Wi-Nostix

Purpose

- Wi-Nostix is a solution that allows your railroad or rail agency to use advanced analysis of existing onboard locomotive data to receive actionable alerts on impending failures. Predictive maintenance reduces cost and drastically streamlines maintenance procedures by isolating issues that are verified through data.

- By adding the critical human element to advanced data analysis, Wi-Nostix gives your railroad an accurate, unprecedented look into locomotive health.

What is Wi-Nostix?

- Predictive and prescriptive maintenance/diagnostics
- Software-as-a-Service (SaaS)
- Machine learning
- Internet of Things (IoT)

What is Wi-Nostix?

- Locomotive system data gathered
- Statistical model built of "normal" engine function and behavior
  - This is used as a baseline for determining abnormalities or deviations.
- Train continues operating
- Adjustments are made to perfect the Wi-Nostix model based on operator behavior and use, using machine learning

What is Wi-Nostix?

- The system detects patterns that deviate from normal operating patterns (ex.: crank case pressure too high).

- Such abnormalities or deviations are scored with confidence ranking of severity, using statistics (ex.: Priority 1)

- Visualization

What is Wi-Nostix?

- Wi-Nostix predicts the estimated time of future failure

- Determining the best course of action to correct the error and prevent a failure

- Wi-Nostix engineers work with railroad personnel to communicate recommended action to prevent failure

- Your railroad corrects the issue and communicates back to Wi-Tronix, confirming the issue was valid

Use cases

Use case: engine save

- **Scenario:** Major maintenance on locomotives just completed. Locomotive 118 received an engine overhaul and was released back into service.

- **Issue:**
  - Railroad Maintenance Supervisor and Wi-Nostix engineers received a Priority 1 alarm that 118 was logging excessively high engine exhaust temperatures
  - Wi-Nostix engineers quickly investigated and quickly found throttle was creating insufficient boost, causing high engine temperatures
  - Locomotive was taken out of service and mechanical personnel were deployed to find the engine issue on 118 and make proper repairs

- **Diagnosis:** Burst turbocharger air supply hose to the aftercooler had not been correctly reattached following the engine overhaul

- **The save prevented:**
  - Reactive (post-failure) maintenance
  - Negative impacts to network velocity
  - Delays to customer, delays in lading
  - Trackage overstay penalties

Estimated savings of catching imminent failure: >$10,000

Use case: defective injector

- Issue:
  - Exhaust temperature was registering too high for cylinder 1, creating a Wi-Nostix Priority 1 alarm
  - Wi-Nostix engineers investigated the engine history for recurring issues and discovered the cause of the high temperature

- **Diagnosis:** No. 1 injector was defective, which caused overheating and low fueling when cold and over-fueling when hot

- **Resolution:** Maintenance team checked the engine and confirmed No. 1 injector was defective and replaced it

- **The save prevented:**
  - Reactive (post-failure) maintenance
  - Negative impacts to network velocity
  - Recurrence of known issue

Estimated savings of catching imminent failure: >$2,500

For more information:

Sales@Wi-Tronix.com