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VISION AI SOLUTIONS

AI-powered identification and interpretation for accurate, real-time sorting decisions.

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Nowadays, sorting environments require increasingly near-real-time access to and processing of shipment-related data, such as barcode content, shipment labels, delivery addresses, and other visual parcel information. As volumes, operational demands, and complexity increase, reliable identification and interpretation of this data are essential to maintaining speed, quality, and operational efficiency, while enabling sorting operations to adapt to growing demands.

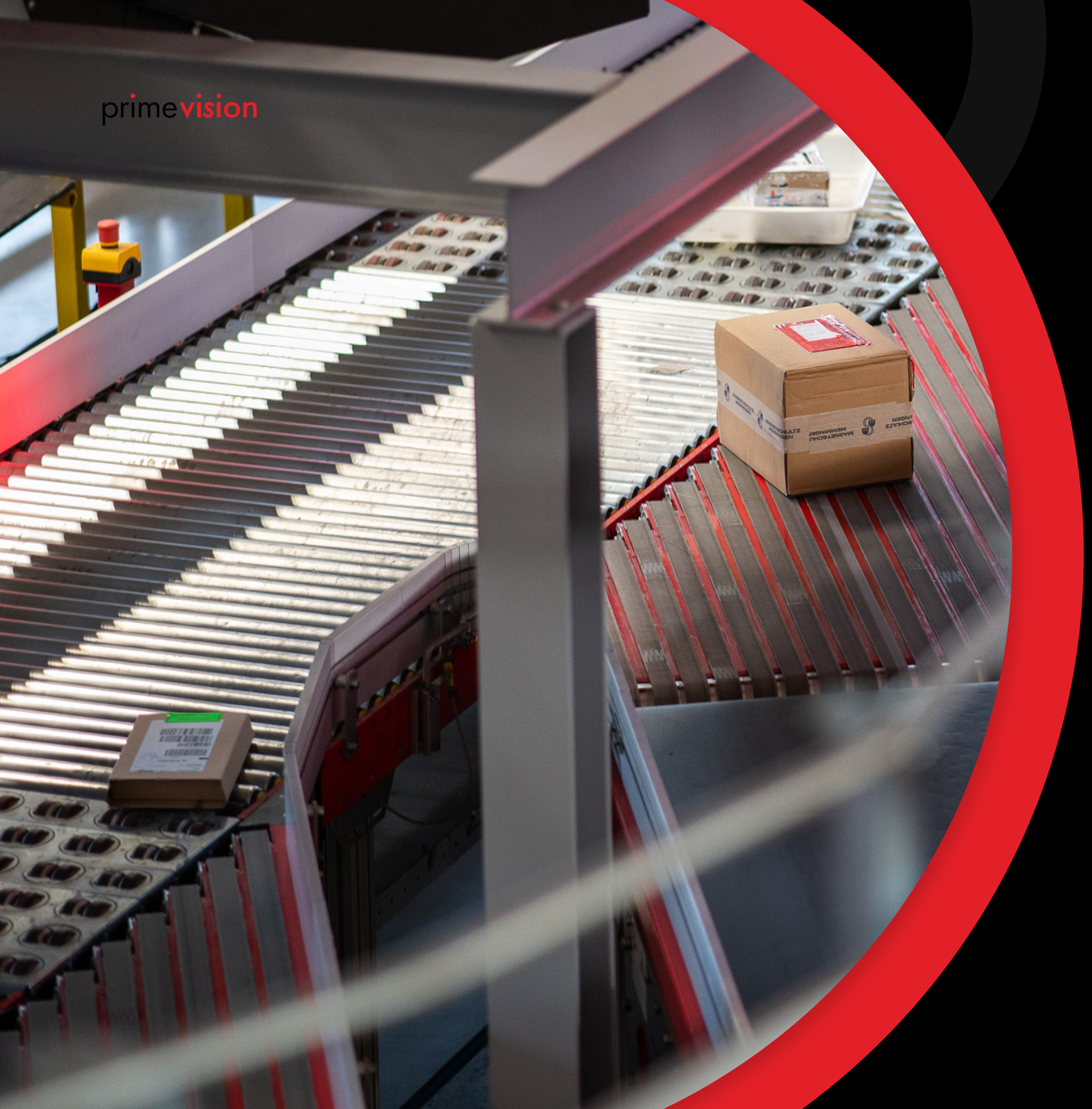
Prime Vision's new Vision AI platform provides access to a range of advanced solutions that combine AI and vision technology. These solutions help meet the growing demands of sorting operations by improving read accuracy, identification performance, and real-time decision-making.

The modular and extensible architecture of Vision AI allows organizations to easily build and scale computer vision capabilities as operational needs evolve. The platform is platform- and cloud-agnostic, supporting deployment across different operating environments and in any cloud environment, on-premises, or at the edge when real-time processing close to the source is required. Its open architecture also enables the integration of both Prime Vision and third-party solutions, allowing organizations to extend the platform with additional capabilities as their needs evolve.

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VISION AI SOLUTIONS INCLUDE:

- Address Recognition
- Computer Vision
- Enhanced Barcode Reader
- Video Coding
- Scene Understanding
- Address Data Enrichment



ADDRESS RECOGNITION

Address Recognition automatically reads and interprets address information on parcels within sorting and logistics environments.

WHAT IT DOES

Address Recognition uses advanced AI technology to detect and interpret both handwritten and machine-printed addresses. The system extracts structured address information such as street names, house numbers, postal codes, and cities, allowing sorting systems to route parcels accurately without manual intervention. The solution integrates directly with existing sorting environments and can operate as a primary identification method or as a reliable fallback when barcode identification fails.

