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Machine Vision Market by Component (Camera, Frame Grabbers, Optics, LED Lighting, Processors, AI-based Machine Vision Software), Type (PC based, Smart Camera-based), Deployment (General, Robotic Cell), Vision Type (1D, 2D, 3D) - Global Forecast to 2030

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Abstracts

With a CAGR of 8.3%, the worldwide machine vision market is expected to rise from USD 15.83 billion in 2025 to USD 23.63 billion by 2030. The manufacturing sector is witnessing a new wave of technological revolution, boosting the adoption of artificial intelligence (AI) in manufacturing and non-manufacturing applications. AI-based solutions are being adopted in manufacturing facilities to improve productivity by maximizing asset utilization, minimizing downtime, and improving machine efficiency.

'Optics segment to secure significant market share during forecast period'

A camera lens is an optical lens, or an assembly of lenses used in conjunction with a camera body, with a mechanism to capture images of objects. The images can be captured on a photographic film or other media capable of storing an image chemically or electronically. The lens delivers the captured image through the image sensor present in the camera to the end user. The two main types of lenses used in machine vision systems are fixed and interchangeable lenses. As part of a standalone vision system, the fixed lens could be a mechanical or liquid lens, which can focus automatically. Typically, autofocus lenses have a fixed field of view. Except for the detailed design and construction of lenses, there are no major differences between a lens used for a still camera, a video camera, a telescope, a microscope, or other apparatus.

'Automotive segment to account for third-largest market share during forecast period'

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The automotive industry plays a vital role in the manufacturing sector. Machine vision technology has a range of applications in the automotive industry, such as gauging and inspecting sealant beads, error-proofing thread presence, verifying piston assembly, inspecting rivet staking heights, inspecting dashboard graphics, verifying airbag assembly, color sorting door handles, identifying tires and wheels, error-proofing component assembly, reading 2D matrix codes, as well as for robotic guidance and assembly. Machine vision systems are used to detect defects and align and assemble parts. These systems are also used for painting and robotics guidance. They improve accuracy in critical activities, including bin picking and positioning parts, such as doors and panels, for assembly. Due to the shortage of skilled laborers, automobile companies focus more on automation in their production processes. The automotive industry is an early adopter of machine vision technology in production.

'North America to account for second-largest market share during forecast period'

North America is estimated to account for the second-largest share of the global machine vision market, primarily due to its strong presence of the healthcare sector, where machine vision systems are widely adopted. The healthcare sector in the region is characterized by stringent regulatory mandates, standard protocols, and comprehensive quality controls. There is an increasing integration of machine vision with artificial intelligence (AI) and edge computing in the region, which enables real-time decision-making in production floors. This development helps manufacturers to cope with labor shortages by simplifying quality control.

Breakdown of primaries

A variety of executives from key organizations operating in the machine vision market were interviewed in-depth, including CEOs, marketing directors, and innovation and technology directors.

By Company Type: Tier 1 -40%, Tier 2 - 25%, and Tier 3 - 35%

By Designation: C-level Executives - 48%, Directors - 33%, and Others - 19%

By Region: North America - 35%, Europe - 18%, Asia Pacific - 40%, and RoW - 7%

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Major players profiled in this report include Cognex Corporation (US), KEYENCE CORPORATION (Japan), Teledyne Technologies Inc. (US), Basler AG (Germany), Omron Corporation (Japan), and others. These leading companies possess a wide portfolio of products, ensuring a prominent presence in established as well as emerging markets.

The study provides a detailed competitive analysis of these key players in the machine vision market, presenting their company profiles, most recent developments, and key market strategies.

Key Market Players

Key players operating in the machine vision market are as follows:

1. Cognex Corporation (US)

2. Basler AG (Germany)

3. KEYENCE CORPORATION (Japan)

4. Teledyne Technologies Inc. (US)

5. TKH (Netherlands)

6. Omron Corporation (Japan)

7. SICK AG (Germany)

8. Sony Group Corporation (Japan)

9. Texas Instruments Incorporated (US)

10. Atlas Copco AB (Sweden)

11. AMETEK.Inc. (US)

12. Emerson Electric Co. (US)

13. Canon Inc. (Japan)

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14. Zebra Technologies Corp. (US)

15. Qualitas Technologies (India)

16. Baumer (Switzerland)

17. Tordivel AS (Norway)

18. MVTec Software GmbH (Germany)

19. JAI A/S (Denmark)

20. Industrial Vision Systems (UK)

21. IVISYS (Sweden)

22. USS Vision LLC (US)

23. Optotune (Switzerland)

24. IDS Imaging Development Systems GmbH (Germany)

25. Intelgic Inc. (India)

Study Coverage

In this report, the machine vision market has been segmented based on application, vision type, deployment, component, system type, industry, and region. Application segments include quality assurance and inspection, positioning and guidance, measurement, identification, and predictive maintenance. Vision type segments include 1D vision system, 2D vision system, and 3D vision system. Deployment segments include general and robotic cell. Component segments include cameras, optics, frame grabbers, LED lighting, processors, other hardware components, and software. System type segments include PC based and smart camera-based machine vision systems. Industry segments include automotive, consumer products, electronics & semiconductors, printing, metals, food & beverages, logistics, healthcare, rubber & plastics, machinery, solar panel manufacturing, and other industries. The market has been segmented into four regions: North America, Asia Pacific, Europe, and RoW.

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Key Benefits of Buying the Report

Analysis of key drivers (Increasing demand for quality assurance and automated inspection in the manufacturing industry, rising adoption of vision-guided robotic systems across multiple industries, growing emphasis on safety and improved product quality in the industrial sector), restraints (Cyber vulnerabilities in industrial robotic systems, lack of skilled workforce to operate machine vision systems in the manufacturing industry), opportunities (Rising implementation of machine vision systems in the food and beverage industry, government-backed initiatives aimed to support industrial automation, growing adoption of AI-powered systems across manufacturing and non-manufacturing sectors, emergence of compact smart cameras and processors, surging market demand for hybrid and EVs), and challenges (Complexities in integrating diverse machine vision components across application sites, lack of awareness and high cost associated with machine vision systems) influencing the growth of the machine vision market.

Product Development/Innovation: Detailed insights on upcoming technologies, research and development activities, and new product launches in the machine vision market.

Market Development: Comprehensive information about lucrative markets–the report analyses the machine vision market across various regions.

Market Diversification: Exhaustive information about new products/services, untapped geographies, recent developments, and investments in the machine vision market.

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players such as Cognex Corporation (US), KEYENCE CORPORATION (Japan), Teledyne Technologies Inc. (US), Basler AG (Germany), Omron Corporation (Japan), and others.

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