

KinetiX | Inspection Technologies



AXLE
NUT
MISSING



MISSING
COUPLER
PIN



BROKEN
FLOOR
SUPPORT



Wabtec
CORPORATION

KINETIX INSPECTION TECHNOLOGIES

Keeping railway assets
in motion

How can you make your operation faster and more efficient while helping to ensure optimal performance and safety?

In today's challenging environment, many railroads struggle with asset condition, situational awareness, and a workforce in transition.

RAIL OPERATORS NEED THE ABILITY TO

Streamline inspections and operations:
Automate inspections. Improve accuracy.

Increase asset reliability and availability:
Preempt issues. Maximize workforce. Reduce cost.

Improve safety and compliance:
Mitigate incidents. Protect personnel.

Increase situational awareness:
Maintain visibility. Execute efficiently.



IMPROVE ASSET PERFORMANCE, REDUCE MAINTENANCE COSTS, AND MINIMIZE TRAIN DELAYS.

Railroads worldwide face a common challenge: how to maximize the operational availability and reliability of rail assets while minimizing costs. Within every trip, there are hundreds of variables that when not maintained properly, can reduce fuel efficiency, shorten maintenance intervals, degrade asset life, or even bring the mission to a complete halt, resulting in costly network delays and service interruptions.

KinetiX Inspection Technologies delivers the next generation of automated rolling stock, inspection, and maintenance optimization.



WAYSIDE

Identify and manage the factors impacting asset reliability – automatically.

KEY TECHNOLOGIES

Advanced vision systems
 Bayesian image processing
 Acoustic sensors
 Thermal sensors
 Vibration sensors

Automated Asset Monitoring

Highly detailed condition assessment of train components, ranging from wheel surface condition to full train inspection, while operating in service and at high speeds.

Optimized Maintenance

Identify defects for proactive maintenance and optimized life cycle management.

Advanced Analytics

Machine vision algorithms tailored to customer inspection requirements

01

REDUCE TRAIN DELAYS

Increase the reliability and availability of rolling stock assets through automatic measurement and inspection at track speed.

