Getting Started with Warehouse Receiving Automation

A Vimaan eBook

Automation Inflection Point

Any warehousing professional attending ProMat or Modex can attest that the industry has reached the inflection point of warehouses embracing automation at the risk of falling behind their competition. The show floors are packed with goods to person solutions, sortation systems, AMR's and more, but for many warehouses, the process of accepting inbound goods has not improved in the past decade.

Forklift operators drive into an inbound container or truck, pick up a pallet and bring the pallet in through the dock door. The pallet is placed down, then an associate (or the driver) examines all visible faces of the pallet to identify the right barcode label and scans the codes using a slow performing barcode scanner. The pallet is also typically dimensioned and weighed (also manually). This process takes several minutes per pallet and occupies the time of both the associate, driver and MHE.

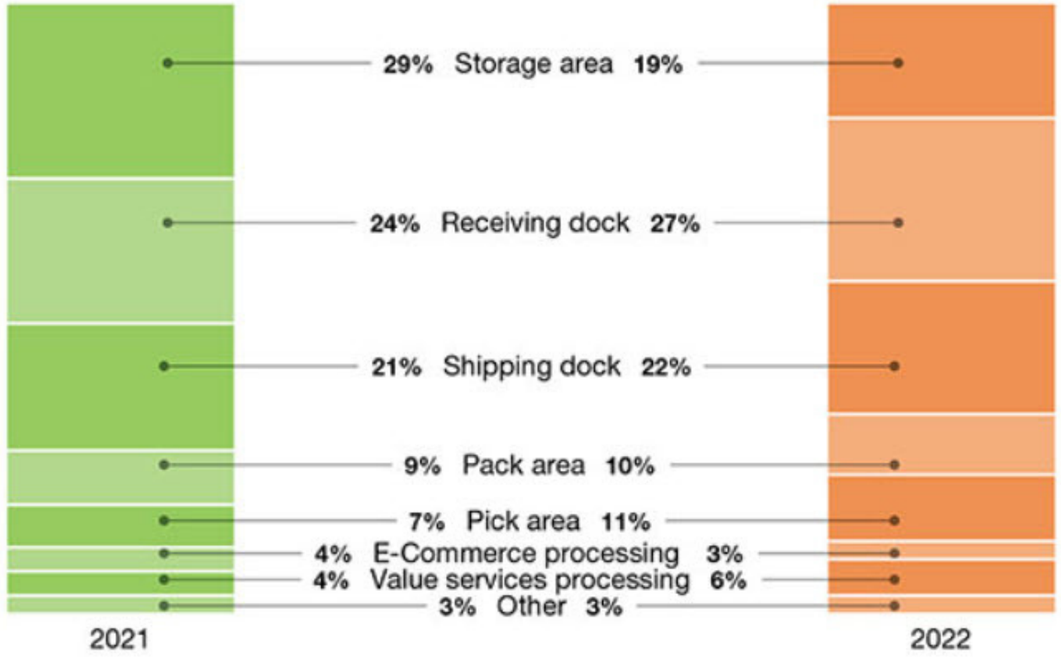
Warehouses still relying on labor for pallet receiving can improve speed and quality througb the use of automated pallet processing.

Pallet Receiving Clogs the Docks

Along with monopolizing the time of associates, this process takes up valuable receiving dock space. In most cases, the pallet needs to be inspected for damage, which is also time consuming. In the event there is damage, the process of capturing images or “proof” for insurance keeps inbound palettes and packages stuck at the receiving docks, delaying put-away and other downstream worklows.

These outdated tasks contribute to space utilization pains. A study conducted by Peerless Research Group (PRG) reported on warehouse areas that experience the greatest amounts of congestion. **The Receiving Dock is now the NUMBER ONE most congested area of the warehouse (followed by Shipping Docks).** While other areas have benefited from automation, the docks are in desperate need of process improvements.

Space utilization: The most congested area in warehouses



Source: Peerless Research Group (PRG)

Slow barcode reading, data entry, dimensioning, and visual inspections are highly manual and lead to the most congested area of the warehouse.

Get Started with Computer Vision

Relying solely on labor to ensure accurate warehouse receiving is a challenge for most 3PLs, DCs and Brands.

