

# 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 through the use of automated pallet processing.**



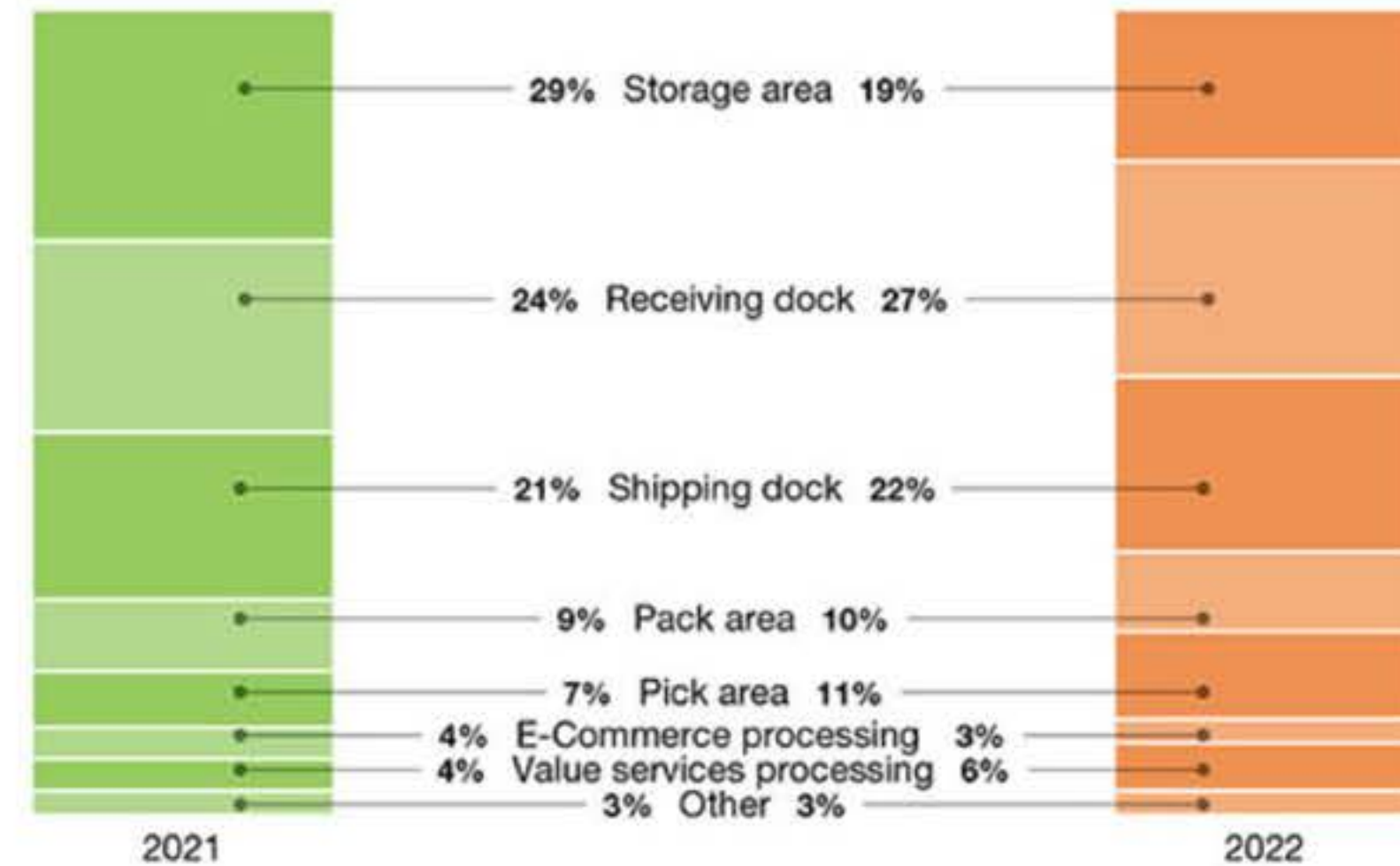


# Pallet Receiving Clogs the Docks

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 pallets and packages stuck at the receiving docks, delaying put-away and other downstream workflows.

These outdated tasks contribute to space utilization pains.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

## Automated Inbound Pallet Receiving



### 1 PalletSCAN

## Automated Inbound Parcel Receiving

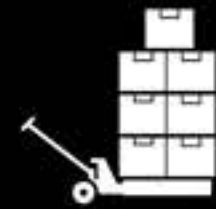


### 2 ParcelSCAN



# PalletSCAN

## Pallet Receiving Automation



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



Vimaan PalletSCAN solutions feature multiple options that allow for data capture while the MHE is still handling the pallet payload.



