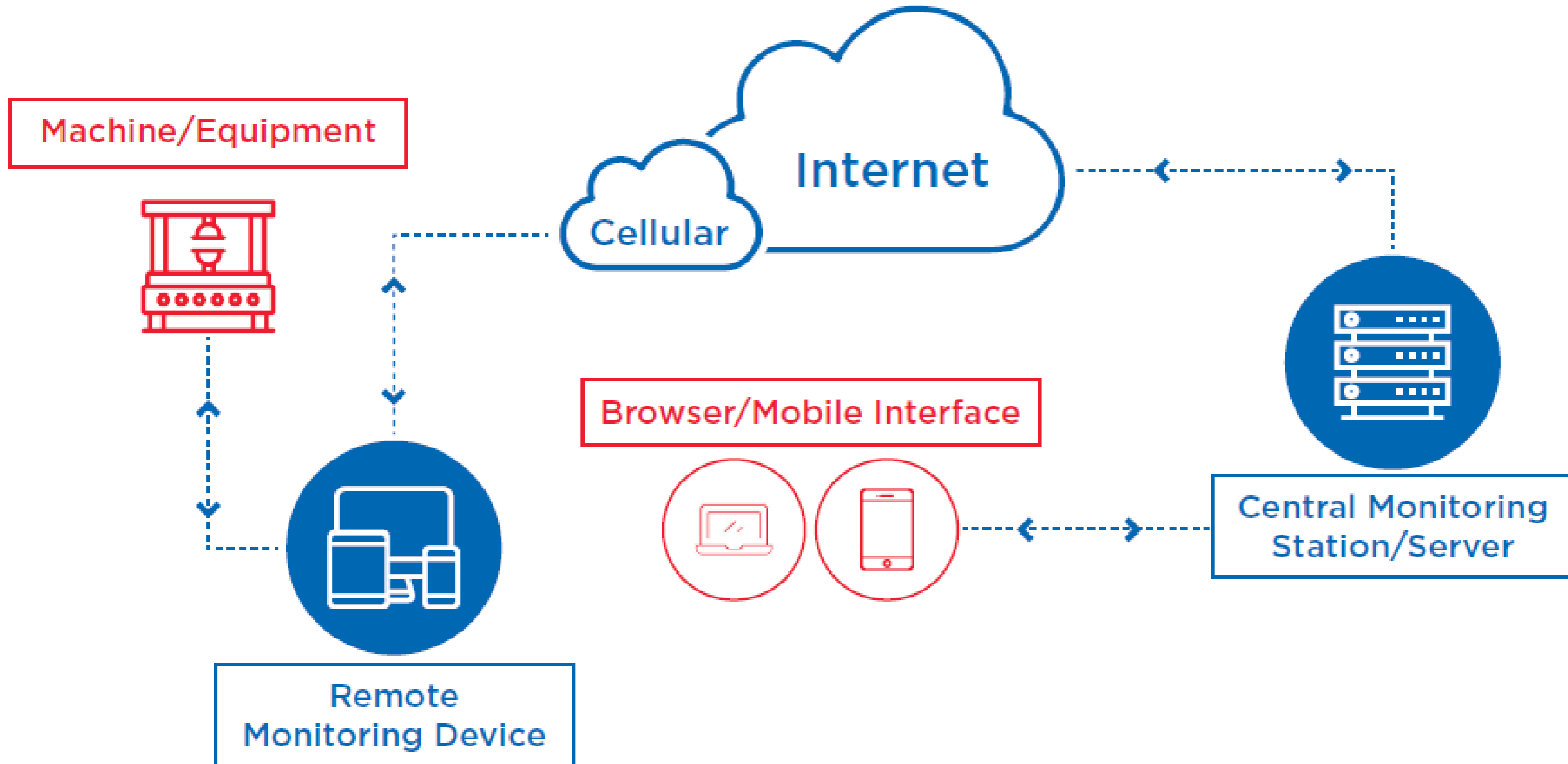


# IoT Solution Features

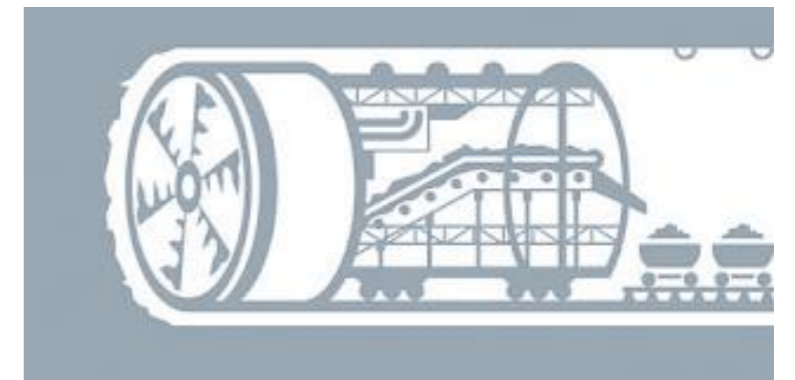
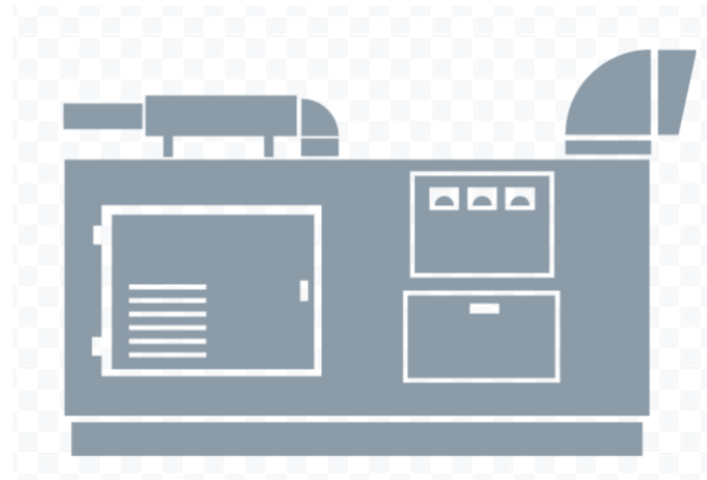
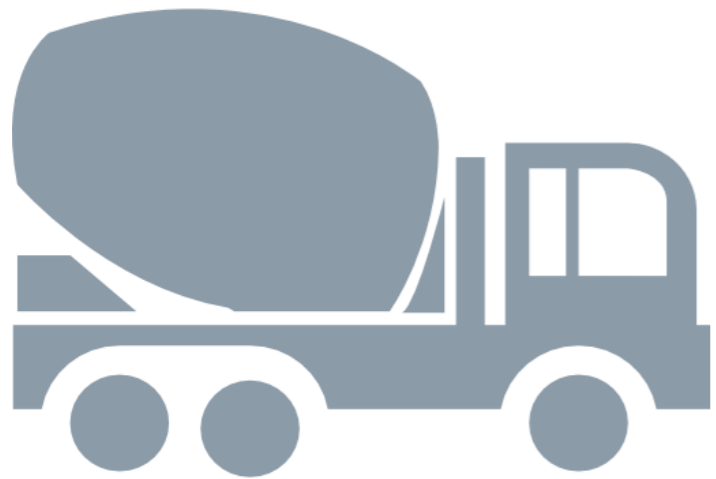
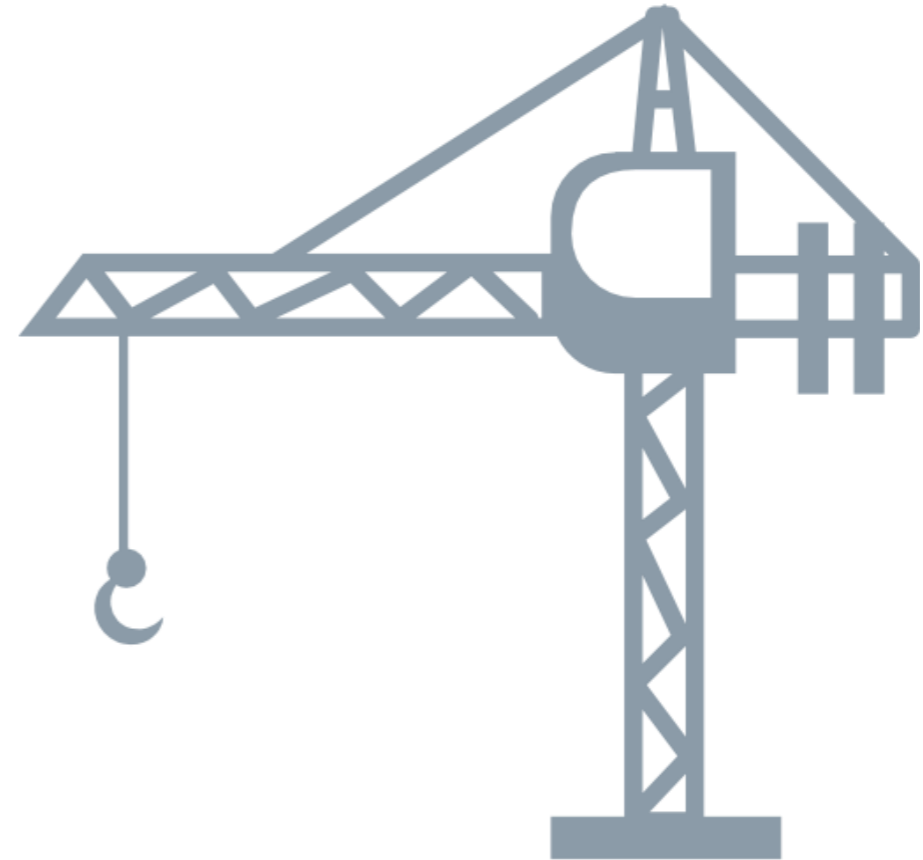
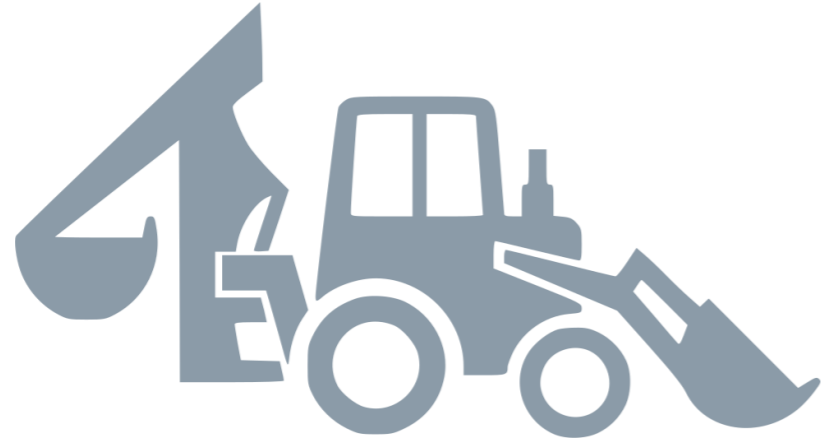
- Productivity data analysis
- Real time data capturing
- Maintenance management (schedules)
- Reduction in resource cost – Setting parameters from remote location
- Information & Data Security - Hierarchy management
- Proactive alerts on product performance & maintenance
- Spares & service management
- Location Tracking
- Reach out to correct audience – Advertisement