Vimaan solutions include a powerful combination of computer vision and sensors that automate inventory data capture, inspection, dimensioning and tracking of all incoming pallets and packages. This enables our customers to **reduce costs and reliance on manual labor,** while **receiving more reliable and higher quality data.** Vimaan supports **faster and more precise inventory data capture**, and even provides archived photographic evidence of condition and quantities of inventory entering the warehouse.

Establishing warehouse inventory tracking and accuracy starts with improved inbound receiving of pallets and packages.

Featured Solutions

VIMAAN

Automated Inbound Pallet Receiving

1 DockTRACK Pallet

Automated Inbound Parcel Receiving

2 DockTRACK Parcel

1 DockTRACK Pallet

Vimaan's DockTRACK Pallet solution completely automates, streamlines and digitizes the inbound pallet receiving process. Sensors automatically capture pallet labels from all visible sides of a pallet, inspect for damage and even measure package dimensions – all from simply driving or walking through a “gate”.

- **Reduces labor and MHE requirements**
- **Reduces clutter and real estate usage at the receiving gate**
- **Automatic WMS reconciliation**

1 DockTRACK Pallet

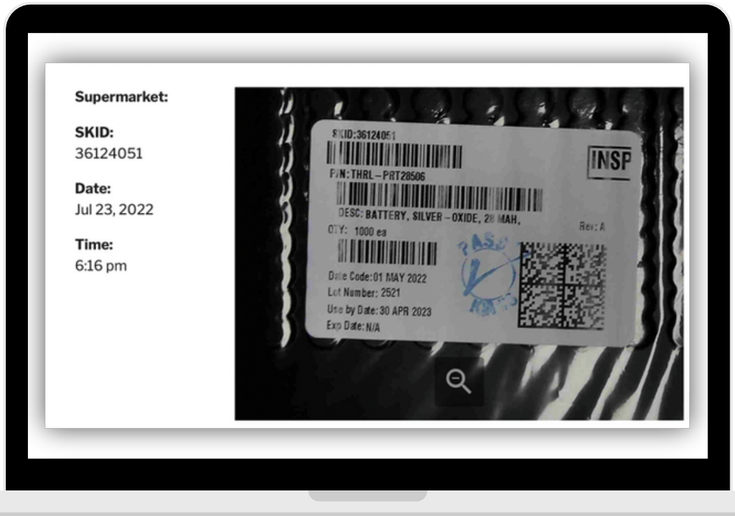
Featuring: 5 Sided Pallet Scan

5-sided pallet scanning empowers warehouses to scan and register **incoming and outgoing** inventory more efficiently. Typically, warehouse associates are still being asked to use **handheld readers** to scan barcodes on package labels (no matter where the labels may appear). Associates circle the pallets taking aim at one of the 5 sides to capture codes; and as any warehouse worker will tell you these handguns are less than reliable and often experience latency issues which further slows the process of pallet receiving. Additionally, warehouse associates are often required to manually enter additional inventory data that is not available in the barcode, which introduces additional challenges such as data entry inaccuracies and processing delays.

Improves pallet processing from ONE pallet every 3-5 minutes to THREE pallets a minute!