AI/Machine Learning enabled Computer Vision cameras capture designated pallet and payload elements.



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





# 1 PalletSCAN



PalletSCAN 100



PalletSCAN 3D



PalletSCAN 150



PalletSCAN 360

Vimaan's PalletSCAN product family 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 offers drive through pallet dimensioning.



**Reduces labor and MHE requirements**



**Reduces clutter and real estate usage at the receiving gate**



**Automatic WMS reconciliation**



# PalletSCAN

## Label Scanning Capabilities




*Vimaan captures and reads labels even through shrink wrap*

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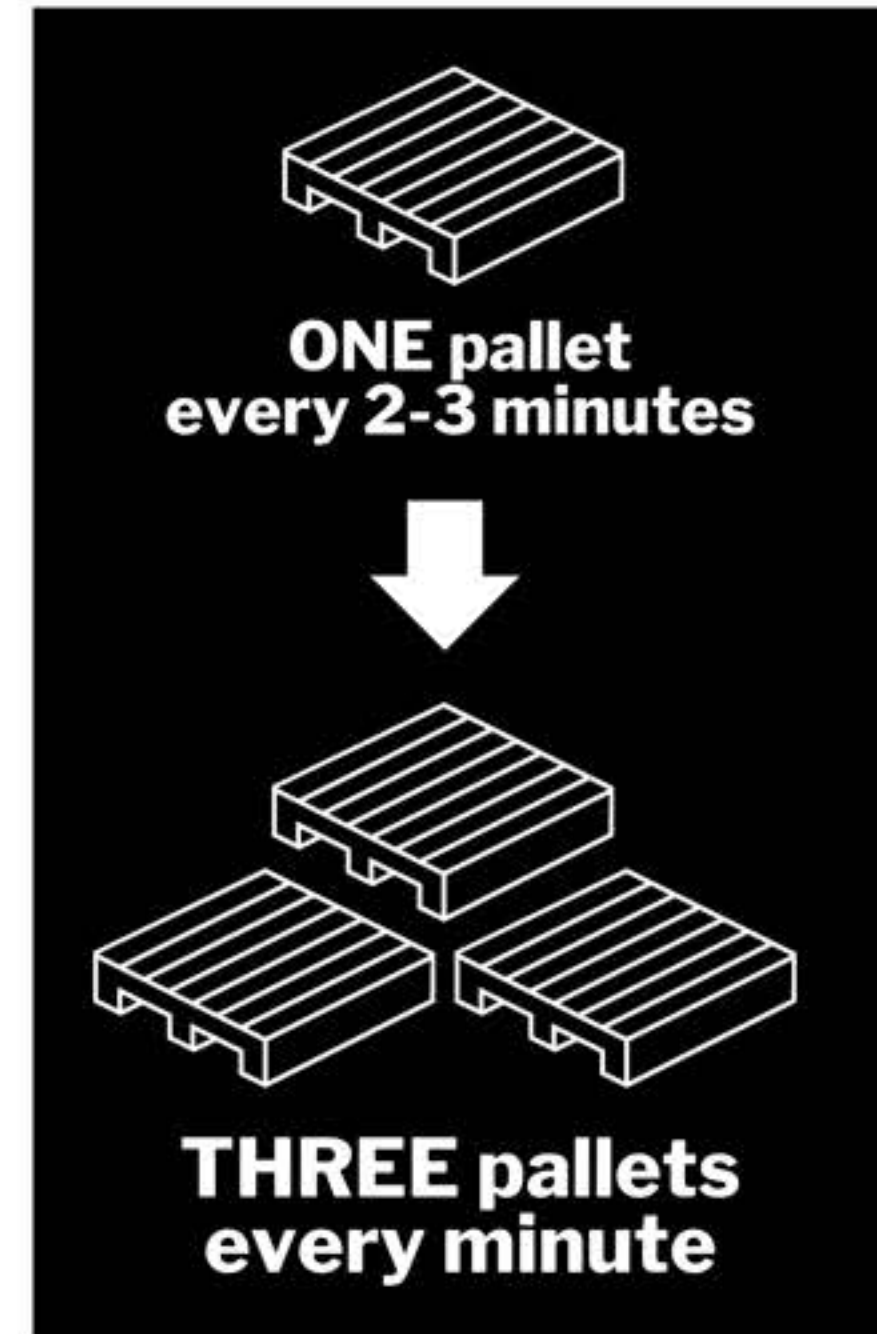
Includes label detection, 1D/2D barcode identification and reading
- 