# Tor - Solution Architecture



# Applications



**From Genset to Tower Crane, we provide solution to all your applications.**



# Tor - Parameters & Features

- Engine start stop
- Oil pressure monitoring
- RPM
- Engine temperature monitoring
- Oil temperature monitoring
- Water level monitoring
- Battery voltage monitoring
- Load monitoring
- Run hours
- Speed
- Fuel Level & Consumption
- Location
- Geo fencing
- Alarms & Alerts
- Fan Status
- Transmission Status
- Oil Level
- Hydraulic Pressure
- Fuel level
- Smart trip review
- On/off performance (duration)
- Data log
- Over speeding alert
- Track my equipment
- Service schedule
- Equipment health
- Daily summary
- Live performance
- Weight/load in production
- Service Management
- Proactive Maintenance
- Data Log Management
- ETC



# Hardware Features



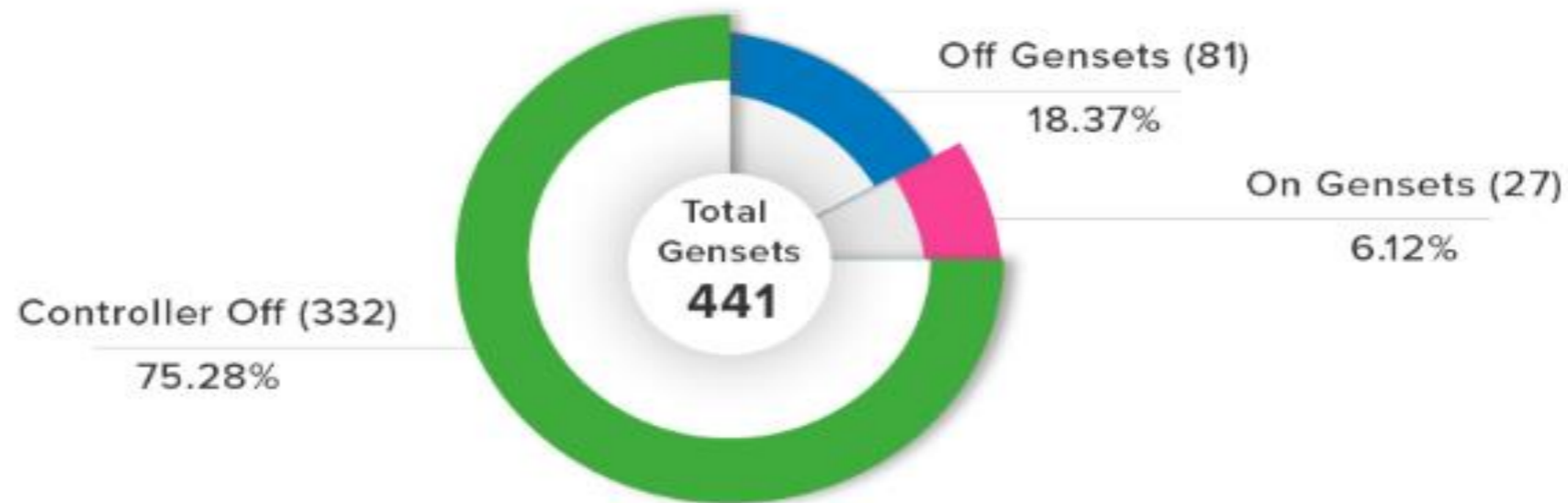
- Supply voltage -12 to 24 V continuous
- GSM/GPRS/Wi-fi
- Reverse polarity protection
- Maximum operating current: 340mA at 12V ,160mA at 24V
- GSM, GPS built-in antenna
- PSU Surge Testing- Compliance to ISO 7637 – 2 ,Load dump protection.
- Immobilizer (Optional)
- Load dump, high/low voltage
- Watch dog timer
- Accelerometer (optional)
- RS485 Serial port
- CAN Port
- RS232 Port
- Operating Temperature: -20 to +75 deg C
- Storage Temperature: -40 to +95 deg C
- Humidity: 95 Rh
- Vibration: 5 g
- Enclosure : IP 65
- Analog - Digital I/O
- Hourmeter : Built in with accuracy of 2% , Trigger through counter or digital inputs



# Sample Application Snaps

**Welcome,** Amin2 - Area Officer

## GENERAL INFORMATION



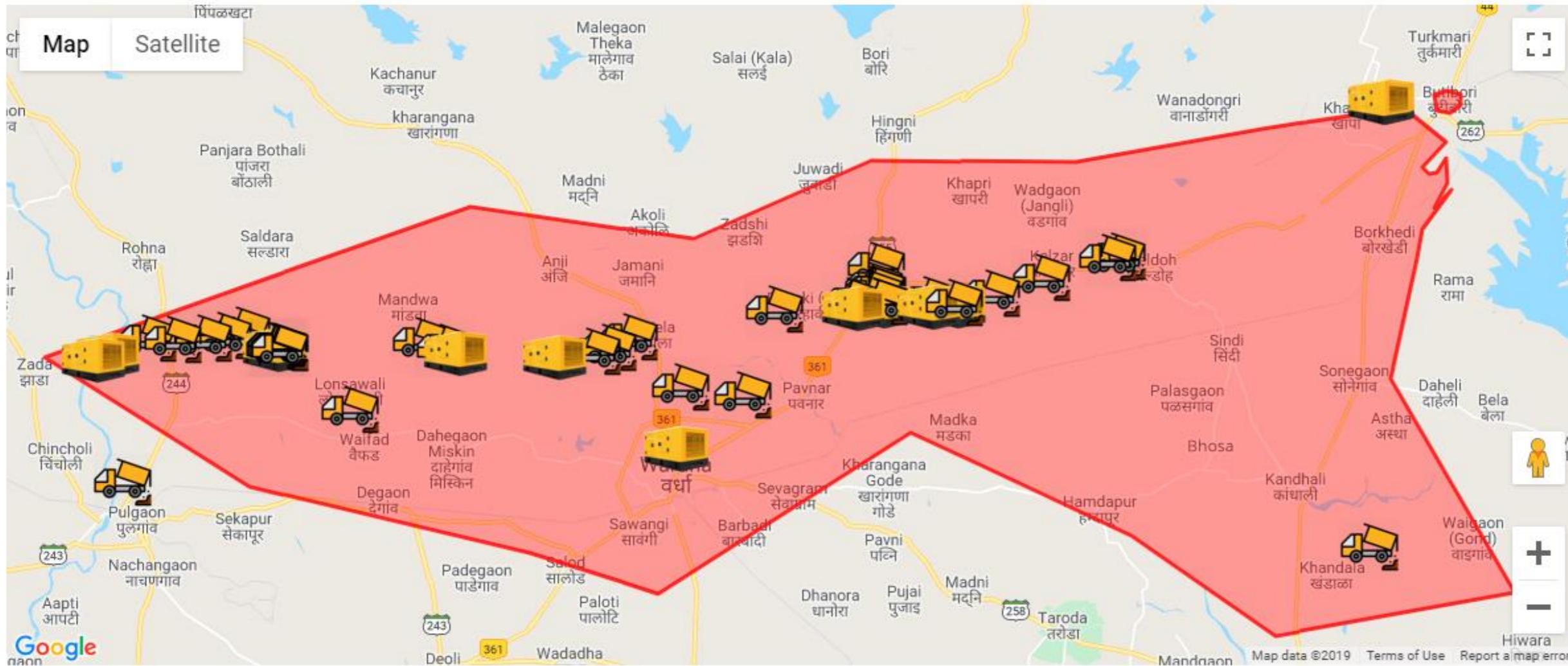
 On Gensets (27)

