TOP 5 BUSINESS CASES FOR COMPUTER VISION IN WAREHOUSES

Major companies are adopting computer vision technology to make things work. The digital transformation and computer vision is a new buzzword streaming across the globe, in which online shopping is a recent game-changer for several verticals where every single process takes place via the internet, except shipping the products safely and quickly to the customer's hand.

Several industries face various difficulties during this shipping phase, such as dimensioning accuracy, on-time delivery, space optimization, and damage detection. This white paper explains the top 5 business cases for computer vision in warehouses.

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INTRODUCTION

Have you ever wondered how the two fresh streams, such as computer vision and e-commerce, would work together?

Ecommerce businesses are expanding in the recent decade, which gives rise to several digital growths in the industry. During this timeframe, most of the verticals have implemented computer vision technology to enhance various operations, such as setting key metrics to improve productivity, adopting various advancements, increasing the computational speed, and upgrading management systems. Every operation involves a major work pipeline to make work efficient, which does not just happen in a single go.

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ASSEMBLE & DEPLOY IN 15 MINUTES
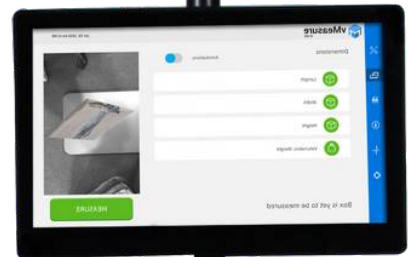
Instantly measures the length, height, and width
of any object and manage all your
dimensioning needs with an AI-driven solution

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HOW IS COMPUTER VISION TECHNOLOGY USED IN THE WAREHOUSES?

Understanding the role of the warehouse is vital before diving into the concept. Storing numerous goods and releasing them when they're required creates a time utility, and that would be the major role of the warehouse. We can implement the computer vision technology in the warehouse to count, inspect, and track inventory, leading to better accountability. Computer vision technology can enable operators to be more efficient and accurate. As long as we train, technology can do wonders.

Here are three important cases that several warehouse industries focus on making an essential part; they include:

🎛️ Quality control:

The cycle holds overall responsibilities, such as storing, managing, and keeping track of the products until they've dispatched. Excellent quality control helps companies meet consumer demands for better products. Identifying quality defects is often crucial to prevent disappointment, and manual detection methods cannot easily achieve it. In this case, computer vision technology permits identifying the unknown objects in under a second. [5]

🛡️ Safety and security:

In a current trend, robots are automatically utilized in warehouse and manufacturing environments to automatically recognize and respond to the human position and motions automatically. The fundamental use of these technologies is to cooperate with humans and warn them of a doubtful activity before the injuries occur. Then again, computer vision technologies are utilized in the warehouses to recognize various products, which are avoided about putting or situated mistakenly, etc. These technologies are also used for surveillance, such as the face, fingerprint, and retina recognition.

Product classification and shipping:

This segment assists in separating the products based on their mobility. This includes three types that are:

Fast-moving: where the products sell out fast as soon as produced.

High-value: this incorporates the product that sells frequently.

Hybrid: products that sell moderately rapidly.

Using computer vision technology, product classification can be easily achieved and can easily track the products during the shipment phase.

DID YOU KNOW?
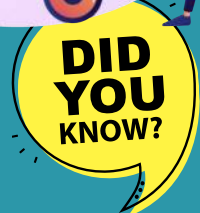
Automated dimensioning solutions built on Stereo-camera tech are faster and more accurate than other types of dimensioning systems

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100 PARCEL IN 15 MINUTES INCLUDING LODING & UNLOADING TIME

Instantly measures the length, height, and width of any object and manage all your dimensioning needs with an AI-driven solution

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TOP 5 BUSINESS CASES FOR A WAREHOUSE

Computer vision has become the most popular and favored automation over the recent decade, notably in the warehouse industry. Computer vision technology has several applications in all the streams, and each one of them plays a significant role in the development of the e-commerce industry.

Below are some top business cases for computer vision in the warehouse:

Defect inspection:

Inspecting is one of the primary necessity to eliminate the defect parts, products, or a component. The manual inspection always requires more time, and the person who inspects should undergo proper training for a period to choose the defective item in an instant.

But these manual processes can cause
bottlenecks during the shipment timelines, and
that later turns cumbersome. An automated optical inspection can be an excellent
replacement for manual review. These systems are equipped with a multi-camera with various
resolutions based on the clients' requirements.