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)





# PalletSCAN 360

## Fast 4-Sided Pallet Scanning



Supports Mixed-SKU and Double Stacked Pallets

PalletSCAN 360 is an automated multi-sided pallet scanning computer vision system built to provide fast and precise 4-sided data capture. This system includes a camera and lighting panel that provides even illumination and high-resolution pallet scanning. The panel is coupled with an integrated pallet turntable or can work with a shrink wrap machine. Once placed on the turntable, PalletSCAN 360 is activated by the MHE Operators without having to leave their forklift. The system automatically starts the rotation and data capture and stops when one full rotation is complete. **The entire scanning process takes less than 15 seconds.**

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



# PalletSCAN 150

## Ti-Hi Case Counting & SKU Verification



PalletSCAN 150 takes the guess work and errors typically associated with manual Ti-Hi counting. Reducing the labor involved in Ti-Hi counting, the system provides a greater level of consistency and reduces costs associated with manual label scanning, case counting and photographing. PalletSCAN 150 can be situated in several different areas of the warehouse including at the dock door or in standalone scanning stations to support multiple trucks. PalletSCAN also 150 compares the collected data against the Advanced Shipping Notice (ASN) to ensure accuracy and consistency.

Drive through gates count and verify pallets while still being handled by forklifts and other MHE.

**Alerts Operators of discrepancies or exceptions including case count, damages and other visible anomalies.**



# PalletSCAN 100-D

## Drive By Pallet Side Scanning



PalletSCAN 100-D is an automated “drive-by” computer vision panel that provides near instant validation of scanned pallet sides. These units easily fit alongside dock doors, adjacent to conveying systems or in standalone scanning zones. Each system includes a heads-up terminal display screen that provides status results of each scan. If the pallet fails validation, Operators will be notified immediately so they can take evasive action.

Pairs of PalletSCAN 100-D panels can be combined to support 2-sided drive by pallet scanning.

**Compares collected data against the ASN to ensure accuracy and consistency.**



# PalletSCAN 3D

## Drive-Through Dimensioning



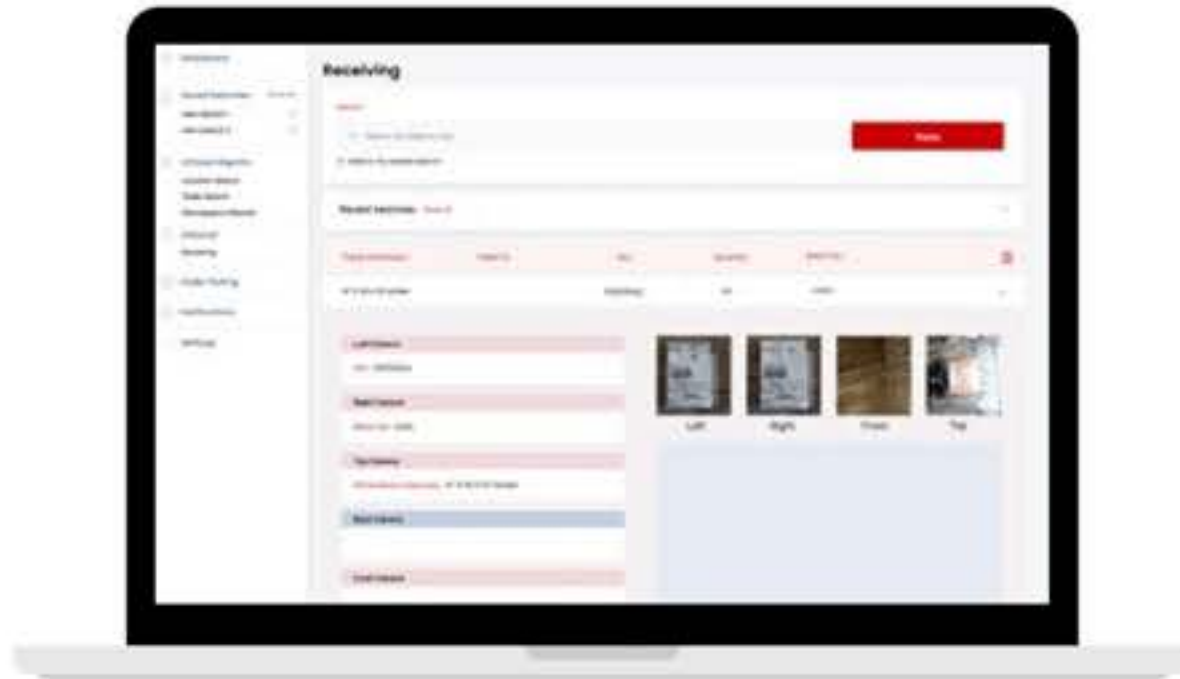
Dimensions non-conforming pallets and other bulked goods, including long crates and freight.