 Off Gensets (81)

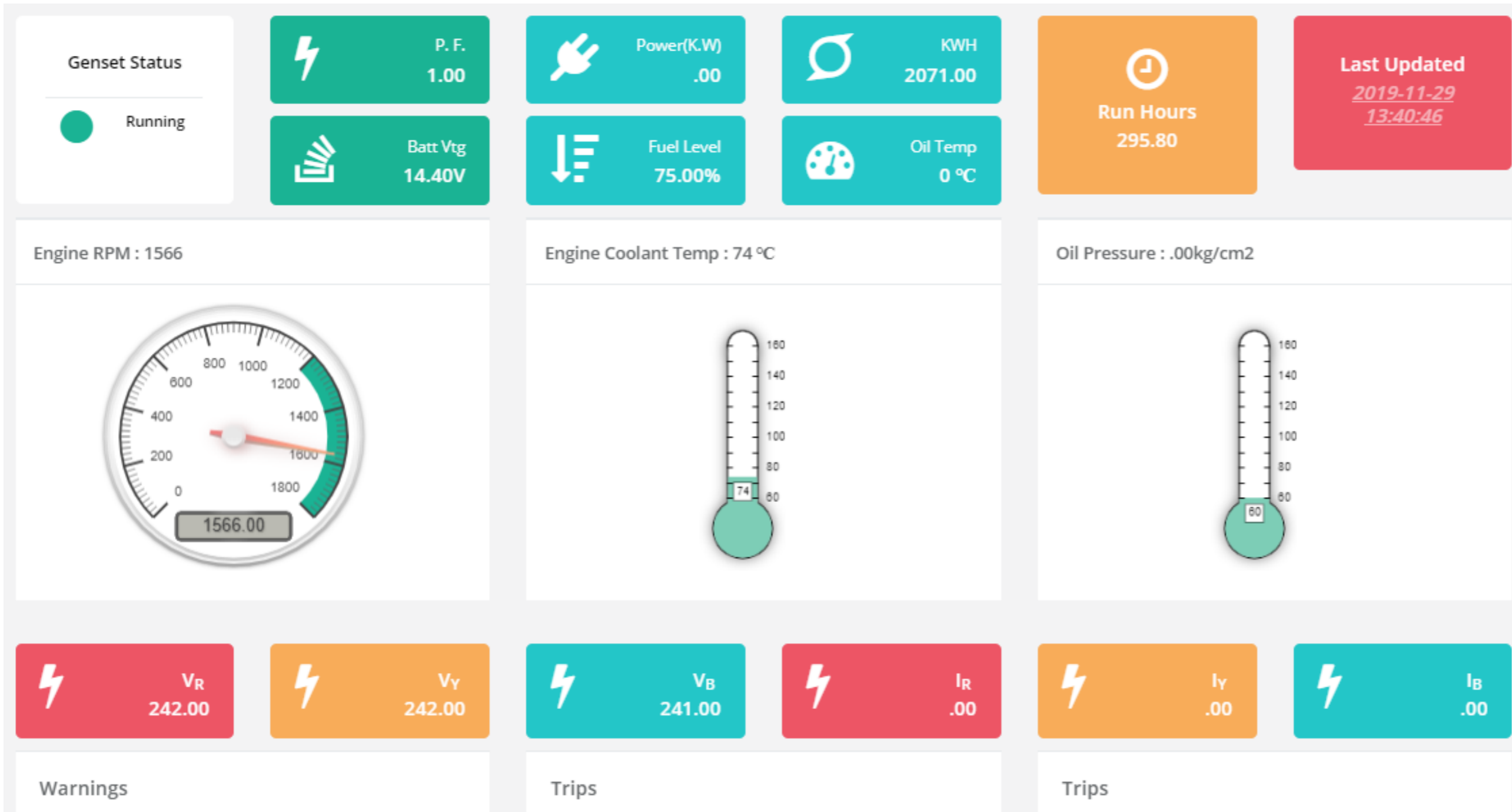
 Controller Off (332)

