



Success Story: AI-Powered Revolution in Vehicle Inspections

Overview

A leading name in the automotive industry, known for its deep commitment to innovation and service excellence, had long been a trusted partner in vehicle inspections. With a solid track record of reliability and strong client relationships, the organization consistently met high standards. However, as demand grew and client expectations evolved, traditional manual inspection processes began to show their limits.

Challenges

Several operational hurdles surfaced- limited technician availability, constraints in real estate to park vehicles awaiting inspection, and the uncertain timeframes for evaluation, where vehicles might be inspected the same day or pushed to the next, depending on backlog. While a drive-through model offered some relief for space challenges, it didn't address the core issues of accuracy, speed, and scalability.

Manual inspections were not only time-intensive but also prone to inconsistencies and human error, with detection accuracy plateauing around 40–45%. The lack of real-time insights created bottlenecks and inefficiencies across the workflow, ultimately affecting productivity and customer satisfaction.

This organization wasn't just looking for automation- they wanted to go the extra mile. They needed a solution that didn't just digitize the existing process but reimaged it entirely, combining AI precision with thoughtful operational design. That's where our approach stood apart- not just a tech upgrade, but a full transformation that addressed root issues and unlocked long-term value

Discovery Phase Highlights

A structured and rigorous discovery process laid the groundwork for innovation



Critical Part Identification

Prioritized undercarriage, upper body & tires.



Defect Assessment

Mapped limitations of current manual inspections



Data Insights

Classified defects by severity & visibility for model training



Image Analysis

Captured imagery to enable automated AI-based defect detection



Feasibility Checks

Ensured system adaptability across diverse vehicle models.

The Solution: AI-Enabled Automated Vehicle Inspection (AVI)

To address the challenges of manual inspections and unlock long-term operational value, we introduced an AI-powered Automated Vehicle Inspection (AVI) system- designed to serve not just the business, but the people who drive it: customers, technicians, and decision-makers.

At the intersection of business goals, human needs, and technological innovation, AVI redefined what inspections could be:



AI-Driven Detection

High-resolution imaging combined with computer vision algorithms enabled the system to detect over 100 types of surface and structural defects- from micro scratches to dent patterns- with unmatched accuracy and consistency.

Automated Repair Mapping

Once issues were identified, the system instantly generated intelligent job cards that included:

- Estimated repair costs
- Severity grading
- Recommended action paths

This removed ambiguity for technicians and accelerated decision-making for managers.

Scalable, Brand-Agnostic Architecture

Built for multi-brand, multi-model environments, AVI adapted seamlessly across vehicle types and inspection protocols, ensuring flexibility as operations scaled.

Smart Dashboards for Decision Support

Custom dashboards provided real-time, predictive insights- empowering service advisors and technicians to prioritize work efficiently, cut down delays, and improve throughput.

Unified, Multi-Device Experience

From the inspection bay to the office, the system delivered a consistent experience across web, mobile, and tablet platforms, ensuring that users could access and act on information anytime, anywhere.

Feasibility & Component-Level Results



Upper Body

- Defects Identified: 42
- Resolved by Current AI Models: 42
- Needing Model Refinement: 7

Post-Development Status:
Enhanced with additional data inputs



Tires

- Initially Unsupported: No machine vision capability
- Upgraded: 6 defects detected using Bluetooth inspection tech
- System Expansion: Successfully integrated for scalable workflows



Undercarriage

- Defects Identified: 36
- Resolved by AI Models: 19
- Marked for Advanced Development: 9

Outcome: Improved accuracy with enriched datasets & model upgrades

Key Technical Outcomes



Efficiency

89% faster inspections (from 45 mins → 5 mins)
| **60%** increase in vehicle throughput



Detection Accuracy

100+ defect types identified | **80%+** detection accuracy (vs. 40–45% manual) | **111** defects detected in real-world pilot



Job Card Impact

158 job card items auto-generated |
30% increase in job card value



Cost & Component Coverage

50% reduction in inspection cost per vehicle
| **49** vehicle components analyzed using AI



Scalability & Technology

Multi-brand adaptable across models | Cloud + on-premise deployment-ready | Composable, cross-platform UX (web, tablet, mobile)



Enterprise Level Outcome

Through AI-driven automation and enterprise modernization, we:

- Transformed inspection workflows
- Enhanced technician productivity
- Reduced costs & improved accuracy
- Elevated customer satisfaction