02

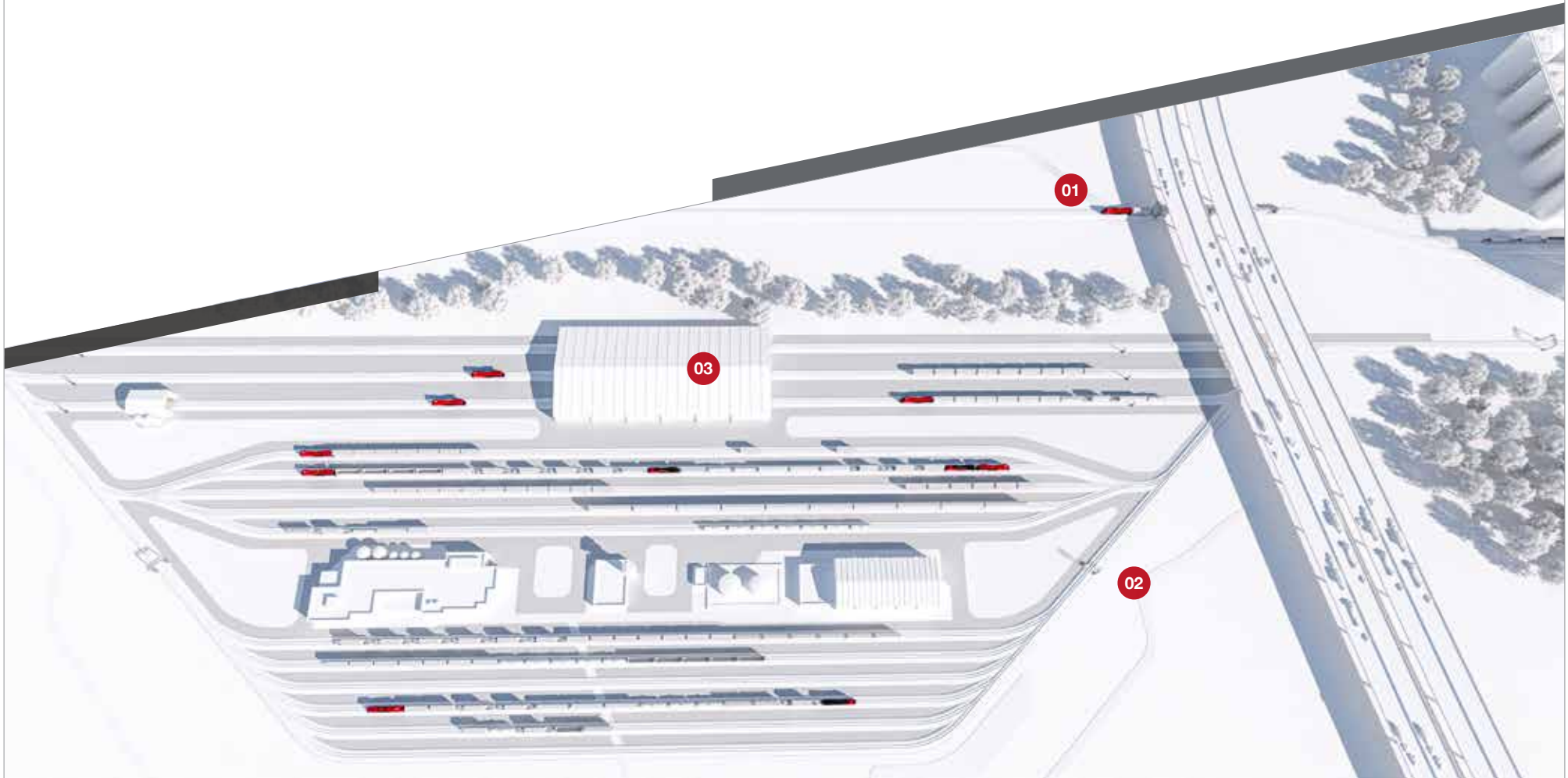
INCREASE WORKFORCE PRODUCTIVITY

Streamline and automate inspections through continuous condition monitoring with machine vision, powerful sensors, and AI-driven analytics.

03

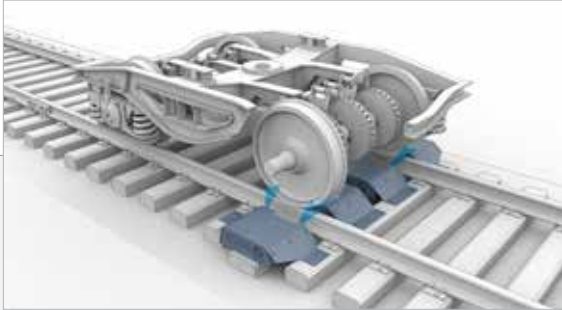
BOOST OPERATIONAL EFFECTIVENESS

Empower your workforce and optimize the life cycle of critical assets with web-based access to data visualization, alarm management, and analytics.



Solutions Showcase **Machine Vision**

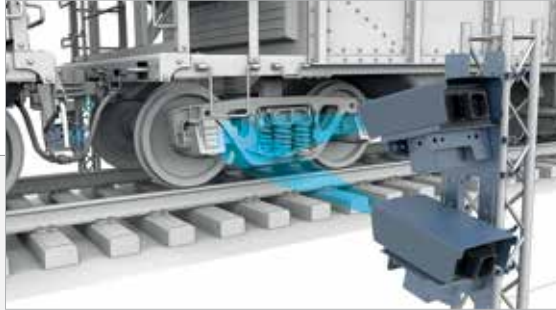
Wayside Inspection



WHEEL PROFILE MEASUREMENT

WheelView[®]

- Full wheel profile
- Flange height
- Flange width (thickness)
- Flange slope
- Tread hollow
- Rim thickness
- Back-to-back (B2B)