PalletSCAN 3D enables precise capture of pallet dimensions, weight and images – all with a simple “pick up and drive through” workflow. Once triggered, PalletSCAN 3D AI-enabled CVML cameras triangulate the length, width and height, width and depth of incoming pallets (1’ to 10’ in dimensions). Additionally, PalletSCAN 3D also integrates with leading 3rd Party weighing systems, allowing warehouses to capture complete pallet specifications in one pass. All pallet data is processed in real-time and is available for review in the Vimaan web-application ViewDECK (or WMS, based on warehouse needs).

**Dimensions are taken in seconds increasing processing speeds by over 50% and freeing up valuable dock space**

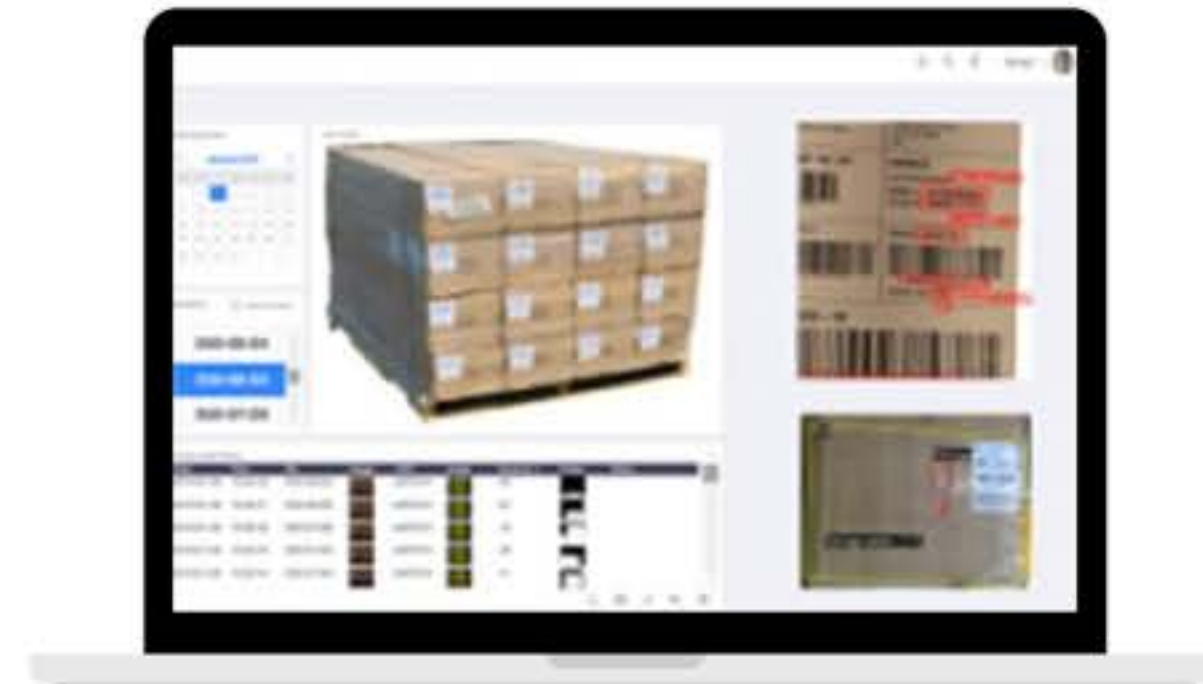


## Pallet Receiving Capabilities & Metrics



### 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

# ParcelSCAN



Vimaan's ParcelSCAN n 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**



## 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. ParcelSCAN 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%**. ParcelSCAN 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

# ParcelSCAN

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



## Parcel Receiving Implementation

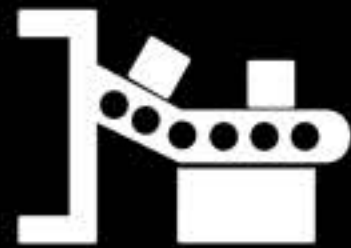


**Multiple cameras capture multiple parcel sides**

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.



