NASSCOM®
Center of Excellence-IoT & AI
A MeitY Initiative with Govt. of Karnataka, Haryana, Gujarat & AP

Nanoprecise
Prediction with Precision

Case study – Bearing Outer Race Failure Detection

Nanoprecise helped a Fortune500 customer to prevent losses from frequent machine failure by deploying predictive maintenance solution saving downtime cost of $145,000

Problem statement

One of the Fortune500 customer was facing challenge of frequent unplanned failure of machines. It resulted into plant shutdown and loss of production hours. The company wanted to implement a predictive maintenance solution to detect faults at an early stage and provide a reliable prediction of Remaining Useful Life (RUL).

Description of the solution

Nanoprecise installed strong battery-powered wireless sensors and AI-based RotationLF platform thereby deploying an integrated predictive maintenance solution. Once installed, the sensors started monitoring equipment sets and sent data to our RotationLF platform through an encrypted & secured network using Edge and Cloud computing. As system received the data, the RotationLF platform performed data analysis using highly sophisticated algorithms.

Business impact / RoI

The RotationLF analytics sensed & detected the anomaly in the pattern and alerted the plant staff about this unusual trend automatically through mobile text and email alert. The maintenance team used a handheld vibration meter to verify the fault detected by RotationLF. They visually confirmed that the bearing was damaged. The RUL prediction of 37 days to failure provided sufficient time to schedule the pump repair during an already planned maintenance outage.

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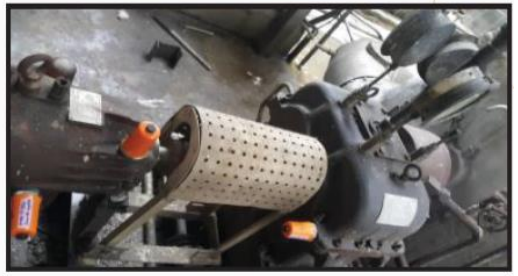
Photographs of Solution deployed:



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Top 10 Industry 4.0 Use cases

1 Manual data & process management
Solution: Shop floor digitisation using AI and analytics
Business benefit: Process improvement, paperless operation, high productivity and efficiency

2 Manual inventory management
Solution: Paperless inventory management using AI & Analytics
Business benefit: Lower material management cost

3 Frequent machine failures
Solution: Predictive maintenance using IoT, AI and Analytics
Business benefit: Planned shutdown, lower production loss, lower machine failure cost

4 High Energy Cost
Solution: Smart Energy Management using AI, ML and IoT solutions
Business benefit: Improved energy efficiency

5 Product quality issues
Solution: Computer Vision/IoT Solutions for Quality Inspection
Business benefit: Better quality control

6 Low market reach
Solution: VR based plant visits
Business benefit: Better customer reach

7 Remote customer / expert support
Solution: AR/VR based solutions
Business benefit: Quick problem solving, remote outreach

8 Managing worker health & safety
Solution: AI & IoT based remote monitoring of worker's health
Business benefit: Better worker mgmt.

9 Compliance Management
Solution: Computer vision and AI based solutions
Business benefit: Safety & Compliance

10 IoT security
Solution: Cybersecurity based solutions
Business benefit: Data protection, User access control, better security