# KAWASAKI LOCOMOTIVE MOUNTED AUTONOMOUS TRACK COMPONENT MONITORING SYSTEM

Kawasaki successfully completed field testing of a locomotive mounted autonomous fastener monitoring system in Japan and North America in 2023. The System utilizes AI/ML recognition, and high resolution cameras to identify potential track fasteners that need to be inspected and repaired. Production units are now available for installation! Kawasaki is expanding this system to include other track component monitoring including, ties, ballast, joint bars and more.

Fastener Monitoring

Find missing fastener using AI/ML algorithm. Red area looks spike, but it is ballast stone. AI/ML correctly detects it and writes exceptions based on the customer's rules.
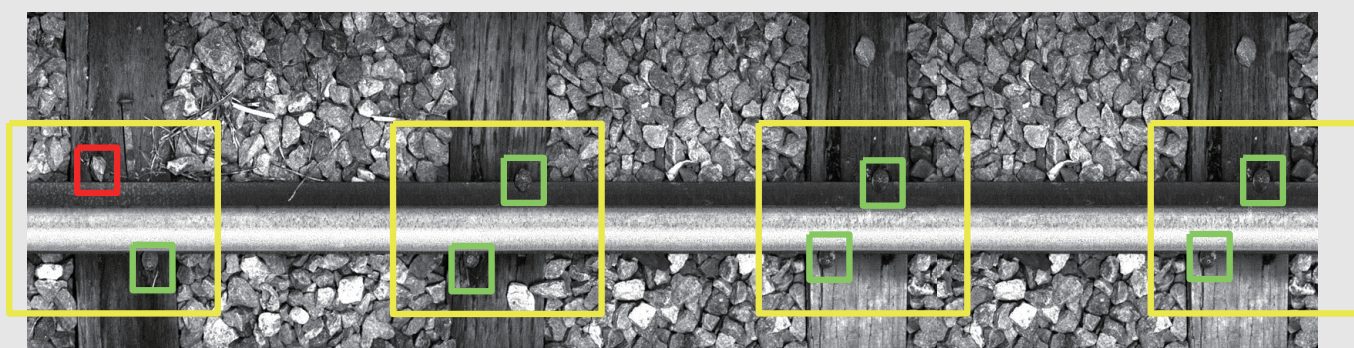
Example ▢ Failure ▢ Good

Features and Benefits

- High-frequency and autonomous measurement
- Near real time and highly-accurate data
- Light weight and compact size for locomotive install
- Use custom AI models to enable more inspection types

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Technical Specification of
Kawasaki Locomotive Mounted Track Component Monitoring System

Equipment	Camera Unit	Radar Speed Sensor	DAQ and Communication Unit	Cellular and GPS Unit	Ethernet Hub and Power Unit	Edge Security Unit	Edge Processing Unit
Dimensions	20" x 14" x 11"	19" x 9" x 6"	15" x 14" x 5"	11" x 10" x 4"	14" x 13" x 7"	12" x 7" x 4"	15" x 11" x 5"
Weight	38 lbs	10 lbs	27 lbs	14 lbs	37 lbs	6 lbs	35 lbs
Dust and Water Proof	IP 66		IP 54				N / A
Quantity / Locomotive	2	1	1	1	1	1	1
General Requirement	IEC 60571						
Operating Temperature	- 22°F to 122°F	- 40°F to 158°F	- 40°F to 122°F				
Relative Humidity	Up to 95% no condensation						
Shock and Vibration	IEC 61373 category 1, class B						
Electromagnetic Compatibility	IEC 62236-3-2						
Operating Speed	UP to 80mph						
Operating Voltage	74VDC						