## Parcel Receiving Automation



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



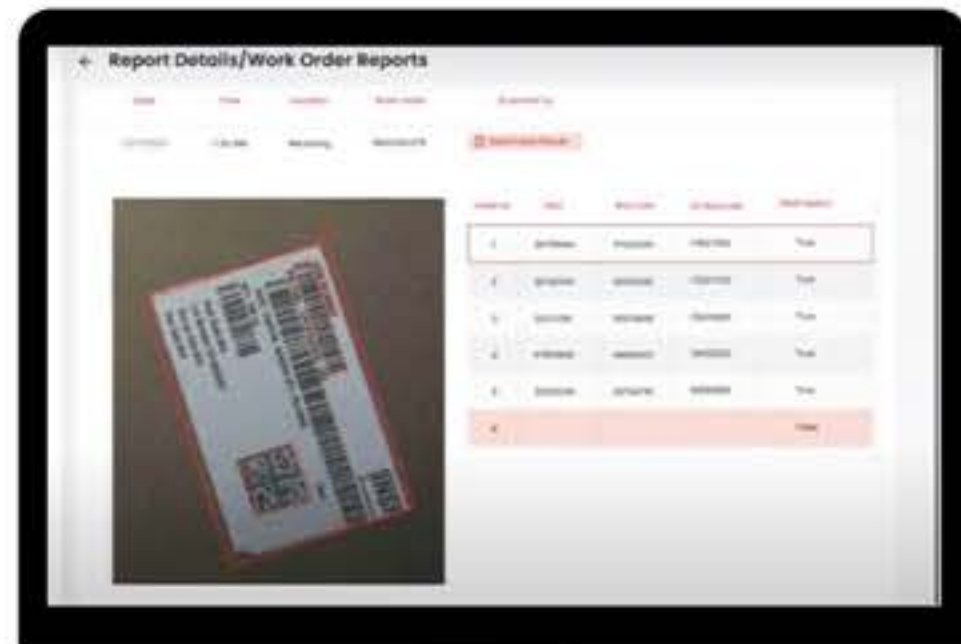
The entire parcel is scanned automatically. All the faces of the parcel are captured in 3D.



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.



