Nanosensors Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

Market Report | 2023-11-24 | 146 pages | IMARC Group

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Report description:

The global nanosensors market size reached US$ 790.0 Million in 2022. Looking forward, IMARC Group expects the market to reach US$ 1,538.6 Million by 2028, exhibiting a growth rate (CAGR) of 11.75% during 2022-2028. The rising utilization of nanosensors in manufacturing efficient automotive parts, increasing levels of air pollution around the world, and the growing adoption of unmanned aerial vehicles (UAVs) in security management represent some of the key factors driving the market.

Nanosensors are sensing devices that detect the presence of nanoparticles or chemical species and monitor various physical parameters on the nanoscale. They comprise an analyte, transducer, and detector, which track electrical changes in the sensor materials. They possess a high surface area volume ratio that enables them to gain more sensitivity for the detection of particles at the trace level. They assist in enhancing the quality of crops by detecting the presence of humidity, pesticide residue, pathogen and heavy metals in soil. Nanosensors are incorporated in various automotive parts, such as batteries, fuel cells, mirrors, windows, and tires, to enhance the comfort, safety, speed and durability of vehicles. They are also integrated as accelerometers in microelectromechanical systems (MEMS), such as airbags, exhaustive gas filters, and fuel vapor pressure sensors, to enhance their functionalities. Besides this, they find extensive applications in plant sciences for examining metabolic activities, providing a steady energy supply, detecting and responding to a wide variety of environmental stimuli, and storing and computing data.

Nanosensors Market Trends:
At present, the rising demand for nanosensors in environmental pollutant screening and monitoring represents one of the primary factors influencing the market positively. Besides this, the increasing utilization of biosensors in safeguarding astronauts from health hazards by detecting infections and asthma attacks and early radiation damage is propelling the growth of the market. In addition, there is a rise in the employment of nanosensors in the automotive and transportation industry for manufacturing nano-coatings, reducing fuel consumption, and enhancing ergonomics in automobiles. This, coupled with the growing demand for environment friendly vehicles to minimize the negative impacts of air pollution, is offering a favorable market outlook. Apart from this, the increasing occurrence of chronic diseases, along with the rising adoption of nanosensors for studying neurotransmitters

in the brain, medical diagnostic imaging, examining pathogens and disease monitoring, is contributing to the market growth. Additionally, rising practices of urban farming due to the decreasing availability of arable lands and surging demand for food around the world are supporting the market growth. Moreover, the increasing adoption of unmanned aerial vehicles (UAVs) in the defense and military sector for maintaining border security and reducing terrorist activities is bolstering the market growth.

Key Market Segmentation:
IMARC Group provides an analysis of the key trends in each sub-segment of the global nanosensors market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on type, technology and application.

Type Insights:

Optical Nanosensor
Chemical Nanosensor
Physical Nanosensor
Biosensor
Others

The report has provided a detailed breakup and analysis of the nanosensors market based on the type. This includes optical nanosensor, chemical nanosensor, physical nanosensor, biosensor and others. According to the report, chemical nanosensor represented the largest segment.

Technology Insights:

Molecular Self Assembly
Top-down Assembly
Bottom-up Assembly

A detailed breakup and analysis of the nanosensors market based on technology has also been provided in the report. This includes molecular self assembly, top-down assembly and bottom-up assembly.

Application Insights:

Electronics
Chemical Manufacturing
Energy
Aerospace and Defense
Healthcare
Others

A detailed breakup and analysis of the nanosensors market based on the application has also been provided in the report. This includes electronics, chemical manufacturing, energy, aerospace and defense, healthcare and others. According to the report, healthcare accounted for the largest market share.

Regional Insights:

North America

United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets that include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia and others), Latin America (Brazil, Mexico and others), and Middle East and Africa. According to the report, North America was the largest market for nanosensors. Some of the factors driving the North America nanosensors market included the growing use of nanosensors in military and homeland security, rising occurrences of various chronic diseases, increasing integration of innovative technologies to enhance the functionalities of nanosensors, etc.

Competitive Landscape:
The report has also provided a comprehensive analysis of the competitive landscape in the global nanosensors market. Detailed profiles of all major companies have also been provided. Some of the companies covered include Agilent Technologies Inc, Altair Nanotechnologies Inc, Analog Devices Inc, Biosensors International Group Ltd, Honeywell International Inc., Kleindiek Nanotechnik GmbH, Lockheed Martin Corporation, OMRON Corporation, Oxonica Limited and Texas Instruments Incorporated. Kindly note that this only represents a partial list of companies and the complete list has been provided in the report.

Key Questions Answered in This Report
1. What was the size of the global nanosensors market in 2022?
2. What is the expected growth rate of the global nanosensors market during 2023-2028?
3. What are the key factors driving the global nanosensors market?
4. What has been the impact of COVID-19 on the global nanosensors market?
5. What is the breakup of the global nanosensors market based on the type?
6. What is the breakup of the global nanosensors market based on the application?
7. What are the key regions in the global nanosensors market?
8. Who are the key players/companies in the global nanosensors market?

Table of Contents:

Nanosensors Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028

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