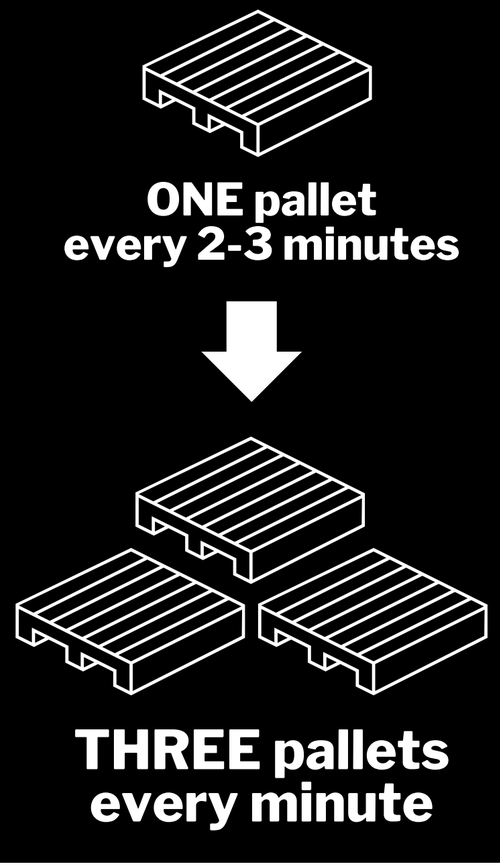
1 DockTRACK Pallet

Featuring: 5 Sided Pallet Scan



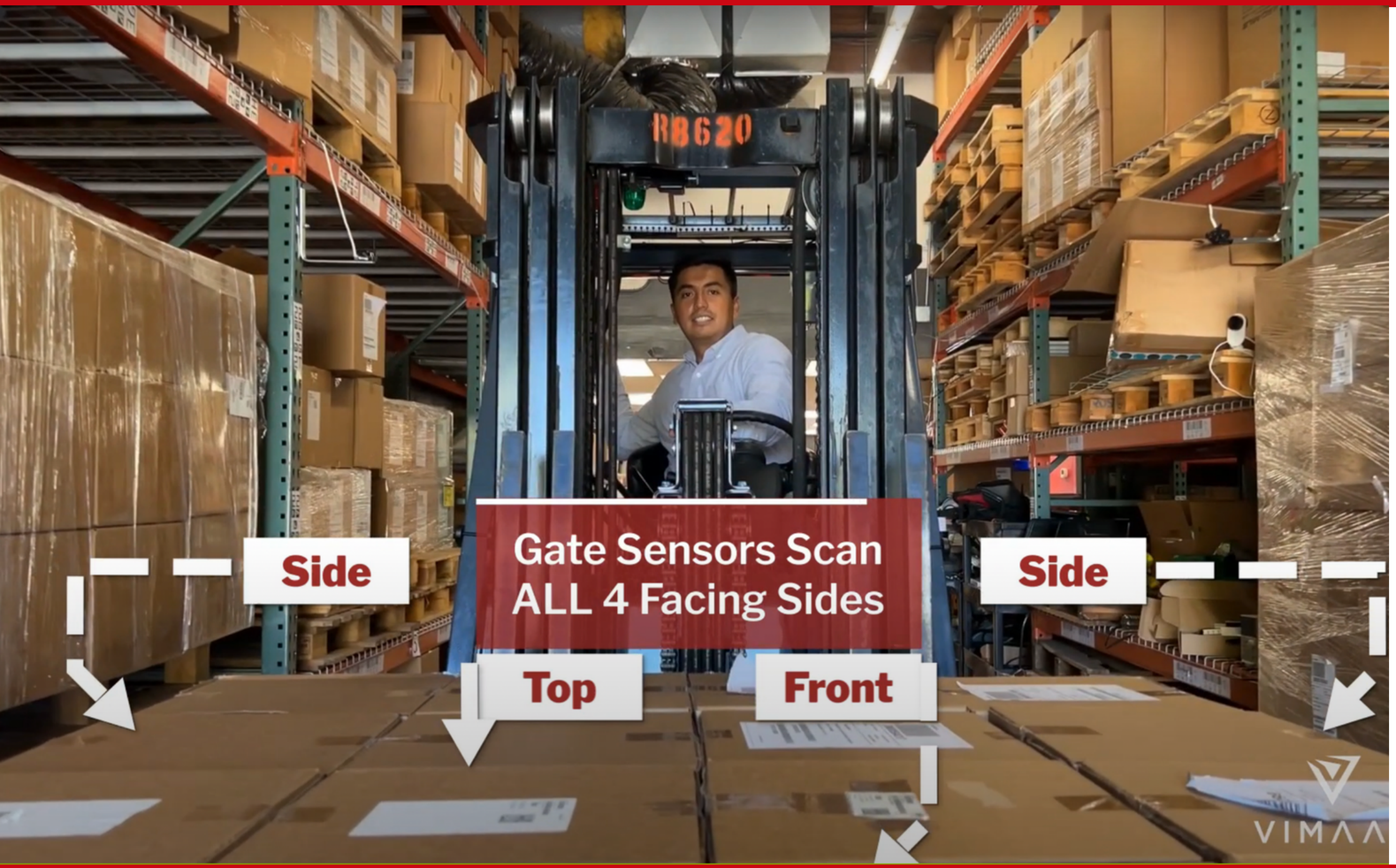
Vimaan captures and reads labels on all 5 sides of the pallet, even through shrink wrap

- Includes label detection, 1D/2D barcode identification and reading
- Interprets readable text on all labels on all sides
- Isolates the label(s) and text or barcode field(s) of interest to customer
- Highlights missing or unreadable labels
- Reads through shrink wrap (as long as label is readable by human eye)



1 DockTRACK Pallet

Pallet Receiving Implementation



Vimaan automates the inbound pallet receiving process using a combination of sensors, cameras and proprietary computer vision and machine learning technology.

