



Motor ... AI-powered anomaly detection and lifetime prediction solution for industrial rotating machinery

With MRX Motor, leverage AI to predict failures and calculate remaining lifespan for industrial rotating machinery, reducing downtime and enhancing production line efficiency.

In the manufacturing industry, the reliability and efficiency of rotating machinery are critical for maintaining production line stability and ensuring peak output. Yet, these vital assets often face threats such as overheating, wear and tear, lubrication failures, and mechanical shocks, all of which can result in expensive downtime.

MRX Motor differentiates itself with advanced wireless vibration sensors, engineered for the varied demands of manufacturing environments. These sensors efficiently capture critical data, which is subsequently preprocessed and channeled into a streamlined data pipeline. The system provides AI-powered, real-time insights via an intuitive dashboard, empowering stakeholders to make informed decisions promptly.

By harnessing a deep learning model (Semi-supervised novelty detection), MRX Motor excels in vibration analysis, offering a proactive stance in identifying potential issues with machinery. This vigilance is key in preempting anomalies, minimizing unplanned downtime, elevating production yield, and fine-tuning maintenance routines—substantially boosting operational efficiency and cutting costs.

- Motor • Pump • Compressor • Conveyor belt • Turbine • Fan Blowers • Turboexpander • Gearbox • Agitator • Diesel/Gas Engine

Applicable Equipment

Role-Specific Benefits

Field Engineers

Boost maintenance efficiency with AI-powered alerts for anomalies, enabling proactive measures and rapid action to prevent costly breakdowns

Facility Management Department

Plan maintenance and equipment purchases strategically with precise lifespan predictions, decreasing downtime and boosting productivity

Data Analysis/AI Research Department

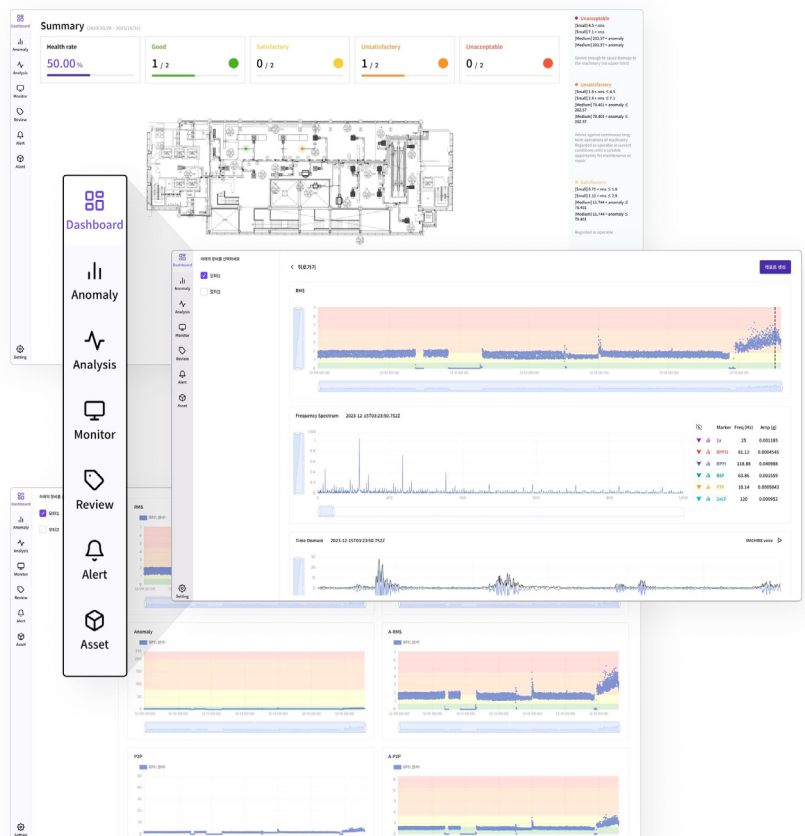
Speed up data management and AI development with advanced data pipeline tools, increasing research productivity

Decision Makers

Gain immediate, actionable insights with intuitive dashboards for smarter, faster decision-making and operational optimization

Motor Manufacturers

Integrate our intelligent solutions into your production lines to enhance motor performance and market competitiveness, ensuring seamless operation from the start



MRX Motor Dashboard

Motor

Use Case | Battery

Achieving 91% accuracy in anomaly detection for 12 small rotating machines in the electrode manufacturing

Challenges

- Engineers faced extreme heat and noise, hindering the effective manual detection of anomalies in rotors
- A single rotor failure could halt production, leading to major losses
- Emergency maintenance due to breakdowns significantly increased labor and maintenance costs

Approach

- Deployed advanced sensors in challenging environments for accurate data collection
- Defined clear, sensor-based criteria for anomaly detection, reducing dependency on field engineers' subjective assessments
- Developed a robust framework for the rapid analysis of vibration data, facilitating swift diagnostics with pre-trained models
- Streamlined the AI model retraining and redeployment process with an advanced operational environment

Value Delivered

- Achieved a high anomaly detection rate of 91%
- Prevented production downtimes and minimized costs with predictive maintenance for 12 rotating machines
- Reduced the need for on-site engineering interventions, cutting operational costs
- Improved equipment lifespan predictions, decreasing the time needed for maintenance or replacements

Key Features

Effortless Sensor Installation

Quickly mount certified wireless IoT sensors in complex settings for streamlined, safe data collection

Advanced Data Collection

Utilize state-of-the-art IoT technology for robust and flexible data capture in any manufacturing environment, adaptable to both cloud and on-premise environment

Enhanced Data Preprocessing

Streamline the analysis with precise preprocessing of vibration data from diverse rotating machinery

Rapid AI Deployment

Accelerate operational improvements by deploying proven AI models across various manufacturing sectors, including automotive, battery, semiconductor

Intuitive Real-time Monitoring

Monitor equipment status through user-friendly dashboards, featuring anomaly alerts for proactive management

MakinaRocks

Accelerating the industries' transition to AI

MakinaRocks is a pioneering leader in enterprise AI software for the global manufacturing industry. Dedicated to accelerating the industries' transition to AI, MakinaRocks integrates its enterprise MLOps platform with cutting-edge AI technology to empower businesses in optimizing operations and unlocking value with its end-to-end AI solutions. Specializing in advanced anomaly detection and process optimization, our offerings are meticulously crafted for sectors, including automotive, semiconductor, battery, and chemicals.



makinarocks.ai
contact@makinarocks.ai

Trusted by global manufacturing leaders

