

RotationLFTM

Prediction with Precision

Scalable & Sensor Agnostics Analytics Platform



 **SERVIGE**

Nanoprecise 
Prediction with Precision

Enhance the Life of your Machines with RotationLF

Know holistic health of your rotating equipments and plan your maintenance activities in advance



Advance AI

We deploy customized AI based on the plant and equipment type, let it learn for few days using mix of supervised and unsupervised learning. It can learn in as little as 5 Days!



CEEMDAN

Higher efficiency signal processing with improved IMF separation because of adaptive noise



RPM to Fault Correlation

RPM to Fault Correlation eliminates 90% of the false negatives on the variable frequency equipment.



Wide Variety of Rotating Equipment

RotationLF suits almost all types of Motors, Pumps, Gearbox, Engines, Bearings, Turbines, Reactor, Generators etc. and detects various faults for different application.



Automated Fault Diagnosis & Recommendations

Automated AI based fault diagnosis of the equipment and also auto recommendations to take action.



Scalable & Portable

RotationLF is the most scalable AI based software that can be deployed on Private Cloud or On-premise. It can also be integrated with horizontal technologies for last mile automation with open APIs.

Enhance the Life of your Machines with RotationLF

Differentiate between process upset / variation and actual faults. Reduce false positives and ensure you have visibility on all serious equipment conditions.



STEP 1

Using AE

AE (Rubbing/Friction, Noise / Sound) is the best Signal & initial indication for any Early Stage Fault

To differentiate fault from varying process (Load/Speed/ Load & Speed) conditions



STEP 2

CEEMDAN

(High End Complex & Mathematical Modelling)

Most advanced signal processing & filtration technique in the academic world (Main Harmonics – Elec & Mech/Sub Harmonics/Side Bands)



STEP 3

Extract RPM & Fault Type

Use Vibration (Velocity / Acceleration / Displacement) to extract RPM at that instant & find fault types.



STEP 4

Remaining Time to Failure

Finding the component with least time to failure & hence for the machine



STEP 5





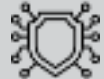

Correlate with temperature

Final check to determine the accuracy & give the algorithm that human feeling

Automated End-to-end Solution

World's only software that uses sophisticated CEEMDAN algorithm for early machine failure detection



 <p>Connectivity</p> <p>Various connectivity Options ESim / Cellular / Wifi 2.4/5ghz / NbloT / 4G / LTE</p>	 <p>Power</p> <p>Battery Powered sensor with 19000maH battery option. Simple plug play and forget</p>	 <p>Edge Processing</p> <p>Edge Processing- Smart Sensors processing data at edge, notifying about abnormalities in advance</p>
 <p>Real-time Alerts & Reports</p> <p>NanoAI alarms sent via sms and emails along with prescriptive analytics to take actions</p>	 <p>Cybersecurity</p> <p>Cybersecurity- AES 256 - UL 2900-2-2 Advance Cyber security equivalent to Bank Grade Encryption</p>	 <p>User-friendly Dashboard</p> <p>Empowering User with right data at right time. Dashboard available on web & Android / IOS</p>



MachineDoctor™



RotationLF™

Enhance the Life of your Machines

Our automated AI based predictive maintenance solutions facilitate early detection of even small changes in machine operations well before they impact production or cause downtime.

Our IoT driven Predictive maintenance solution helps to reduce downtime, monitor, collect, exchange and analyze data from machines to enhance manufacturing processes



Round-the-clock monitoring



Integrates with MachineDoctor Sensors

The end-to-end solution works flawlessly.



Able to Ingest Existing Vibration Sensor Data

Leverage existing investments but move to advanced automated analytics.



Fault Characterization

Not just a notification for an anomaly. RotationLF tells you which component and what the actual fault mode is.



Predict Remaining Useful Life

Know when a machine is going to reach a serious condition or threshold that has a significant risk or failure.



Avoid Overload from False Notifications

Don't miss anything but avoid your team being overloaded with notifications.



NanoAI Alarms

Adaptive Thresholds based on your actual operations over time with range boundaries.