In order to read the four visible faces of the pallet (the top, the sides, and the “front face”), Vimaan sensors and cameras are mounted on a “gate” that is designed to fit around the dock door, or can also be placed at any location inside a warehouse facility.

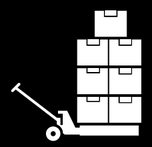
1 DockTRACK Pallet

Pallet Receiving Implementation

In order to read the back face (side) of the pallet that is facing the vehicle (and is therefore obscured by the MHE), PickTRACK cameras and sensors are mounted on to the forklift that capture all required label information including 1D/2D barcodes, logos and human readable text (dates, destinations, SKUs, and more).

1 DockTRACK Pallet

Pallet Receiving Automation



During the automated receiving process, the system automatically detects when a driver is about to pick up a pallet.

The front face of the pallet is scanned automatically. As the driver starts to drive through the “gate”, the sensors automatically detect the presence of the pallet and MHE.

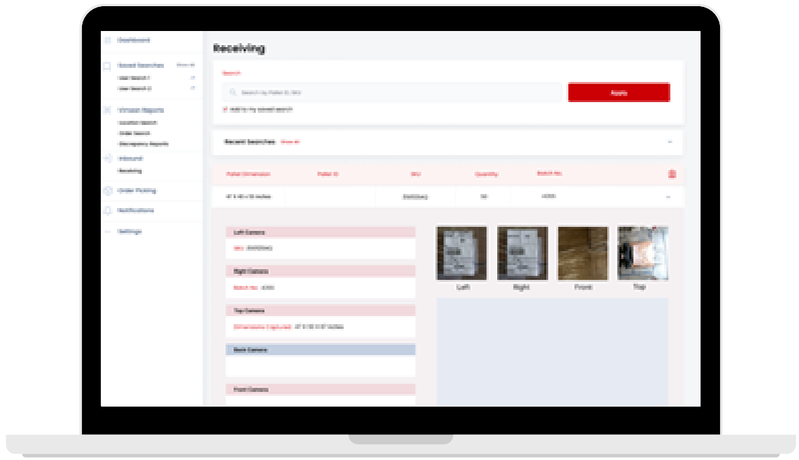
The sensors proceeds to scan the entire pallet in 3D as well as each of the visible faces.

Data is collected from the forklift, gate sensors and cameras to extract label information, dimensions, damage, or other anomalies.

It is important to note that **NO change** to the normal workflow is required. If receiving is done on an MHE, the driver simply picks up the pallet and drives through the gate. If receiving is done with electronic pallet jacks, the associate simply picks up the pallet and walks through the gate.

1 DockTRACK Pallet

Pallet Receiving Capabilities & Metrics



Multi Case Label Reading and Association

- Counts cases on a pallet and reads visible labels associated with each case
- Highlights if any particular case is missing a label
- Validates cases on a pallet against a WMS or ASN

Pallet Dimensioning

- Measures pallet length, width, and height in less than 5 seconds
- Provides shapes and 3D composite views of the pallet

Automated Inbound Parcel Receiving

Warehouse automation has helped improve the inbound receiving process for parcels. Most modern 3PLs and warehouses have embraced the use of near real-time tracking to keep tabs on incoming packages.

