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Video as a Sensor Market Forecasts to 2030 – Global Analysis by Product (Video Surveillance, Thermal Imaging, Hyperspectral Imaging, Machine Vision and Monitoring), Sensor, Component, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Video as a Sensor Market is accounted for $69.5 billion in 2024 and is expected to reach $122.4 billion by 2030 growing at a CAGR of 9.9% during the forecast period. Video as a Sensor is the use of video cameras and computer vision algorithms to record, process, and analyze visual data for real-time decision-making. Applications including object detection, facial recognition, traffic monitoring, and security surveillance are made possible by video-based sensors, which offer extensive contextual information in contrast to typical sensors that measure particular characteristics (such as temperature or motion). Video sensors can now evaluate situations, identify anomalies, and automate procedures thanks to advanced technologies like artificial intelligence (AI), machine learning (ML), and deep learning. For improved situational awareness, this technology is extensively utilized in sectors like retail, healthcare, automotive (ADAS), and smart cities.

Market Dynamics:

Driver:

Increasing Demand for Smart Surveillance

The rising need for smart surveillance is a primary driver of the video as a sensor market, as businesses use AI-powered video analytics for real-time monitoring, threat identification, and operational insights. Investments in cutting-edge surveillance systems

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are being driven by growing security concerns in smart cities, retail, transportation, and industrial automation. Furthermore, decision-making is improved by integration with IoT, edge computing, and AI, which accelerates market expansion. The demand for automated, high-accuracy video analytics is expected to propel innovation and adoption across multiple sectors.

Restraint:

High Initial Costs

High beginning costs present a key hurdle to the market, limiting adoption, particularly among small and medium-sized organizations (SMEs). Upfront investments are increased by costs associated with edge computing, cloud storage, high-resolution cameras, and sophisticated AI-powered analytics. Significant financial resources are also needed for integration with the current infrastructure. Despite the long-term advantages of automation, security, and operational efficiency, these cost obstacles impede market penetration and postpone general implementation.

Opportunity:

Advancements in Edge Computing

Edge computing advancements are transforming the Video as a Sensor Market by providing real-time video analytics with reduced latency and bandwidth utilization. Edge computing improves productivity, security, and scalability in applications such as retail analytics, industrial automation, smart surveillance, and driverless cars by processing visual data closer to the source. This change lessens reliance on cloud infrastructure, enabling cost savings and quicker decision-making. The need for intelligent, decentralized video-based sensing is anticipated to grow as edge AI capabilities advance.

Threat:

Privacy and Data Security Concerns

Privacy and data security concerns impede the video as a sensor market, since new rules such as GDPR and CCPA demand stringent compliance requirements. Data encryption, illegal access, and moral AI use are issues that organizations must deal with. Adoption is further slowed by public worries about widespread surveillance and

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exploitation of personal data. Notwithstanding technological developments, market expansion is constrained by high cybersecurity threats and the expense of guaranteeing safe video analytics.

Covid-19 Impact:

The COVID-19 pandemic accelerated the adoption of Video as a Sensor Market as demand surged for contactless monitoring, crowd management, and thermal screening. Businesses and governments leveraged AI-driven video analytics for social distancing enforcement, occupancy tracking, and remote surveillance. The shift to remote operations and smart security solutions boosted investments in cloud-based and edge AI technologies, driving long-term growth despite initial supply chain disruptions and project delays.

The thermal imaging segment is expected to be the largest during the forecast period

The thermal imaging segment is expected to account for the largest market share during the forecast period because industries like defense, security, healthcare, and industrial automation are adopting thermal cameras for perimeter surveillance, predictive maintenance, and enhanced situational awareness. Integration with AI and IoT improves analytics, making thermal imaging crucial for contactless monitoring and anomaly detection. As demand for high-precision, real-time imaging grows, the segment significantly contributes to market expansion and innovation.

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

Over the forecast period, the agriculture segment is predicted to witness the highest growth rate due to real-time crop monitoring, livestock tracking, and automated irrigation management. AI-powered video analytics help detect crop diseases, pest infestations, and soil health issues, improving yield efficiency. Drones and IoT-integrated cameras enable remote field surveillance, reducing labor costs and enhancing productivity. As demand for data-driven farming solutions grows, the adoption of video-as-a-sensor technology in smart agriculture is expected to expand significantly.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share due to expanding investments in AI-powered surveillance, urbanization, and

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smart city initiatives. The need for real-time video analytics and automation is fueled by growing security concerns in the retail, industrial, and transportation sectors. Adoption is further accelerated by government policies that support infrastructure monitoring, traffic control, and public safety. IoT, AI, and edge computing developments also boost productivity, which makes video sensors essential for smart surveillance and operational intelligence in a variety of sectors.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR due to increased investments in smart cities, AI-powered surveillance, and IoT-based monitoring is accelerating demand. Government initiatives for public safety, border security, and critical infrastructure protection further boost market growth. Additionally, the expansion of autonomous vehicles, retail analytics, and healthcare monitoring enhances adoption. Strong technological advancements and cloud-based AI integration position North America as a key player in market expansion.

Key players in the market

Some of the key players in Video as a Sensor Market include Honeywell International Inc, Motorola Solutions, Inc., Dahua Technology Co., Ltd, Bosch Sicherheitssysteme GmbH, Hangzhou Hikvision Digital Technology Co., Ltd, AT&T Intellectual Property, IBM, Cisco Systems, Inc., Axis Communications AB, Johnson Controls, Sony Group Corporation, Sharp Corporation, Teledyne Technologies Incorporated, Corning Incorporated, PixArt Imaging Inc., Teledyne FLIR LLC, Panasonic Corporation, Hanwha Vision Co., Ltd., Pelco and L3Harris Technologies, Inc.

Key Developments:

In January 2025, Panasonic unveiled an innovative new energy efficient approach to heating, ventilation, and air conditioning (HVAC) that uses significantly less energy than conventional technologies.

In December 2024, Panasonic announced the launch of its BalancedHome Elite and Elite plus Series of Energy Recovery Ventilators (ERV). Available in top and side port configurations and compliant with major building codes, the new BalancedHome series ERVs are versatile and efficient, giving builders the flexibility to choose between eight different models with four different CFM levels.

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In November 2024, Panasonic and Arm announced a strategic partnership aimed at standardizing automotive architecture for Software-Defined Vehicles (SDVs).

Products Covered:

- Video Surveillance
- Thermal Imaging
- Hyperspectral Imaging
- Machine Vision
- Monitoring

Sensors Covered:

- Image Motion
- Infrared

Components Covered:

- Hardware
- Software
- Services

Applications Covered:

- Traffic Monitoring & Management
- Retail Analytics
- Patient Monitoring

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- Industrial Automation
- Environmental Monitoring
- Other Applications

End Users Covered:

- Smart Cities & Infrastructure
- Manufacturing
- Defense & Aerospace
- Agriculture
- Other End Users

Regions Covered:

- North America
  - US
  - Canada
  - Mexico
- Europe
  - Germany
  - UK
  - Italy

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- 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

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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 2022, 2023, 2024, 2026, and 2030
- 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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