KEY CAPABILITIES

- ✓ High address read accuracy using advanced AI models to accurately interpret both handwritten and printed addresses.
- ✓ Reduced manual coding by automatically extracting address information and minimizing human intervention.
- ✓ Address-based sorting support by providing structured address data to sorting and routing systems.
- ✓ Reliable fallback identification to identify parcels when barcode scanning fails or is unavailable.
- ✓ Seamless system integration with existing sorting machines and logistics platforms.





COMPUTER VISION

Computer Vision uses AI to understand parcel images, including printed and handwritten text, and extract the specific information needed for sorting and logistics processes.

WHAT IT DOES

Our Computer Vision solutions use AI technologies to understand and interpret parcel images, including printed and handwritten text, symbols, labels, and logos. They also identify parcel characteristics, such as the presence of multiple items (double items) and parcel type, thereby extracting the specific information needed for sorting and logistics processes.

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KEY CAPABILITIES

- ✓ **Automatic text detection to identify printed or written text and identifiers on parcels.**
- ✓ **AI-based recognition to convert visual text elements into structured digital data.**
- ✓ **Support for multiple label formats to interpret different text layouts and label types using AI-based models.**
- ✓ **Reduced manual processing by automating the interpretation of parcel information.**
- ✓ **Seamless integration to deliver extracted data directly to operational systems.**





ENHANCED BARCODE READER

The Enhanced Barcode Reader improves 1D barcode read rates by recovering barcodes that cannot be read by primary scanning systems.

WHAT IT DOES

When the primary scanner fails, the Enhanced Barcode Reader uses advanced image processing and AI-based recognition algorithms to analyze the parcel image. Unlike standard scanners, it combines barcode recognition with the text printed above or below the barcode to recover the barcode data. This reduces no-reads and minimizes the need for manual coding or fallback processes.

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KEY CAPABILITIES

- ✓ **No-read recovery to recover barcode data that primary scanners fail to read.**
- ✓ **Reduced manual handling by minimizing time-consuming fallback processes.**
- ✓ **Operational cost savings by reducing errors and manual interventions in sorting operations.**
- ✓ **Customer-specific configuration to tailor recognition logic to the specific characteristics of each operation.**





VIDEO CODING

Video Coding enables operators to interpret parcel information when automated recognition systems cannot determine the correct data.

WHAT IT DOES

Video Coding presents parcel images to operators through an intuitive graphical interface, allowing them to review and code missing or unclear information quickly and accurately. Smart algorithms assist the operator by automatically locating labels, rotating images, and zooming into relevant areas. The solution is also available with an offshore data-entry partner service and can be supplied as a full service, where Prime Vision takes care of all manual coding, allowing organizations to use external coding capacity without deploying their own coding infrastructure.

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KEY CAPABILITIES

- ✓ **Flexible deployment to operate locally, centrally, in the cloud, or through offshore coding environments.**
- ✓ **Smart-keying assistance to accelerate operator input with intelligent data entry support.**
- ✓ **Built-in quality control to validate coding results and ensure accuracy and consistency.**
- ✓ **Address database integration to connect to address databases for faster and more reliable coding.**
- ✓ **Training environments to improve operator performance through dedicated training modes.**





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SCENE UNDERSTANDING

Scene Understanding transforms video camera feeds into real-time operational intelligence. Using advanced AI technologies like Vision Language Models (VLMs), the solution goes beyond detecting individual objects to understand the context of what is happening within logistics and production environments.
By turning cameras into intelligent sensors, Scene Understanding helps organizations improve productivity, operational quality, and process transparency while supporting GDPR-compliant processing.

WHAT IT DOES

Scene Understanding analyzes video streams in real time to understand activities, interactions, and events within an operational environment. Using powerful AI models specifically optimized for logistics, it interprets video scenes by recognizing humans, machines, parcels, locations, movements, and actions.

By tracking objects, understanding their location, and recognizing events, Scene Understanding can alert operators to undesirable situations and help identify delays, errors, and inefficiencies. For example, it can detect a parcel moving through a sorting hub, falling from a sorting belt, or being picked up by a person.

These insights support real-time decision-making, process validation, and operational analysis. Applications include Proof of Sort, which verifies that parcels are placed in the correct destination, and Order Fulfilment Validator, which checks that packed items match the expected order before shipment.

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KEY CAPABILITIES

- ✓ Real-time scene interpretation to understand activities and events within logistics and production environments.
- ✓ Context-aware AI to interpret complete scenes using Vision Language Models rather than simply detecting individual objects.
- ✓ Process validation to automatically verify operational processes such as parcel sorting and order fulfilment.
- ✓ Error and inefficiency detection to identify delays, incorrect actions, and process deviations as they occur.
- ✓ Operational insights to generate detailed process statistics and actionable information that improve productivity and quality.
- ✓ GDPR-compliant processing to transform camera data into operational intelligence while supporting privacy requirements.





ADDRESS DATA ENRICHMENT

AI Data Enrichment brings together our expertise in address and logistics data with the capabilities of the Vision AI platform to improve data quality and support more accurate sorting and routing.

WHAT IT DOES

Our data enrichment services help validate, correct, and enhance address and logistics data using operational data and existing address intelligence. The Vision AI platform provides a foundation for adding AI capabilities to these services, creating opportunities for more intelligent and automated data enrichment over time.

Validated and enriched data can be used by sorting systems and routing platforms to improve address quality and support reliable delivery decisions.

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KEY CAPABILITIES

- ✓ Address data validation to verify and correct address information.
- ✓ Address learning to improve address information over time using operational data.
- ✓ Text-based data enrichment to enhance address information using additional text data.
- ✓ Vision AI foundation to provide a platform for developing AI-driven data enrichment capabilities.
- ✓ Integration with sorting and routing systems to make validated and enriched data available for operational use.



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