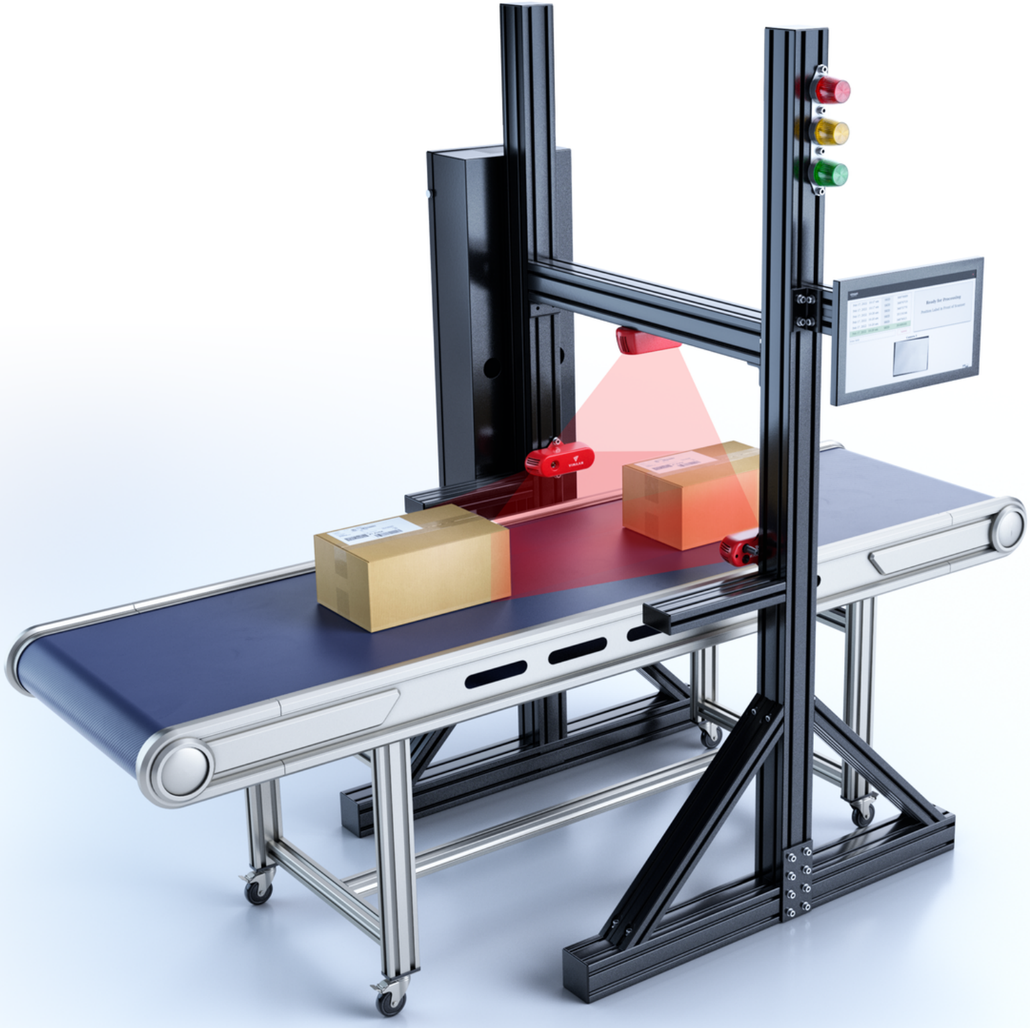
For large volumes of parcel receiving “scan tunnels” are used to detect and scan barcodes on five or even all six sides of a parcel. These scan tunnels can even capture parcel dimensions. However, these tunnels cannot successfully deliver the higher quality, more comprehensive, yet fully automated inbound parcel receiving that 3PLs and warehouses need in order to truly make their inbound parcel as efficient as possible.

Scan Tunnel Processing Limitations

Scan tunnels use complex hardware technologies including adjustable mirrors, scanners and machine vision cameras to capture and detect barcodes. But they are generally limited in their ability to perform other functions such as reading text on a label, detecting multiple labels, capturing damage on a parcel, etc.

Another drawback is that because of their “unidimensional” ability to read only barcodes, if the barcode is damaged or not visible, the parcel cannot be read, and has to be re-routed to a “hospital” lane where manual intervention becomes necessary. In facilities where millions of parcels are processed every day, this can become a huge expense in added labor and also cause delays in processing. Additionally, scan tunnels are expensive and take years to achieve an ROI.

2 DockTRACK Parcel



Vimaan's DockTRACK Pallet solution captures the **ENTIRE PARCEL in 3D**, extracts all label data and even inspects for damage, discoloring and any other package anomalies. With that, inbound and outbound inventory are validated against the WMS to identify discrepancies and provide near real-time alerts.