BRAKE INSPECTION AND MEASUREMENT

BrakeView[®]-Shoe

- Shoe thickness in top and bottom positions
- Shoe wear profile
- Shoe position with respect to the wheel surface
- Missing key detection
- Missing shoe detection
- Shoe securement key length



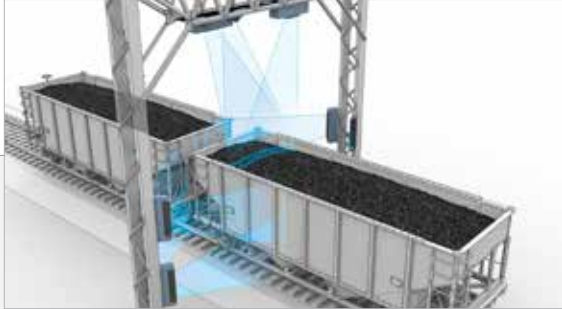
RAILCAR STRUCTURAL COMPONENTS + UNDERCARRIAGE

CSCView[®]

- Floor support inspection
- Center sill crack detection
- Brake beam inspection
- Missing bolt(s) detection: coupler and draft gear carrier plates
- Missing knuckle pin detection
- Missing uncoupling lever detection

Solutions Showcase **Machine Vision**

Wayside Inspection



FULL SCALE TRAIN IMAGING & INSPECTION

TrainView[®]

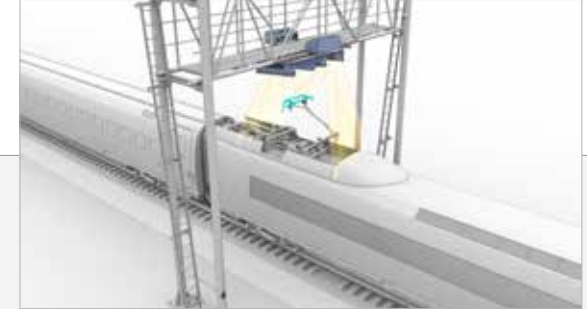
- Wagon tag identification
- Missing/damaged reflective decals detection
- Missing label holder detection
- Missing brake wheel detection
- Missing/broken shedding shields detection
- Bent top chord detection



TRUCK (BOGIE) INSPECTION

TruckView[®]

- Wedge height
- Bolster height
- Spring nest height
- Spring inspection
- Missing bearing cap and cap bolts
- VTA valve inspection
- Missing R-clip and clevis pin detection



PANTOGRAPH INSPECTION

PantoInspect

- Missing carbon, Vertical crack
- Edge chip
- Abnormal wear
- Remaining carbon
- Asymmetry
- Uplift displacement, Uplift force
- Horn displacement, Missing horn
- Roll angle, Yaw angle, Pitch angle
- RoofCam

Solutions Showcase

Acoustic, Thermal, and Vibration Monitoring

Wayside Inspection



BEARING ACOUSTIC MONITOR

RailBAM

- Axle bearing faults
- Beam forming technology
- Multiple bearing classes
- Axle count
- Aar rules compliant
- Early and consistent fault detection
- Fleet-wide data
- 1b variant targets:
 - Inboard axle journal
 - Gearboxes
 - Suspension/u-tube bearings
 - Traction motors

Example measurements and inspection



WHEEL CONDITION MONITOR

WCM

- Wheel impact detection
- Weight measurements for wheel, axle and vehicle
- Reporting overloading at different levels
- Vehicle end-to-end (ETE) and side-to-side (STS) imbalance
- Detection and reporting of poor wheel load distribution
- Detail surface defect detection via imaging systems (optional)



THERMAL MONITORING SOLUTION

HBD

- Thermal monitoring solution
- The Hot Box Detection (HBD) System identifies and records temperatures of standard axel, wheel, and braking systems
- Detecting hot bearings, wheels and defective brakes with high reliability and not subject to the failure modes of an externally calibrated relative temperature reading



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Inspection
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