The following benefits of defect inspection include:

- Efficiently identifies the defective item in less than a second.
- Improves productivity.
- Reduces manual errors.
- Can be able to work throughout the day.
- Can be programmed and monitored remotely.
- Has a higher inspection speed than the manual speed.
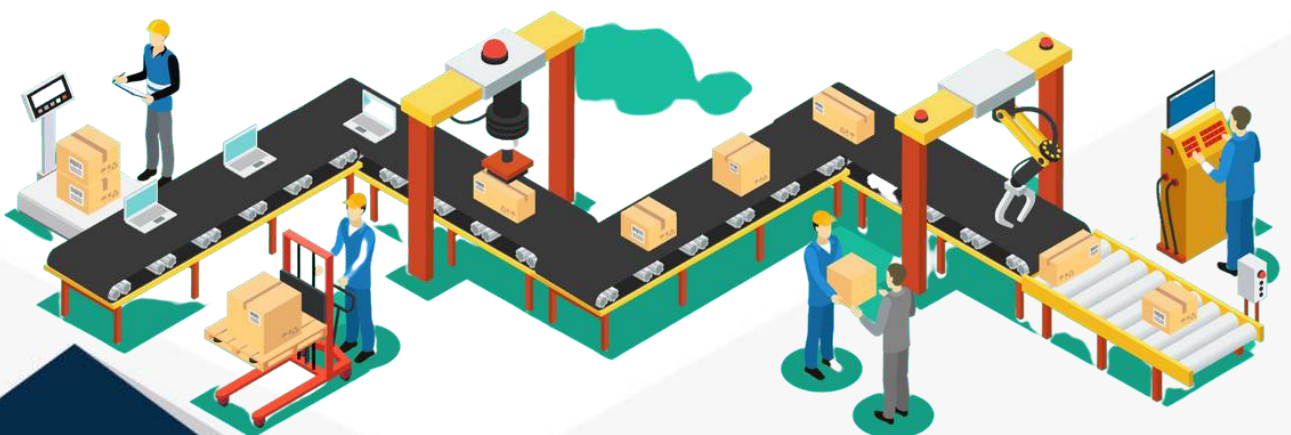
Robots powered by computer vision:

The collaborative robots can assist with navigation and other tasks such as loading or unloading the pallet, moving cargo around the warehouse, and performing picking and sorting operations. These robots are specially designed to help humans perform diverse tasks in the warehouse environment. The autonomous mobile robots are embedded with the warehouse maps, 3D cameras, front and rear sensors to improve warehouse employees' work efficiency.

The major benefits of computer vision powered robots in the warehouse include:

- Reduces manual labor
- Boosts the accuracy and efficiency of the warehouse
- Reduces warehouse expenses
- Efficient picking capabilities

Automated dimensioning systems:

Dimensioning and weighing are effective ways to save space and money. Concentrating on that, the automated dimensioning systems are much more convenient in measuring the length, breadth, width, and weight of the products in less than a second. These dimensioners are further embedded with other prominent features such as bar code scanning systems, label printers, and tracking systems.

Here are the four powerful reasons why major warehouses need automated dimensioning systems:

- Increasing speed
- Throughput optimization
- Improved accuracy of shipping cost
- Future capacity planning

Below are some noteworthy points that articulate how the automated dimensioners boost warehouse efficiency:

Assists in raising profitability:

The dimensioners are more valuable in determining the exact dimensions that help allocate the required space—this process further reduces unnecessary shipping expense pitfalls and enhances a market profit.

Speedup freight dimensioning and weighing operations:

With automated dimensioning solutions, warehouses can permanently reduce the measuring time to nearly less than a second! By doing so, the throughput of your facility goes up, which leads to increased revenue generation.

Optimize warehouse with cubing data:

Logistics management and planning software tools can help lift the warehouse's efficiency and the shipment of goods. To fully benefit from this advancement, an accurate dimensioning system is required so that the weighing data can be used to make the right decision at the right time. It also prevents the influx of inaccurate dimensional data that can result in errors during the arranging stage.

🚁 Drones powered by computer vision:

To make warehouse tasks safer and more efficient, some industries have recently adopted warehouse automation setups like drone-based technology to cover everything from navigation and track items to inspection and surveillance. One main reason to enable drones in the warehouse is that warehouses' scale is rapidly expanding due to global e-commerce.

