

Is the structured light module being used



AI Overview

Structured light modules are actively used in applications ranging from 3D imaging and facial recognition to robotics and industrial automation. Structured light technology is widely deployed in consumer electronics, particularly in smartphones for high-accuracy facial recognition and secure authentication, leveraging VCSEL laser arrays and projection optics to capture detailed 3D facial data (ams OSRAM) . Beyond consumer devices, structured light modules are integral to industrial and manufacturing applications, enabling non-contact 3D scanning, metrology, and surface inspection with high precision, even under varying lighting conditions . In autonomous driving and robotics, structured light modules provide reliable depth sensing and object detection, supporting navigation and safety systems . The technology is also expanding in healthcare, where it assists in medical imaging and patient monitoring, and in security and biometrics, where it enhances identification systems . Recent advancements in pattern projection, image processing algorithms, and sensor integration have made structured light modules more efficient, accurate, and versatile, allowing them to transition from niche research tools to mainstream industrial and consumer applications . Research continues to explore novel applications in optical manipulation, super-resolution microscopy, and secure optical communications, demonstrating the technology's ongoing relevance and adoption in both applied and experimental contexts . Overall, structured light modules are not only in active use today but are also experiencing rapid growth and innovation, with the global market projected to expand significantly due to increasing demand in 3D sensing, automation, and advanced imaging applications .



Article Content

Structured Light Technology: A High-Precision Method

One of the most widely used techniques for close-range 3D scanning is the structured light camera. Known for its high precision, it has become a go-to

Structured Light Module Consumer Behavior Dynamics: Key Trends

The structured light module market is poised for significant expansion, driven by the escalating adoption of 3D sensing technologies across key sectors including industrial automation, robotics, automotive,

What is a Structured Light Scanner?

What is a Structured Light Scanner? Structured light scanners are measurement devices that utilize a structured pattern of light projected onto an object's surface

What is Structured Light 3D Scanning and How It Works

A structured light 3D scanner measures an object's 3D shape by projecting a structured light pattern onto its surface. This pattern, often a grid or stripes, deforms when interacting with the

3D Scanning 101: Basics of Structured Light 3D

Learn more in our next 3D Scanning 101: Applications for Structured Light Scanning. Polyga's Structured Light 3D Scanners Polyga offers a range of cost-effective

Generation and Detection of Structured Light: A Review

The generation and detection of diverse structured light beams on different platforms, such as free space, optical fiber, and integrated devices, have become a necessary part of structured light ...

3D Structured Light Modules Market 2026-2034

Emerging trends involve integration of structured-light modules with AI-driven image processing, expansion into consumer electronics such as smartphones, and increasing use in smart

Overview of modulation techniques for spatially structured-light 3D ...

The modulation and projection of spatially structured-light patterns is a crucial problem in structured-light 3D imaging. Previously, researchers have used laser interference to produce fringe

Structured Light Module

Structured Light Module: Combination of diffractive and refractive optics for laser pattern generation in very high angles.

Understanding 3D Camera Technologies: Stereo Vision, Structured Light ...

Limitations Compared to structured light systems, ToF may offer lower depth resolution. Surface reflectivity and color can also affect measurement accuracy. NAMUGA's development

Structured Light's Applications: A perspective

Structured light beams are paving the path towards novel applications in various research fields, some with a history dating back to the early years of structured light and others still at an early

How to use structured light and image sensors for range

Range detection using structured light and image sensors adds accurate depth perception to enable 3D image systems such as facial recognition.

Tau Lidar Camera

An Explainer on Structured Light vs LiDAR for 3D Depth What's the difference between 3D depth sensing with structured light scanning and LiDAR? What's

What is Structured Light 3D Scanning and How It Works

Issue: Structured light scanners work best on small to medium objects. Structured light scanners typically have a limited field of view and range for effectively projecting light patterns. The

Structured Light Techniques and Applications

Structured light technology has been used within the entertainment industry, as well. The Microsoft Kinect, for example, is a 3D sensing device that

Structured Light at the Extreme

The scenarios considered recently include the use of high-photon-number structured quantum light, or quantum laser fields interacting with correlated or topological materials, with their outputs

The Future of Structured Light: Trends and Innovations

Structured light is finding new applications in the field of quantum computing, where it is being used to encode and manipulate quantum information. The use of structured light in quantum

Structured Light 3D Scanning: What Is It and How Does

2. Sensitive to transparent or reflective materials How the incident light reflects on the objects being scanned is the main source of information that

Towards higher-dimensional structured light | Light: Science

It is the first perspective or review that considers the dimensionality that may be reached with structured light, as well as the opportunities and challenges in pursuing this.

Structured Light Module Market Size & Share 2026-2032

As device miniaturization trends converge with the demand for more intuitive human-machine interfaces, structured light solutions are positioned at the forefront of innovation, facilitating

Structured Light Projector Module Market Research Report 2033

Structured Light Projector Modules are essential components of smartphone facial recognition systems, projecting coded light patterns onto the user's face and analyzing reflections to create precise 3D

Structured light

In structured light scanning, where Gray codes are used for pattern projection, a drawback arises as more patterns are projected: the stripes become

Drivers of Change in Structured Light Module Market 2026-2034

Structured light modules are instrumental in delivering high-precision 3D data capture, advanced object detection, and reliable depth sensing across diverse sectors such as manufacturing,

A MEMS-based real-time structured light 3-D measuring ...

With its ability to non-contact measure three-dimensional information of objects and its extremely high accuracy advantage in close range, structured light 3-D measurement is widely used

Structured light | ams OSRAM

Structured light systems from ams OSRAM enable 3D imaging applications to achieve extremely high accuracy. Accurate structured light technology is behind the user face recognition being implemented

Contact Us

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