- **Reduces labor and error prone audit**
- **Reduces parcel processing time**
- **Eliminates costly write-offs**

2 DockTRACK Parcel

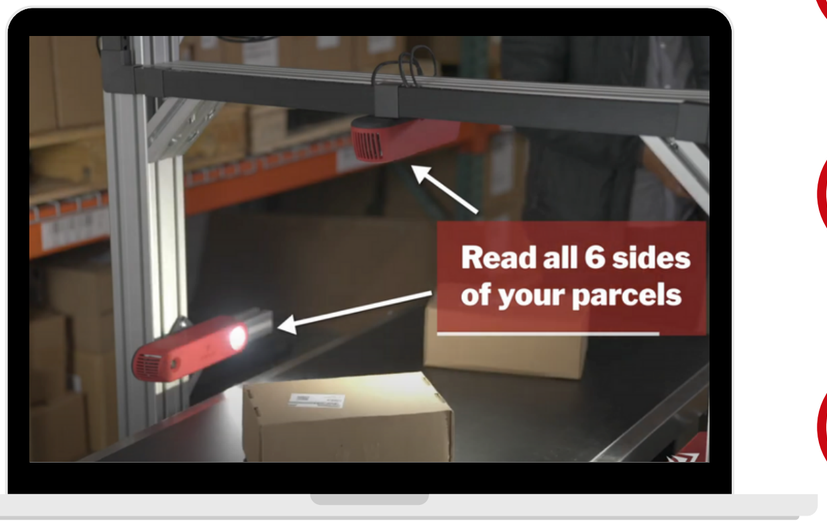
Featuring: 5 Sided Parcel Receiving

Barcode scanning has proven to be an incomplete solution in processing large quantities of incoming and outgoing packages. Warehouses and distribution centers are still expected to provide resources to manually inspect packages to ensure quality. These processes can be expensive, imperfect, and challenging to staff. DockTRACK Parcel provides an unprecedented level of package tracking and inspection that empowers warehouse managers to retire these outdated processes, lowering their labor costs and **increasing inventory accuracy to over 99.8%**. DockTRACK Parcel also addresses common warehouse challenges such as **operational bottlenecks, wrong orders reaching customers and costly write-offs and penalties**.

Vimaan captures, tracks and INSPECTS high volumes of packages

2 DockTRACK Parcel

Featuring: 5 Sided Parcel Receiving



Vimaan captures and reads labels on all the sides of a parcel in <1 second

- Includes label detection, barcode detection and reading
- Interprets human readable text on all labels on all sides
- Isolates the label(s) and text or barcode field(s) of interest to customer
- Highlights missing or unreadable labels
- Reads through shrink wrap (as long as label is readable to the human eye)
- Updates the WMS through API integration
- Validates labels/parcels against a WMS or ASN

2 DockTRACK Parcel

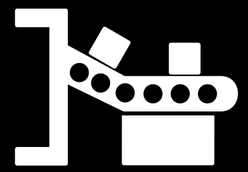
Parcel Receiving Implementation

Vimaan automates the inbound parcel receiving process using a combination of sensors, cameras and proprietary computer vision and machine learning technology.

The sensors and cameras are mounted around the conveyor belt, much like a scan tunnel, but smaller in footprint and captures much more than barcodes.

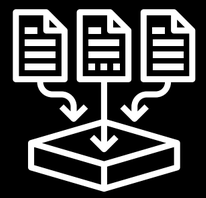
2 DockTRACK Parcel

Parcel Receiving Automation



During the parcel receiving process on a conveyor line, DockTRACK Parcel automatically detects when a package is coming down the conveyor.

The entire parcel is scanned automatically. All the faces of the parcel are captured in 3D.

