

# **Structured Light 3D Camera Market Forecasts to 2034 – Global Analysis By Type (Stereo Vision Systems, Time-of-Flight Cameras, Handheld 3D Scanners and Other Types), Technology, Application and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Structured Light 3D Camera Market is accounted for \$2.20 billion in 2026 and is expected to reach \$5.98 billion by 2034 growing at a CAGR of 13.3% during the forecast period. A Structured Light 3D Camera is a type of imaging device that uses projected patterns of light onto a scene or object to capture and create a three-dimensional representation of its surface. This technology is commonly used in various applications such as 3D scanning, computer vision, industrial metrology, robotics, and augmented reality. The light projector emits a known pattern onto the object or scene, and the camera captures the distorted pattern based on the object's surface geometry. By analyzing the deformation of the projected pattern, the 3D camera can calculate the depth information for each point in the captured image, thus creating a detailed 3D model.

According to the IFR (International Federation of Robotics), the 2022 World Robotics report revealed an all-time high of 517,385 new industrial robots installed in companies around the world in 2021.

### **Market Dynamics:**

#### **Driver:**

Rising adoption in 3D scanning and metrology

The market is experiencing a surge in adoption driven by the growing demand for precise 3D scanning and metrology solutions. Businesses across various industries are increasingly recognizing the value of structured light technology for its accuracy and efficiency in capturing detailed three-dimensional data. This trend is fuelled by advancements in manufacturing, quality control, and design applications, where Structured Light 3D Cameras offer superior capabilities, propelling their integration into diverse sectors for enhanced precision and measurement capabilities.

**Restraint:**

Competition from other technologies

Structured light 3D cameras face competition from alternative 3D sensing technologies, such as time-of-flight (ToF) cameras and stereo vision systems. Each technology has its strengths and weaknesses, and the choice depends on specific application requirements. Additionally, advancements in LiDAR technology pose a potential threat, offering high precision in depth perception. As these alternatives continue to evolve, the market must innovate to maintain its competitive edge in providing accurate and reliable 3D imaging solutions.

**Opportunity:**

Advancements in technology

Innovations such as improved depth sensing, higher resolution imaging, and faster data processing capabilities have become prominent. These developments enable applications in diverse fields, including manufacturing, healthcare, and augmented reality. Additionally, the integration of artificial intelligence and machine learning algorithms further refines 3D data analysis, opening new possibilities for automation and quality control in various industries.

**Threat:**

Complexity of implementation

The implementation of this technology presents a complex landscape, requiring intricate calibration and synchronization processes. Software algorithms must navigate challenges like ambient light interference and object surface properties. Additionally, real-time processing and data interpretation pose computational challenges. This

complexity demands expertise in optics, computer vision, and software development, contributing to a multifaceted implementation process in the market.

### **Covid-19 Impact:**

The COVID-19 pandemic has significantly impacted the Structured Light 3D Camera Market, causing disruptions in the supply chain and manufacturing processes. Lockdowns and restrictions have led to delays in product development and deployment. Additionally, reduced investments and economic uncertainties have affected market growth. However, the increasing demand for 3D imaging in healthcare, manufacturing, and entertainment may drive recovery post-pandemic, as industries seek advanced technologies for automation and remote applications.

The handheld 3D scanners segment is expected to be the largest during the forecast period

The handheld 3D scanners segment is expected to be the largest during the forecast period. These portable devices utilize structured light technology to capture precise three-dimensional data, offering enhanced flexibility and accuracy for various applications. With growing demand across industries such as manufacturing, healthcare, and entertainment, the structured light 3D camera market is propelled by the portability and versatility of handheld scanners, enabling efficient and high-resolution 3D scanning in diverse environments.

The active stereoscopic segment is expected to have the highest CAGR during the forecast period

The active stereoscopic segment is expected to have the highest CAGR during the forecast period. This method facilitates more accurate and detailed 3D imaging for applications like facial recognition, augmented reality, and industrial automation. With advancements in active stereoscopic techniques, the market is witnessing increased adoption across diverse industries, promising enhanced performance and expanded capabilities in capturing and analyzing three-dimensional data.

### **Region with largest share:**

North America is projected to hold the largest market share during the forecast period due to increasing demand across various industries, including manufacturing, healthcare, and automotive. The technology's precision in capturing detailed 3D images

and its applications in quality control and metrology are driving market expansion. Key players are investing in research and development to enhance camera capabilities, fostering market competitiveness. The region's strong technological infrastructure and the adoption of advanced imaging solutions contribute to the flourishing market in the region.

### **Region with highest CAGR:**

Asia Pacific is projected to hold the highest CAGR over the forecast period owing to increasing industrial automation and demand for advanced imaging solutions. These cameras utilize projected light patterns to capture precise 3D images, finding applications in various industries such as manufacturing, healthcare, and automotive. The rising adoption of 3D technology for quality control and inspection processes is a key factor propelling market expansion.

### **Key players in the market**

Some of the key players in Structured Light 3D Camera market include Cognex Corporation, LMI Technologies, Basler AG, Keyence Corporation, Teledyne Technologies, Intel Corporation, Microsoft Corporation, Texas Instruments, Hamamatsu Photonics K.K., Zebra Imaging, Inc., Infineon Technologies AG, Qualcomm Technologies, Inc., Hewlett-Packard (HP), Isra Vision AG, Azbil Corporation and PMD Technologies AG.

### **Key Developments:**

In February 2023, Qualcomm Technologies, Inc. and Prophesee announced collaboration that will optimize Prophesee's Event-based Metavision sensors for use with premium Snapdragon® mobile platforms to bring the speed, efficiency, and quality of neuromorphic-enabled vision to mobile devices.

In January 2021, Cognex Corporation, the leader in industrial machine vision, introduced the In-Sight® 3D-L4000 embedded vision system. Featuring 3D laser displacement technology, this first-of-its-kind smart camera allows engineers to quickly, accurately, and cost effectively solve a range of inspections on automated production lines.

Types Covered:

Stereo Vision Systems

Time-of-Flight Cameras

Handheld 3D Scanners

Other Types

Technologies Covered:

Coded Light

Pattern Projection

Active Stereoscopic

Other Technologies

Applications Covered:

Automotive

Healthcare

Consumer Electronics

Healthcare

Other Applications

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

**What our report offers:**

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

**Free Customization Offerings:**

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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