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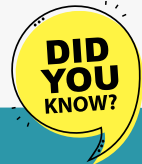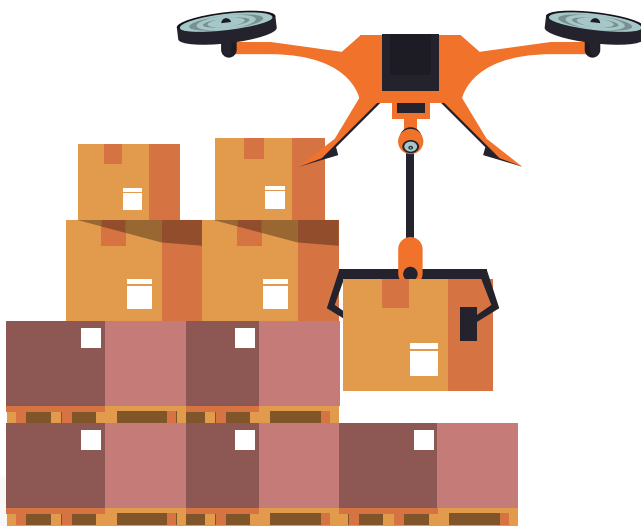
Using Camera enabled Automated dimensioning solutions, you can use bolt-on AI applications for broken box detection or package optimization without additional investment?

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Below are some significant advantages of using computer vision powered drones includes:

›› Reduces the risks of injury and human errors involved in counting items stored in hard-to-reach locations.

›› Leverages high-quality image and video capture.

›› Scans the barcodes at each pallet and sends the data to the ground station.

5

›› Can retrieve all kinds of data such as high-quality pictures and videos, a list of stored and shipped items, barcode details, etc.

›› Performs a roof inspection to identify the cracks and leaks that take place due to environmental conditions.

›› Performs item search, benefitted for both order fulfillment and missing/stolen items.

Smart glasses:

The term "picking" is a massive business in warehouse industries. With the help of these technologies, we can easily eliminate the traditional paper-stored information process. These smart glasses are highly beneficial in the retail and e-commerce sectors.

DID YOU KNOW?
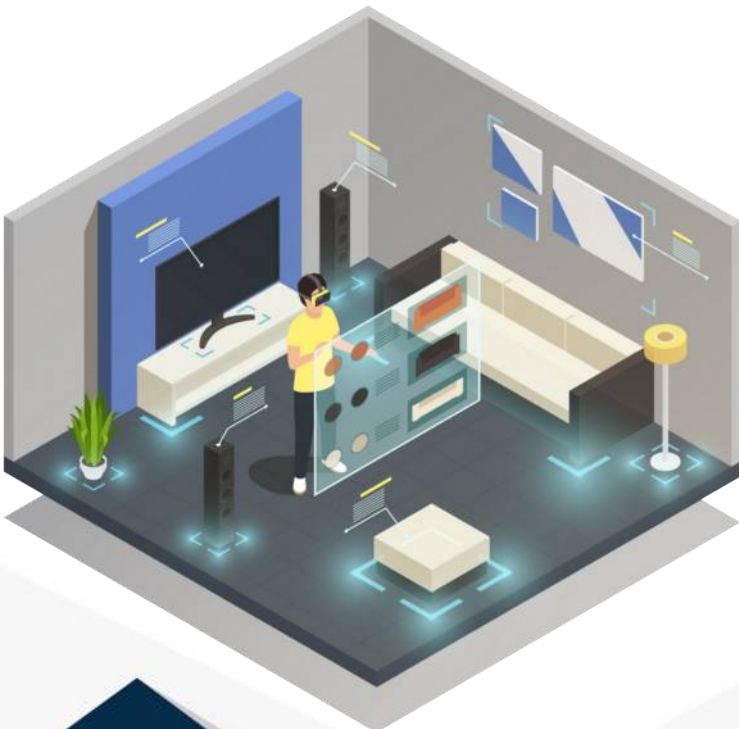
Logistic software Solution providers incorporate Automated dimensioning and edge AI into their solutions to improve warehouse productivity

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Some of the significant benefits of smart glasses include:

- Reduces average pick time
- Eliminate the order mistakes
- Receives all necessary pick and order data in a suitable heads-up format
- Performs in the combination of Scanning the barcodes and displaying the data
- Quickly inspect the defective item
- Captures pictures and videos

CONCLUSION:

Automation isn't new to the warehouse in recent years. However, Computer vision is becoming the latest hype in all the industries, especially in the warehouse. By adopting computer vision technology, the warehouse industries will easily reduce the bottlenecks, speeds up the process, and eliminate human errors. By understanding the right technology, major sectors will undoubtedly reduce unnecessary cost expenses, which further results in the growth of e-commerce.