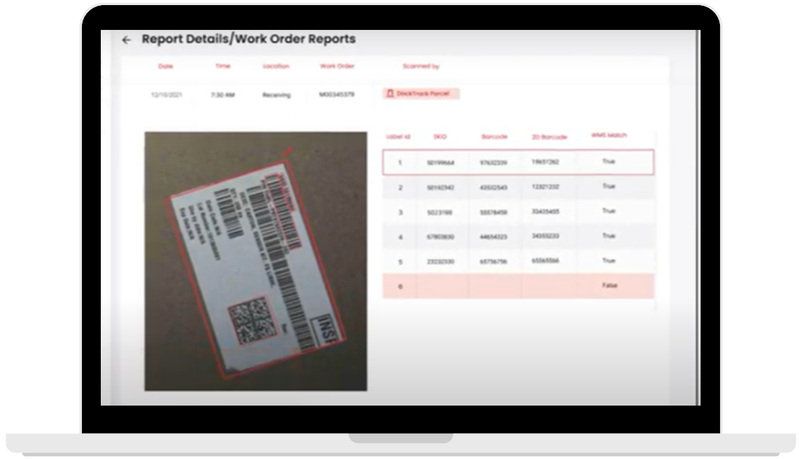


Vimaan's proprietary computer vision and machine learning engine collates all the data collected from the sensors and cameras to extract label information, dimensions, damage, or other anomalies.

2 DockTRACK Parcel

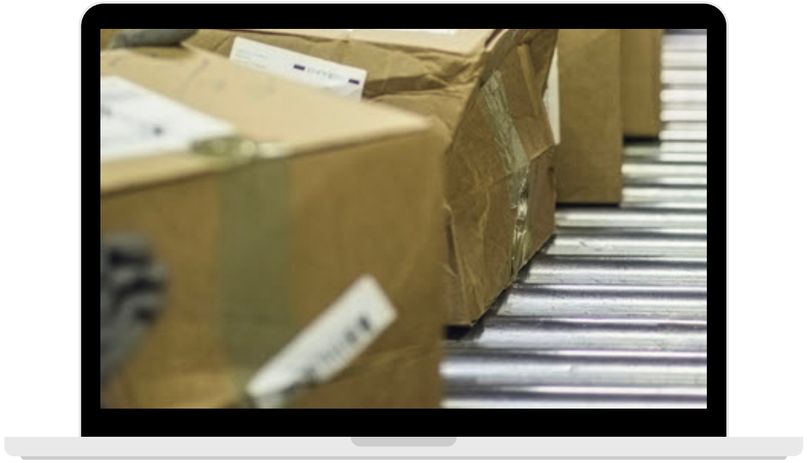
VIMAAN

Parcel Receiving Capabilities & Metrics



Package Dimensioning

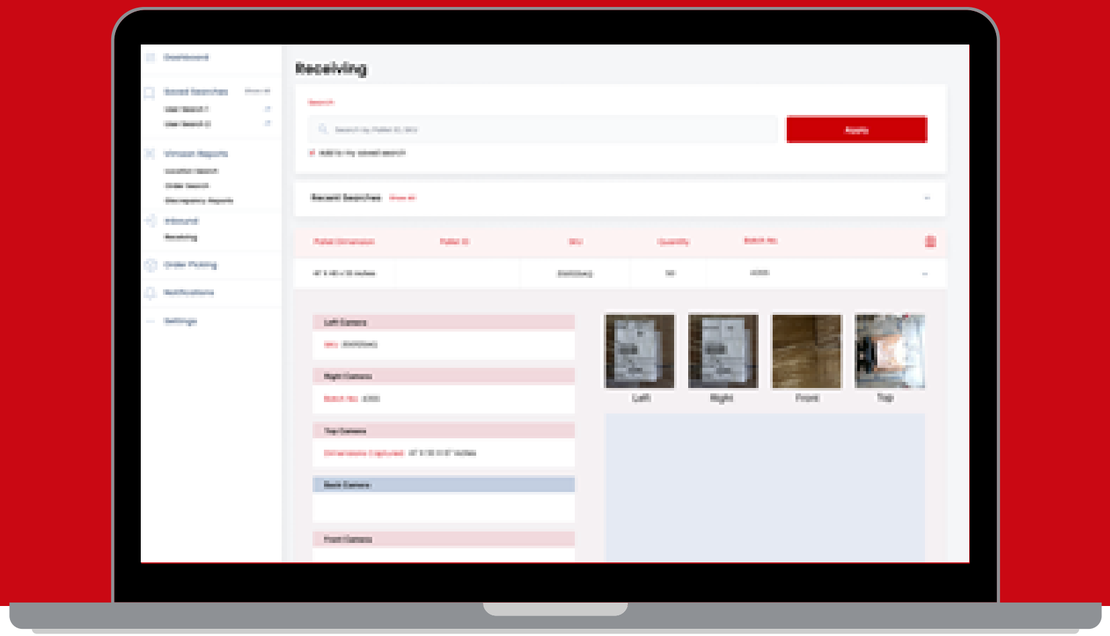
- Measures length, width and height of parcel
- Delivers shapes and 3D composite views of the parcel