Save time – No Threshold Setup

This is all done for you through a combination of ISO standards and the AI learning phase. Trivial on 10 assets but crucial when you want to go to scale.



Faster ROI

No need to spend months providing data for a traditional data science project to create value. RotationLF is set up to start driving value in as little as 5 days.

Machine Health Diagnostics

MachineDoctor is easy to configure, enables smoother movement, and synchronizes with our IOS and Android applications. It feeds directly into our Analysis Software RotationLF.



Insights



Diagnosis



Action



Benefits



Reduced Unplanned Downtime



Maximizes Asset Life



Optimizes Maintenance Budgets and Resources



Offers Insights and not mere Alerts



Reduced hazardous area exposure for your team with automated data collection.



Dedicated DIY App for self configuration without having dependency on the OEM

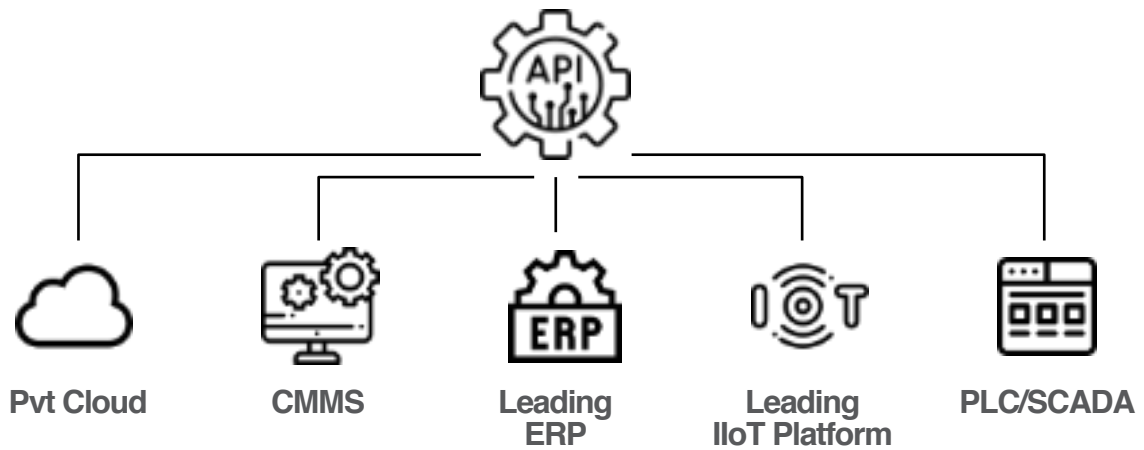
Applications



Motor, Pump, Gearbox, Compressor, Engines, Fans, Ball Mills, Centrifuges, Mobile Equip. and More!

Last Mile Automation

OPEN APIs - Can be integrated with Leading Horizontal & Vertical Technology Stacks

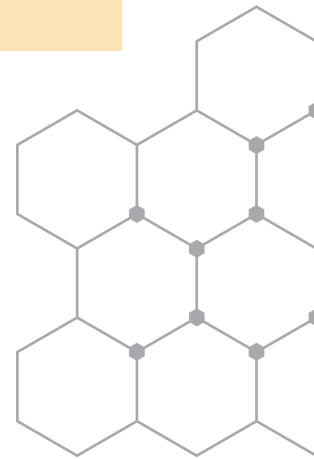


Industries that we Serve



RotationLF features

<p>Central Dashboard</p>	<p>Multiple Plants in One Screen Auto Sorting and Filter based on Health Status Number of Equipment Sets Affected Plant Wise Equipment List, Health Score & Health Status Easy to Understand - Green , Yellow, Red indicators for Equipment Sets</p>
<p>Equipment Dashboard</p>	<p>Health Status of Each Piece of Equipment Remaining Useful Life or Remaining Time to Failure Pin Pointing of Faults - Failure Initiation Fault Prediction & Prescription Recommendations</p>
<p>Sensor Health Dashboard</p>	<p>A separate Dashboard for Sensor Health Battery & Network Status of Sensors Data collection status of sensors</p>



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