# Sample Application Snaps

Bird Eye View

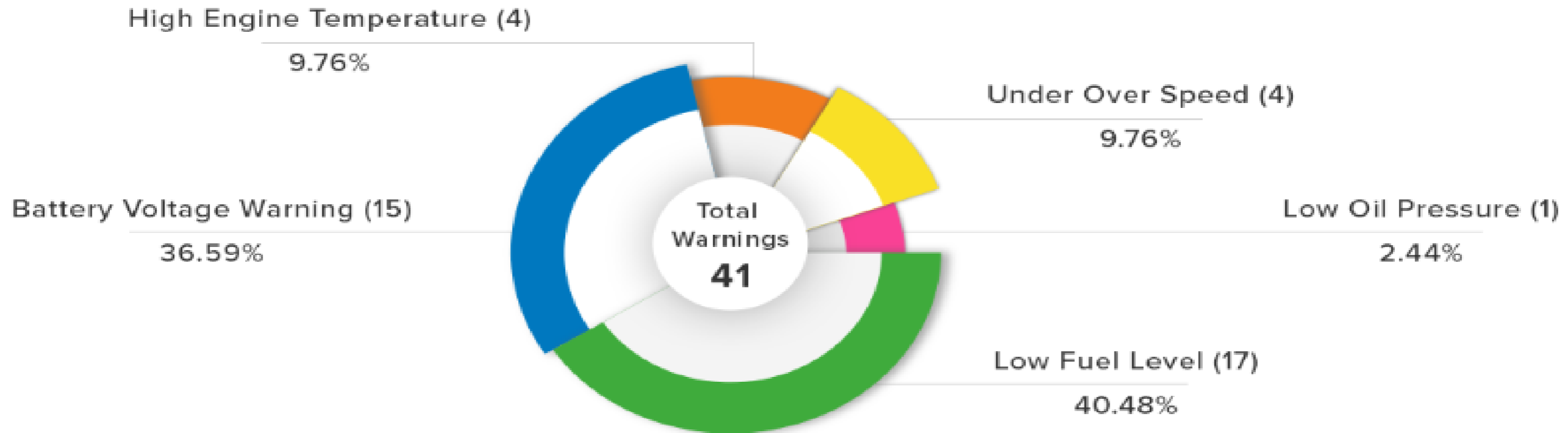


# Sample Application Snaps



# Sample Application Snaps

## WARNING



Low Oil Pressure (1)



Battery Voltage Warning (15)



Low Fuel Level (17)



High Engine Temperature (4)




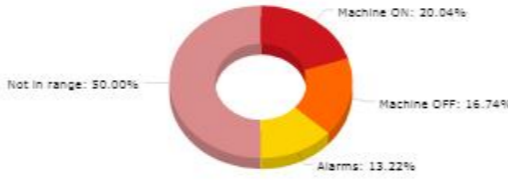
Under Over Speed (4)



Over Load Warning (0)

# Sample Application Snaps





Machine ON: 20.04%

Machine OFF: 16.74%


Alarms: 13.22%

Not in range: 50.00%

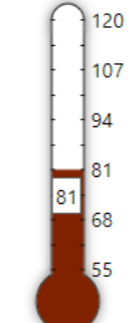
Machine Number: TEP740B2EJ1012554  
KRM Number: 30000142

Last Date Time: 2018-03-22 17:19:16  
Machine Status: ON  
Signal Strength: 56.25


**RPM: 1000**



**Temperature: 81 °C**



**Fuel Level: 65%**



North	North Central	East	South	West
Total : 45	Total : 60	Total : 74	Total : 88	Total : 106
ON : 3	ON : 13	ON : 17	ON : 15	ON : 38
OFF : 5	OFF : 11	OFF : 8	OFF : 14	OFF : 32
Alarms : 7	Alarms : 10	Alarms : 11	Alarms : 22	Alarms : 6
Not in range : 37	Not in range : 36	Not in range : 49	Not in range : 59	Not in range : 36

Backhoe Hour : 143:11  
Loader Hour : 76:23

Total Running Hour : 219:34

Backhoe  Loader

**Alarms**

High Temperature:

Low Fuel Level:

Low Oil Pressure:

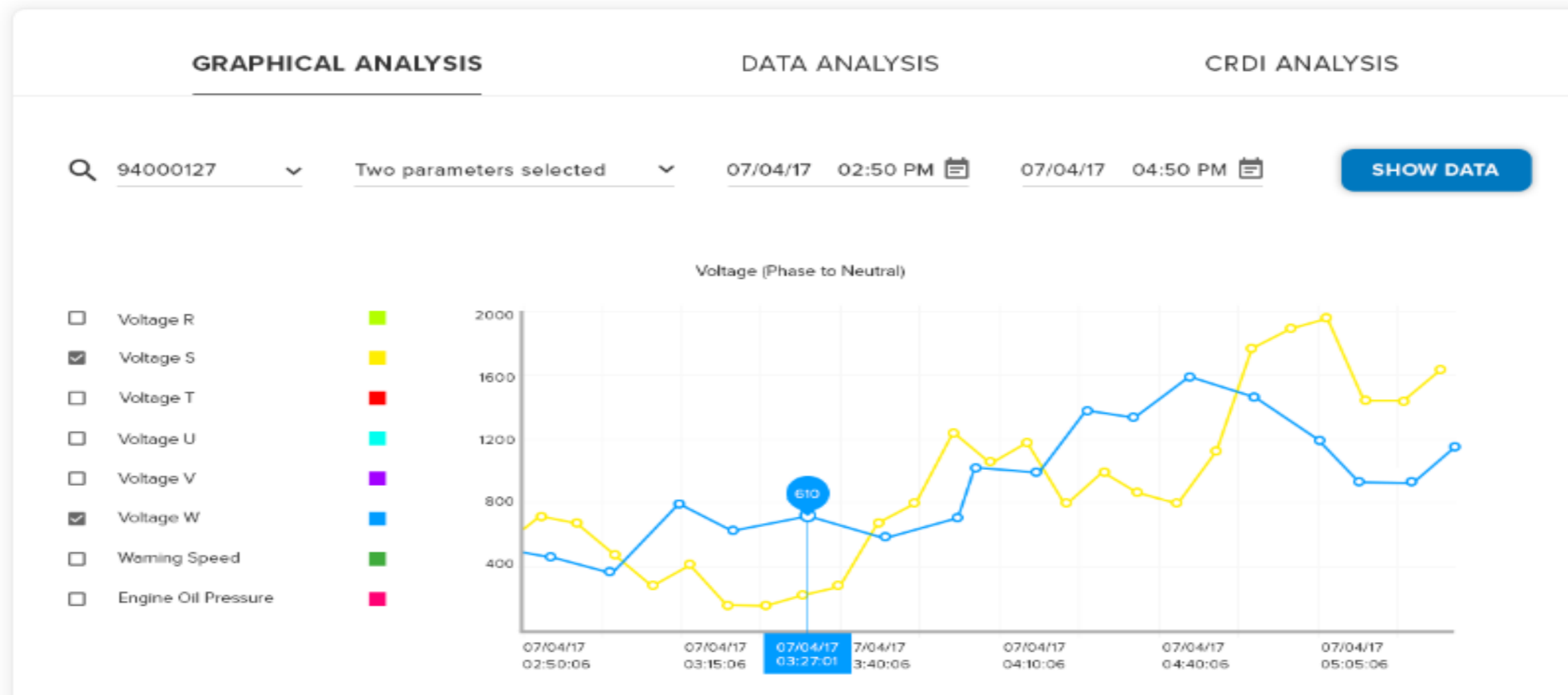
Hydraulic Filter Clog:

**Preventive Maintenance Schedule**

No Preventive Maintenance Schedule

# Sample Application Snaps

Welcome, Amin2 - Area Officer





# Sample Application Snaps

Welcome, Amin2 - Area Officer

GRAPHICAL ANALYSIS

**DATA ANALYSIS**

CRDI ANALYSIS

🔍 92000564 ▾ 07/04/17 02:50 PM 📅 09/04/17 04:50 PM 📅

SHOW DATA

EXPORT FILE

Unit ID	Clock Time	IR	IV	IB	U Voltage	V Voltage	W Voltage	UV Voltage	VW Voltage	WU Voltage	Genset Total Power Factor	Genset Total Active Factor	Engine Speed RPM	Engine Coolant RPM	Engine Oil Pressure	Oil Temp	Fuel Level	Battery Voltage
92000564	07/04/17 02:50:06	363.00	360.00	359.00	240.30	240.60	240.50	417.20	416.30	416.60	.77	207.70	1500	73	4.02	.00	.00	28.10
92000564	07/04/17 02:50:06	363.00	360.00	359.00	240.30	240.60	240.50	417.20	416.30	416.60	.77	207.70	1500	73	4.02	.00	.00	28.10
92000564	07/04/17 02:50:06	363.00	360.00	359.00	240.30	240.60	240.50	417.20	416.30	416.60	.77	207.70	1500	73	4.02	.00	.00	28.10
92000564	07/04/17 02:50:06	363.00	360.00	359.00	240.30	240.60	240.50	417.20	416.30	416.60	.77	207.70	1500	73	4.02	.00	.00	28.10
92000564	07/04/17 02:50:06	363.00	360.00	359.00	240.30	240.60	240.50	417.20	416.30	416.60	.77	207.70	1500	73	4.02	.00	.00	28.10

