TRANSFORMING LOGISTICS OPERATIONS: AGENTIC AI-POWERED WAREHOUSE AUTOMATION

DATAMATICS

The client is trusted freight transportation provider offering less-than-truckload (LTL) services across North America. With a strong focus on reliability, customer service, and innovative logistics solutions, they operate a vast network of terminals to streamline supply chains with precision.

The Challenge: Human Mistakes and Complexity in Shipment Verification

The client - a logistics company with rapidly expanding operations (by over 50 terminals in just three years), relied on dock workers to manually spot and flag oversized shipments.

With an ever-growing network and higher numbers of shipments being processed, the client's manual shipment size verification process turned out to be the major growth chokepoint. The business was counting on dock workers to catch size differences in shipments which was a vital process to provide accurate billing. But as traffic in shipments increased, manual checking couldn't keep pace. The inefficiencies weren't only impeding the workflow; it was also resulting in revenue losses because of incorrect billing charges. The logistics industry leader needed Agentic AI-enabled solution that would automate the process without compromising on accuracy, removing the element of human error, and enhancing overall efficiency.

The logistics behemoth was confronted with two key challenges.

- Manual errors were infiltrating the process, like objects being wrongly placed inside measurement zones, resulting in erroneous billing calculations.
- Measuring the base and dimensions of 3D objects was complex by nature. Conventional methods found it difficult to ascertain the right shape and size of irregularly shaped packages, resulting in inconsistencies in automated measurement systems.

These inaccuracies in turn impacted the logistics chain's billing process with financial leakage as well as operating inefficiencies. The company wanted to automate dimension verification of the shipment with precision while still incorporating human intervention if required.

The Solution: Agentic AI-Driven Shipment Verification

Datamatics tackled the issue by focusing on precise, automated measurements for irregular packages thus removing manual errors in shipment verification. Using its Agentic AI expertise, the team deployed KaiVision - a Vision based agentic AI solution that gets smarter with time.

Here's how the solution was carried out:

- Built a Vision AI Model for Precision Measurement: The team developed a mathematical model to find anomalies and fix errors in shipment dimensions, reducing reliance on manual checks
- Automated Detection and Flagging: Our computer vision system automatically identifies object dimensions and locations from shipment images, quickly flagging oversized items without human help.
- Integrated Multi-Camera Imaging: We installed cameras that capture packages from different angles. This setup allows the system to create accurate 2D images of 3D objects for precise base and dimension calculations
- Introduced Agentic AI Feedback Loops: Under an agentic AI feedback loop, human inspectors entered inputs when required, continually enhancing the model's precision.
- Eliminated Misplacement Errors: We designed algorithms to detect and correct objects that are wrongly placed in measurement zones, ensuring accurate billing measurements
- Minimized Manual Intervention: Most of the process is automated, but there is still an option for human oversight, balancing speed and precision.

The result was a smooth, highly accurate shipment verification process that not only improved billing accuracy but also reduced operational bottlenecks and lost revenue.

Impact: Redefining Efficiency, Cost, and Accuracy

80% Reduction in Costs

The use of open-source models dramatically lowered the cost of deployment while maintaining scalability

Near-Instant Processing

Shipment measurement decisions duration dropped to less than one second per package, streamlining high-volume operations

Enhanced Revenue Assurance

By eliminating miscalculations, the company significantly reduced financial losses, ensuring accurate and reliable billing

98% Billing Accuracy

The AI-human feedback loop minimized revenue leakage and ensured precision in billing calculations

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Datamatics enables enterprises to go Deep in Digital to boost their productivity, customer experience, and competitive advantage. Datamatics' portfolio spans across three pillars of Digital Technologies, Digital Operations, and Digital Experiences. It has established products in Intelligent Document Processing, Robotic Process Automation, AI/ML models, Smart Workflows, Business Intelligence, and Automatic Fare Collection.

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