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IoT Sensor Market - Global Industry Size, Share, Trends, Competition, Opportunity, and Forecast, Segmented By Sensor Type (Pressure Sensor, Temperature Sensor, Light Sensor, Chemical Sensor, Motion Sensor, Others (Touch Sensor, Proximity Sensor)), By Application (Industrial Automation, Connected & Smart Home, Smart Cities, Healthcare, Retail, Connected Cars, Aerospace & Defense, Smart Agriculture, Others (Smart Energy, Smart Supply Chain)), By Network Type (Wired, Wireless), By Region & Competition, 2021-2031F

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Abstracts

The Global IoT Sensor Market is projected to surge from USD 16.15 Billion in 2025 to USD 94.85 Billion by 2031, achieving a CAGR of 34.32%. This market consists of hardware devices engineered to detect environmental variations and translate them into digital data for transmission across a network. The sector's growth is primarily fueled by the rising demand for industrial automation to boost manufacturing efficiency, the worldwide development of smart city infrastructure, and government mandates requiring advanced safety features in the automotive industry. These core drivers are distinct from technological trends, representing the fundamental economic and operational needs that necessitate the deployment of sensing capabilities across diverse industries.

However, ensuring data privacy and security presents a substantial obstacle to market expansion, as the proliferation of connected endpoints increases the potential attack surface for cyber threats. Security vulnerabilities remain a critical concern for

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enterprises incorporating these devices into sensitive networks. Highlighting the scale of this sector's development, GSMA Intelligence forecasts that the global number of IoT connections will reach 38.7 billion by 2030, illustrating the magnitude of growth and the corresponding security challenges in this field.

Market Driver

The acceleration of Industry 4.0 and industrial automation acts as a major catalyst for the Global IoT Sensor Market. Manufacturers are aggressively adopting smart sensors to enable predictive maintenance, real-time monitoring, and improved operational efficiency. This transition converts conventional factories into connected ecosystems where data collection informs decision-making, requiring a significant volume of temperature, vibration, and proximity sensors to gather granular operational metrics. Underscoring this widespread adoption, the '9th Annual State of Smart Manufacturing Report' by Rockwell Automation in March 2024 revealed that 95% of manufacturers are currently utilizing or assessing smart manufacturing technologies, highlighting the essential economic need for advanced hardware to modernize infrastructure and sustain competitiveness.

Concurrently, the extensive deployment of high-speed 5G and LPWAN connectivity is unlocking new capabilities for sensor application across large geographic regions. These advanced networks deliver the low latency and high bandwidth necessary for critical uses in autonomous vehicles and remote monitoring, effectively resolving the range and speed constraints of earlier standards. According to the 'Global 5G Connections Update' by 5G Americas in April 2024, global 5G connections hit 1.76 billion in 2023, reflecting the massive infrastructure growth supporting dense sensor networks. As connectivity barriers diminish, the volume of cellular-connected sensors is rising, expanding market reach into logistics and utilities, with Ericsson forecasting total cellular IoT connections to reach 4.5 billion by the end of 2025.

Market Challenge

The difficulty of guaranteeing data privacy and security constitutes a significant barrier to the rapid expansion of the Global IoT Sensor Market. As organizations deploy hardware to capture granular environmental and operational data, they inadvertently widen the network's attack surface, creating vulnerable entry points that can compromise entire systems. This intrinsic vulnerability necessitates rigorous and often expensive security verification processes, causing enterprises to hesitate in adopting sensor-driven solutions for critical infrastructure. Consequently, the operational

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efficiencies promised by industrial automation are frequently deprioritized in favor of risk mitigation, thereby slowing the overall velocity of market adoption and implementation.

This hesitation is grounded in tangible risks rather than theoretical concerns, directly affecting procurement decisions. According to CompTIA in 2024, approximately 31% of surveyed technology professionals identified IoT-based attacks as a top cybersecurity threat within their organizations, highlighting a prevailing lack of confidence in the security integrity of these devices. When a substantial segment of the potential customer base views IoT hardware as a security liability, the procurement cycle lengthens and widespread deployment is stalled, directly reducing the revenue potential and growth trajectory of the global sensor industry.

Market Trends

The integration of Artificial Intelligence and Edge Computing for On-Device Analytics is fundamentally reshaping the Global IoT Sensor Market by shifting data processing from centralized clouds to the network edge. This architectural transition enables sensors to perform immediate, autonomous decision-making without the latency or bandwidth constraints associated with constant data transmission. By embedding microcontrollers and machine learning algorithms directly into the hardware, manufacturers are creating smart sensors capable of real-time event detection and enhanced privacy, significantly increasing the value of individual endpoints. Validating the scale of this technological shift, Bosch Sensortec announced in a January 2025 press release that the company surpassed the milestone of delivering over 1 billion MEMS sensors featuring integrated microcontrollers and software in 2024.

Simultaneously, the Expansion of Wearable Sensors for Remote Patient Monitoring is creating a high-growth vertical as healthcare providers increasingly rely on continuous, home-based health tracking. This trend moves beyond simple fitness tracking to medical-grade biosensors that manage chronic conditions like diabetes and cardiovascular disease, effectively transitioning patient care from clinical settings to daily life management. These non-invasive devices provide critical longitudinal data, allowing for proactive medical interventions and significantly reducing the burden on hospital infrastructure. Illustrating the rapid adoption of these sensor-based medical solutions, Dexcom's '2023 Annual Report' in May 2024 noted that the global user base for the company's sensor-driven continuous glucose monitoring systems grew by approximately 35% year-over-year to reach 2.3 million users.

Key Market Players

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Texas Instruments Incorporated

TE Connectivity Ltd.

Broadcom Inc.

NXP Semiconductors N.V.

STMicroelectronics N.V.

Bosch Sensortec GmbH

Honeywell International Inc.

General Electric Company

Sensata Technologies Inc.

Omron Corporation

Report Scope

In this report, the Global IoT Sensor Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

IoT Sensor Market, By Sensor Type

Pressure Sensor

Temperature Sensor

Light Sensor

Chemical Sensor

Motion Sensor

Others (Touch Sensor, Proximity Sensor)

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- Japan
- Australia
- South Korea

South America

- Brazil
- Argentina
- Colombia

Middle East & Africa

- South Africa
- Saudi Arabia
- UAE

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Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global IoT Sensor Market.

Available Customizations:

Global IoT Sensor Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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