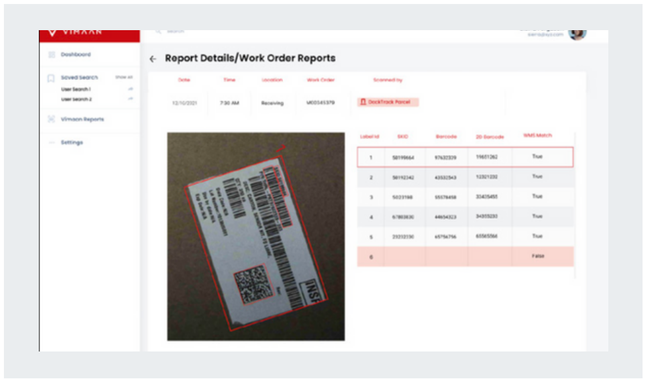
Package Damage Detection

- Highlights damage to the faces of the parcel
- Captures images of damage for subsequent dispute resolution or vendor communication

ViewDeck Application



Both DockTRACK products transmit all inventory data to the Vimaan ViewDECK web application. ViewDECK is an intuitive tool that allows you to easily search inventory and any location in your warehouse. ViewDECK also generates easy to use reports with actionable data and transmits all DockTRACK data back to your WMS; ensuring you have the most up to date view of your inventory.



INVENTORY VARIANCE IDENTIFICATION

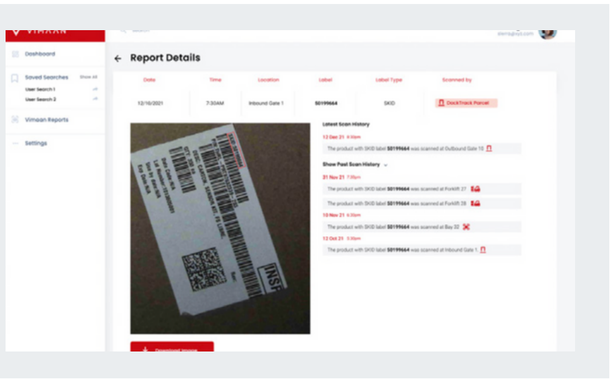
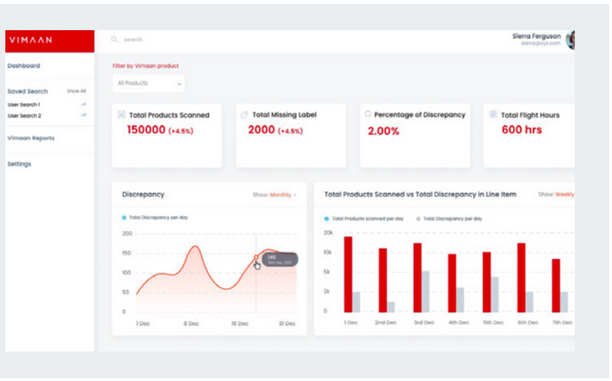


IMAGE ARCHIVES



TRENDING DASHBOARDS

Achieve Success with Vimaan

Vimaan solutions help you keep tabs on all your inventory from the time it enters your warehouse to the second it leaves (and every second in between). WE ARE WALL TO WALL!

> 40%

REDUCTION RECEIVING AND AUDIT LABOR

> 80%

REDUCTION IN MIS-SHIPMENTS AND CLAIMS

100%

INVENTORY LOCATION ACCURACY

Start optimizing your warehouse processes with Vimaan and measure your ROI in MONTHS, not YEARS!

VIMAAN

THE TRUTH IS HERE

Warehouse Inventory Vision and Verification

Precise and actionable insights from receiving to shipping and every step in-between

Contact Us: sales@vimaan.ai

www. vimaan.ai