# Advancements in camera technology are driving warehouse automation



Advancements in camera technology are reshaping the landscape of warehouse and logistics automation, according to VA Imaging, a prominent supplier in machine vision components. This evolution is not merely enhancing safety monitoring; it is also vital for optimising operations and streamlining inventory management, marking a significant step forward in the efficiency of global supply chains.

The role of computer vision in modern warehousing is multifaceted, with key applications emerging in several areas. Firstly, in inventory management, industrial cameras play a crucial role by automating processes such as barcode scanning, item recognition, and overall tracking. This automation enables real-time visibility into stock levels, improving accuracy and significantly reducing human error. With the reliance on computer vision, robots, and various automation tools, distribution centres are increasingly focusing on efficiency as they navigate the complexities of global supply chains.

Another vital application is quality control. Cameras equipped with machine vision capabilities are essential for detecting product defects and damaged goods, ensuring compliance with quality standards. These machine vision systems often surpass manual inspection methods, identifying anomalies with greater precision and efficiency.

Moreover, process optimisation through computer vision software and image processing algorithms helps to analyse warehouse operations extensively. By identifying bottlenecks and streamlining picking and packing processes, these systems are integral to enhancing overall operational efficiency. Remote monitoring capabilities add another layer of advantage, allowing warehouse managers to gain real-time data through camera feeds and analytics dashboards. This functionality permits operators to monitor operations, detect issues, and make informed decisions from virtually any location.

A practical example described by VA Imaging highlights an innovative customer application featuring a scanning tunnel. In this setup, parcels of various sizes travel along a conveyor belt, where barcodes on the parcels need to be read accurately to assign them appropriate storage locations and update the warehouse software. The challenge lies in the fact that barcodes may appear on any of five visible sides of a package, necessitating a robust solution for reliable reading.

For such applications, selecting the right industrial camera is paramount. VA Imaging specifies that a resolution of at least 17.5MP is required to capture the thinnest barcode lines effectively. The chosen camera for this purpose, the ‘MER2-2000-19U3M’, is equipped with a 20MP Sony IMX183 sensor, making it suitable for the task. The monochromatic nature of the barcodes allowed for the use of a black-and-white camera, while a strategically deployed array of five cameras accommodates every possible barcode orientation.

Detailed lens selection played a crucial role as well, with VA Imaging’s lens calculator used to identify a suitable lens for the MER2-2000 camera. A focal length of 16mm was determined to achieve the necessary field of view, ensuring accurate barcode capture within the scanning tunnel.

In terms of operational integrity, uniform lighting is essential for effective barcode scanning. The company recommends tailored bar lights for optimal illumination, alongside protective housing that shields the camera setup from external factors. The IP67-rated metal housings offer modular designs that allow for lens flexibility, accommodating future changes to field of view or working distances.

Overall, computer vision technology demonstrates promising potential for automating warehouse processes and refining logistics. By integrating innovative cameras with machine vision software, organisations can realise benefits such as real-time inventory management, enhanced quality control, streamlined operations, and remote monitoring capabilities. VA Imaging emphasises the importance of choosing the appropriate cameras, lenses, and lighting to achieve successful implementation, and they extend their expertise to organisations aiming to enhance their automation solutions.

Source: [Noah Wire Services](https://www.noahwire.com)

## Bibliography

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