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Capacitive Sensor Market Assessment, By Type [Motion Sensors, Touch Sensors, Position Sensors, Others], By Application [Aerospace and Defense, Consumer Electronics, Oil and Gas, Healthcare, Automotive, Food and Beverages, Others], By Region, Opportunities and Forecast, 2017-2031F

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Abstracts

Global capacitive sensor market size was valued at USD 35.15 billion in 2023 which is expected to reach USD 56.45 billion in 2031 with a CAGR of 6.1% for the forecasted period between 2024 and 2031.

Capacitive sensors offer high sensitivity, non-contact operation, accuracy, and resilience to environmental factors, thereby making them versatile for applications such as aerospace and defense, consumer electronics, oil and gas, and healthcare. Factors driving the capacitive sensor market's growth include consumer electronics demand, automotive applications, industrial automation, medical devices, IoT proliferation, ongoing miniaturization, and innovation in sensor technology.

The proliferation of Internet of Things has significantly boosted the demand for capacitive sensors. IoT devices require various sensors, including capacitive type, for functions like touch-sensitive controls, proximity sensing, and user interfaces. As more IoT devices are deployed in smart homes, industrial settings, and healthcare, the demand for capacitive sensors continues to rise, thereby increasing the adoption rate of IoT devices which in turn is contributing to the market's growth.

For example, in May 2023, the worldwide count of connected IoT devices is projected to increase by 16% to reach 16.7 billion active endpoints. Although the growth in 2023 is

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anticipated to be slightly less compared to 2022, the trend suggests that IoT device connections will expand steadily over the years to come.

Utilization of UAVs is Fostering the Market Growth

The deployment of unmanned aerial vehicles is driving growth of capacitive sensors market. Capacitive sensors play a crucial role in UAV technology by enabling touchscreens, proximity detection, etc. Moreover, the expanding applications of UAVs in various sectors, including surveillance, agriculture, and delivery services, are fueling the demand for capacitive sensors.

For example, in October 2023, Optiemus Infracom has revealed its entry into the Unmanned Systems field by introducing a range of drones crafted and produced in India. This initiative involves a mammoth investment of USD 3.01 million (INR 250 million) investment in Optiemus Unmanned Systems (OUS). The products unveiled by Optiemus Infracom incorporate state-of-the-art features, encompassing advanced sensors, secure communication systems, and stringent safety measures.

Emergence of Highly Advanced Touch Sensors is Amplifying the Market Growth

The emergence of highly advanced touch sensors is significantly boosting the market. These sensors offer increased sensitivity and precision in touchscreens, human-machine interfaces, and various applications. As consumer electronics, automotive, industrial automation, and IoT devices increasingly adopt these advanced touch sensors, the capacitive sensor market experiences substantial growth, driven by the demand for more responsive and interactive touch-based interfaces.

For example, SigmaSense has revealed its intentions to showcase advanced touch sensing capabilities at SID Display Week 2023. The cutting-edge multi-dimensional sensing technology offered by SigmaSense paves the way for unprecedented user experiences, encompassing 3D, multi-surface, and multi-user sensing in various domains such as industrial and rugged devices, mobile devices, foldables, and digital signage applications.

Aerospace and Defense Sector is Catering to Market Opportunities

The aerospace and defense sector is capitalizing on significant market opportunities in the global capacitive sensors market. These sensors are being utilized for various applications, including proximity detection, fuel level monitoring, structural health

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assessment, and environmental monitoring. Moreover, the sector's rapid adoption of capacitive sensors enhances safety, efficiency, and technological capabilities, addressing the growing demand for advanced sensing solutions in aerospace and defense operations.

United States is undoubtedly leading the aerospace and defense sector due to the presence of highly developed capacitive sensors. For example, in June 2023, the US Department of Defense stated that the military's modernization efforts are on track due to the arrival of interoperable sensors (ISA) that can work together seamlessly. In addition, it announced that ISA's goal is to enhance the Army's capacity to function effectively in adverse conditions by adapting to various tactical scenarios and strengthen its abilities to safeguard the nation.