## Parcel Receiving Capabilities & Metrics



### Package Dimensioning

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

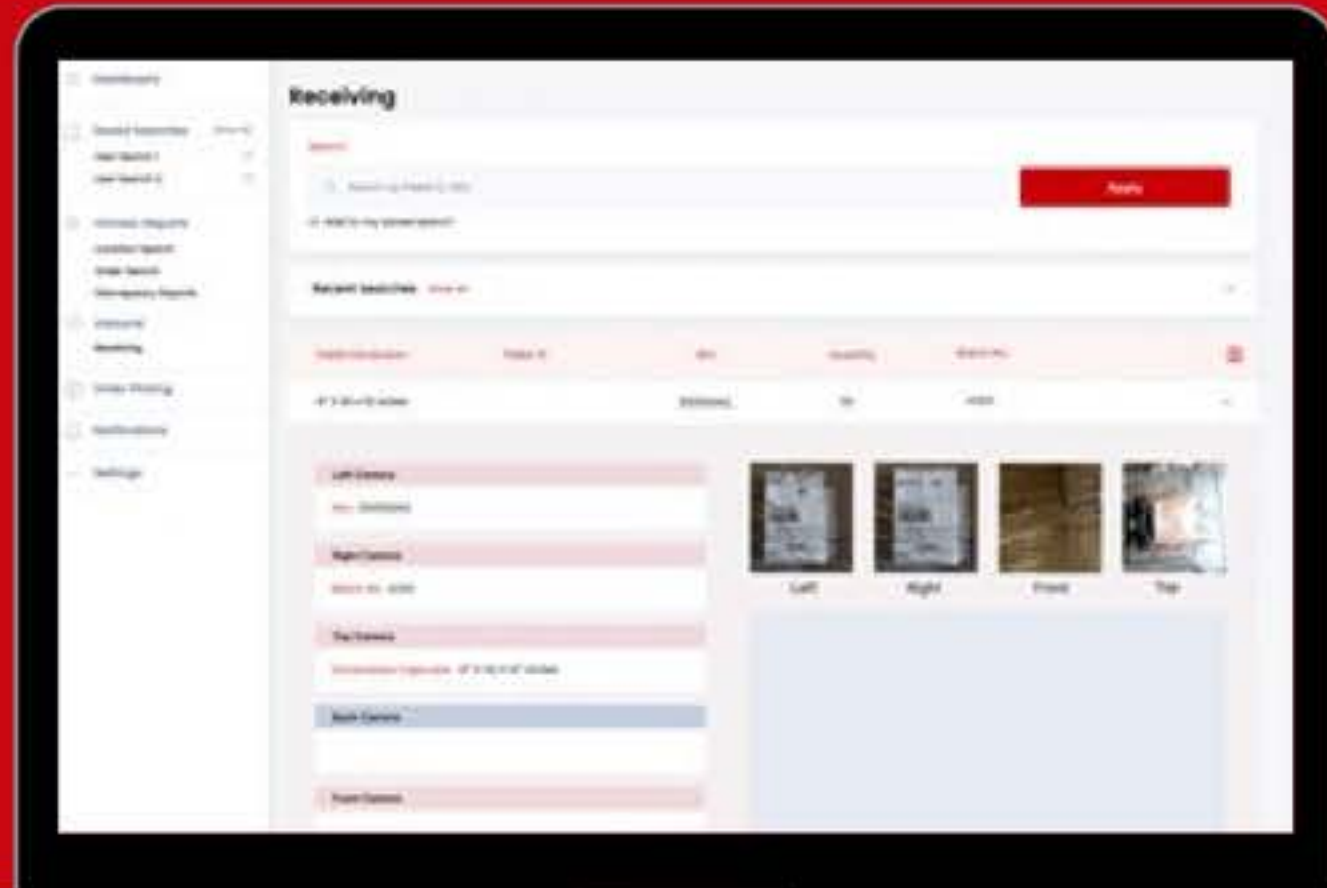


### Package Damage Detection

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



# ViewDeck Application



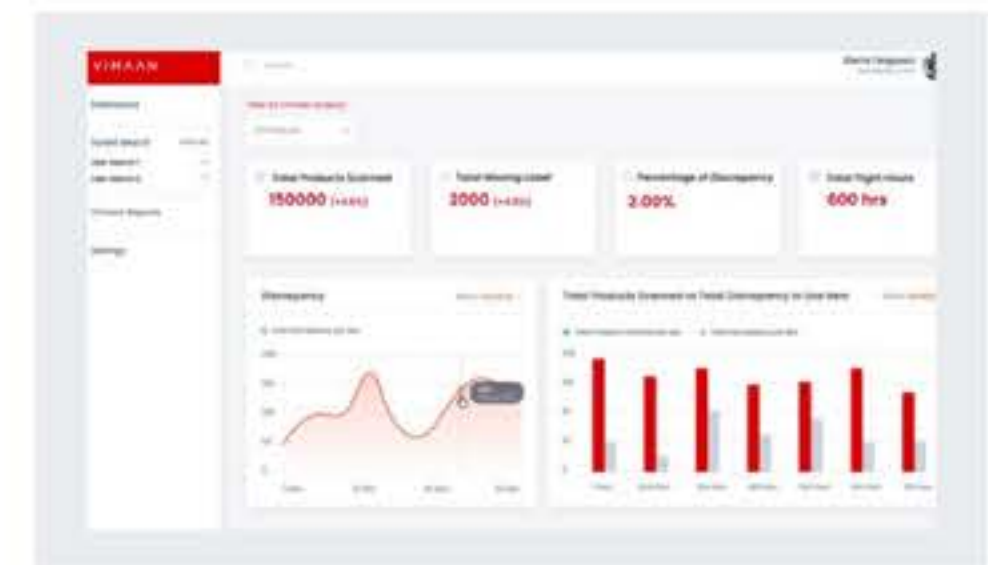
All Vimaan solutions transmit inventory data to the Vimaan ViewDECK web application. ViewDECK is an intuitive tool that allows you to easily search inventory and any location in your warehouse. ViewDECK also generates easy to use reports with actionable data and transmits all data back to your WMS; ensuring 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!**





# VIMAN

THE TRUTH IS HERE

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## **Warehouse Inventory Vision and Verification**

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

**Contact Us: [sales@vimaan.ai](mailto:sales@vimaan.ai)**

**[www.vimaan.ai](http://www.vimaan.ai)**