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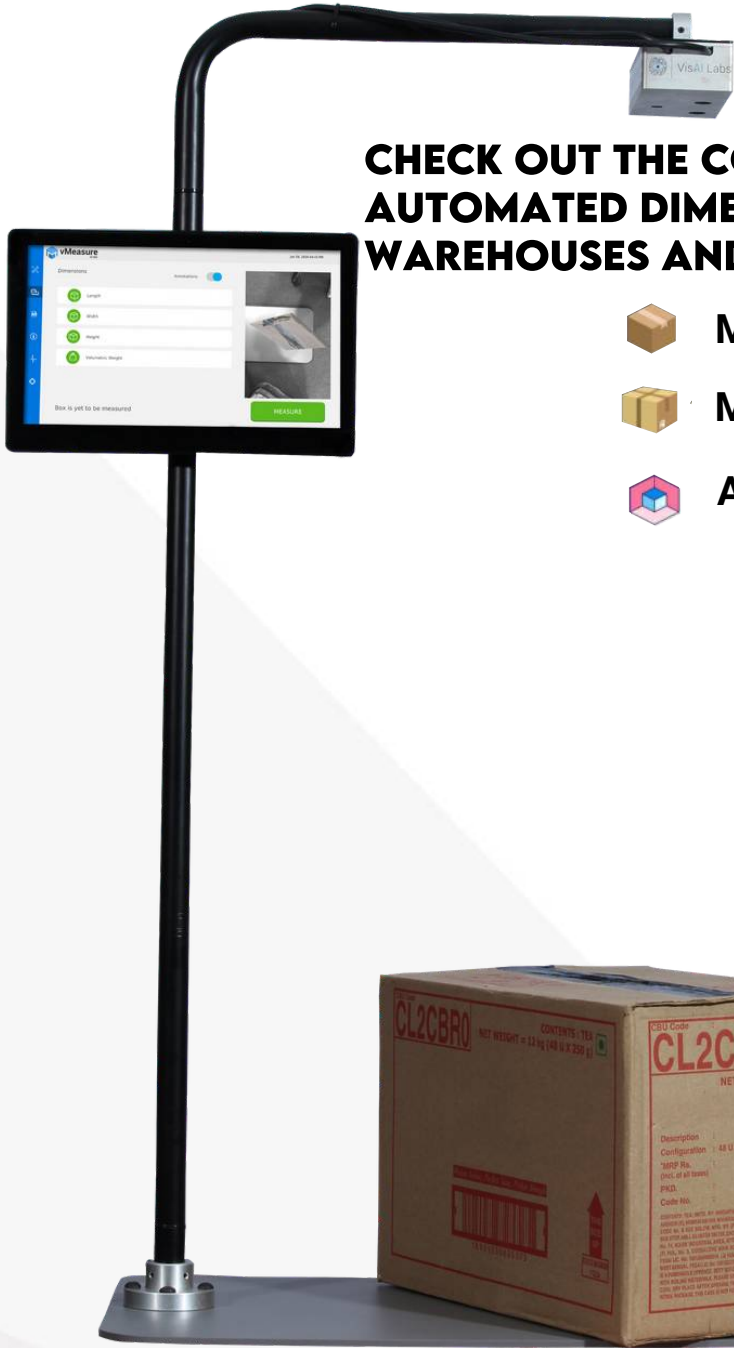
CHECK OUT THE COMPUTER VISION ENABLED AUTOMATED DIMENSIONING SYSTEM FOR WAREHOUSES AND ORDER FULFILLMENT CENTERS

Minimum Dimensioning: 10x10x10 cm

Maximum Dimensioning: 50x40x30 cm

Accuracy

+/- 5 mm for cubes and cuboids

+/- 10 mm for non-cuboidal shapes

Dimension:

Cubes

Cuboids

Polybags

Tubes

Irregular shapes

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