# Savings

KEY Areas	Monitoring Solution Impact	Description
Fuel Theft	↓	Due to Realtime time detection of fuel theft huge loss due to fuel theft will be decreased
Run Hours Mismatch	↓	Due to Realtime & accurate monitoring of Run Hours mismatch in billing will be reduced
Increased Life of Equipment	↑	Due to Proactive maintenance and service , there will be increased equipment uptime
Accurate parameter Monitoring	↑	Due to Realtime detection of parameters solution will help in increased equipment uptime
Reduced Compliance cost	↓	Due to daily monthly weekly reports and real-time information of critical parameters
Support & Maintenance cost	↓	Due to Realtime Monitoring of Equipment's operation. detection analysis and comparison of each days operational data.
Better Manpower Utilization & reduced cost	↓	Due to Remote Monitoring Solution manpower resource can be utilized on other operations and with better control on asset
Measurement of Load carried	↓	Reduced Mismatches loader weight in production

# Benefits to Business

- Improved monitoring as dependency on manual checks and reporting is eliminated.
- Realtime Productivity Analysis
- Proactive Maintenance
- Direct Visibility into the Operating parameters of the Equipment
- Increased Equipment Uptime & Accurate Asset Management
- Fuel Theft alert
- Threshold breach and Downtime Alerts
- Understanding Usage Patterns
- Efficient Resource Utilization & Helps to Minimizing the Manpower Cost & Administrative Cost
- Improved Service & support
- Helps in Minimizing the Service and maintenance Cost
- Helps in Automating workflows



# Our Differentiators

- **End to End solution:**
  - **Hardware design to production**
  - **Software application and Web services**
  - **Low cost of installation**
  - **Easy to deploy**
  - **Edge Analytics**
  - **99% Uptime**
  - **Low cost solution**
  - **Simple to operate**
  - **Hardware Durability**
  - **Custom Application**
- **Tier III Datacenter management**
  - **Database management**
  - **Security**
  - **Networking, etc.**
- **End to end support :**
  - **Deployment & Aftersales Support**



# Some of Our Esteemed Customers



Enriching Lives



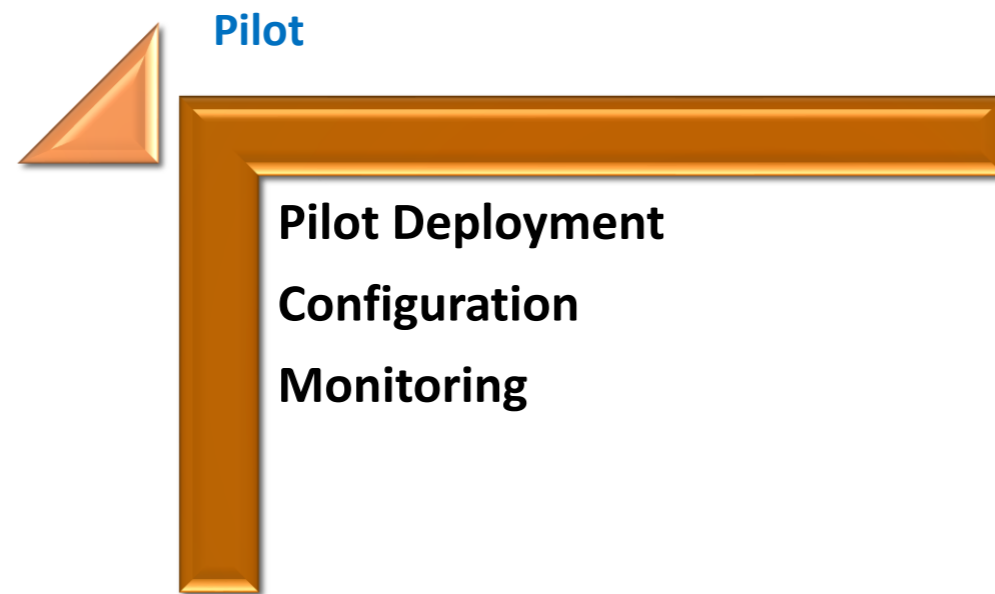
GODREJ & BOYCE



# Way Forward



## Full -Rollout



# Thank You



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