

Virtual Sensors Market Size, Share & Trends Analysis Report By Component (Solutions, Services), By Deployment (Cloud, On-premise), By End-use (Aerospace & Defense, Manufacturing & Utilities), By Region, And Segment Forecasts, 2025 - 2030

<https://marketpublishers.com/r/VF64EA7201CAEN.html>

Date: December 2024

Pages: 100

Price: US\$ 4,950.00 (Single User License)

ID: VF64EA7201CAEN

Abstracts

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Virtual Sensors Market Growth & Trends

The global virtual sensors market size is estimated to reach USD 4.7 billion by 2030, registering a CAGR of 27.9% from 2025 to 2030, according to a new report by Grand View Research, Inc. Growing use of virtual sensors in the human activity recognition and in the healthcare domain is driving the market. Implementation of cloud platforms integrated with IoT applications is driving the market growth.

A virtual sensor is expected to achieve multiple objectives built for a specific purpose and result in a meta-analysis about its environment. These circuits can range from very simple to very complex design and undergo changes to produce a desired output. The device is an intangible form of sensor which is activated via two kinds of input, one from user and other from physical sensor. However, virtual sensors, in terms of capabilities are much beyond physical devices that can work individually and collectively irrespective of their physical counterparts.

Trends such as new product launches and agreements are likely to be witnessed in the market. In order to enhance industrial facilities, GE offers virtual sensors that reliably work on Predix, which is a cloud-based platform mainly used in the industrial space. Moreover, Siemens AG is working on digital twin technology for the development of virtual sensing

solution for its customers. Siemens AG has developed Simcenter solution that is combining the system simulation and 3D CAE for predicting the performance parameters earlier and throughout the product lifecycle.

The solutions segment is expected to witness largest virtual sensors market share over the forecast period. This is attributed to advent of industry 4.0 and rising demand for cloud-based solutions in the manufacturing facilities. Such solutions are anticipated to promote the robot guidance operations by sensing and reducing accidents.

The market in Asia Pacific offers lucrative growth opportunities in terms of technology output, competitive advantage, and relevancy. In addition, the market witnesses a high influx of investments by stakeholders in various verticals pertaining to product development. Compliance policies and government regulations are pivotal in creating a sustainable market development. North America is expected to hold largest market share over the forecast period. This is attributed to rising demand for IoT cloud models and continuous innovations in the field of VR. In addition, growing adoption of advanced technologies among the companies in the region is driving the market growth.

Virtual Sensors Market Report Highlights

The service segment is anticipated to witness higher CAGR over the forecast period, owing to growing training and consulting activities for imparting significant knowledge and advantages of virtual sensors

The cloud deployment segment is expected to grow at a highest CAGR during the forecast period, as organizations seek greater flexibility and scalability in their operations

By end-use, the aerospace & defense segment is expected to grow at the fastest CAGR over the forecast period, as technological advancements create new opportunities for virtual sensors in applications such as predictive maintenance and safety monitoring.

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