Asia-Pacific to Lead the Market

Asia-Pacific dominated the capacitive sensor market due to several factors. It experienced substantial industrial growth, increased consumer electronics demand, and extensive adoption of automation technologies. Moreover, the region's expanding automotive industry, coupled with the proliferation of IoT devices, drove the need for capacitive sensors in various applications. Hence, these factors collectively position Asia-Pacific region as the market leader during the prevised timeframe.

For example, in July 2022, Panasonic introduced a Capacitive Knob designed for seamless integration with standard touch sensors. This innovative knob offers an enhanced user interface experience, allowing precise control and navigation on touch-sensitive surfaces. The new product complements touch sensor technology, providing an adequate input method for consumer electronics and industrial control systems, thereby improvising user interactivity and functionality.

Government Initiatives on the Capacitive Sensor Market

Government initiatives are essential for the capacitive sensor market's growth. These sensors, which detect touch and proximity, are vital in numerous industries, from smartphones to automotive and healthcare. Moreover, government support can drive research and development, leading to more innovative and cost-effective solutions. Furthermore, regulatory standards and incentives can promote the adoption of capacitive sensors, enhancing public safety and environmental considerations. Moreover, incentives such as tax or subsidies for manufacturers can boost domestic production and competitiveness, while regulatory guidelines ensure product quality and

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consumer protection.

For instance, in November 2022, Somalytics Inc., a technology innovator based in Seattle, was acknowledged by the Consumer Technology Association in 2023 CES Innovation Awards. They received this recognition in the Embedded Technology category for their remarkable SomaCap capacitive sensor. Somalytics is at the forefront of enhancing human interactions with the Internet of Things, by introducing these highly advanced capacitive sensors that greatly improve how we naturally interact with and manage the digital realm.

Impact of COVID-19

The capacitive sensor market experienced different phases before and after the COVID-19 pandemic. Pre-COVID-19, the market was on a growth trajectory, driven by increasing demand in consumer electronics, automotive, and healthcare sectors. However, the pandemic disrupted supply chains, causing temporary production slowdowns and a reduction in demand. Moreover, many businesses adapted to remote work, leading to project delays. In post-COVID-19 landscape, the capacitive sensor market rebounded by capitalizing on the need for touchless technology with applications like touchscreens, biometrics, gesture recognition, etc. Furthermore, the market has displayed resilience and adaptability by highlighting the importance of innovation and flexibility in responding to changing consumer preferences and technological trends.

Key Players Landscape and Outlook

The global capacitive sensor market is undergoing rapid advancement, marked by leading companies boosting their investments in UAVs and touchscreen sensors. Furthermore, these enterprises are allocating substantial resources to boost their market footprint and profitability. They are actively engaging in collaborations, acquisitions, and partnerships that are reshaping the industry's structure and accelerating overall market growth.

For instance, in February 2023, Renesas introduced the RL78/G22 MCU, which features a capacitive sensor that can perform detection without direct contact, making it less susceptible to dust and other environmental factors. These recent product launches demonstrate the ongoing innovation and development in the field of capacitive sensor technology.

In November 2022, Infineon Technologies AG introduced the PSoC 4100S Max range,

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which includes an expanded flash memory and a set of general-purpose inputs/outputs (GPIO). The enhanced design is geared towards supporting next-generation human machine interface (HMI) applications that utilize fifth generation CAPSENSE touch sensors. The PSoC 4100S Max with CAPSENSE technology, available in various packaging options, is well-suited for a range of applications, including industrial control, automotive HMI, and home automation.

In July 2022, Littelfuse, Inc. completed the acquisition of C&K Switches, which is likely to include capacitive sensor capabilities. These acquisitions demonstrate a trend of companies expanding their technical capabilities and product portfolios in the field of capacitive sensors.

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Contents

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7. GLOBAL CAPACITIVE SENSOR MARKET OUTLOOK, BY REGION, 2017-2031F

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8. MARKET MAPPING, 2023

9. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE

10. MARKET DYNAMICS

11. KEY PLAYERS LANDSCAPE

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