

Mems For Mobile Devices Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 125 pages | Mordor Intelligence

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Report description:

The MEMS for mobile devices market (henceforth referred to as the market studied) was valued at USD 5.48 billion in 2021. It is projected to be worth USD 9.55 billion by 2027, registering a CAGR of 9.31% between 2022 and 2027 (henceforth referred to as the forecast period).

Key Highlights

The evolution and development of technologies have impacted the designs of MEMS sensors significantly. Especially, developments in the electronics industry toward consumer electronics and smart devices are majorly driven by technological trends, consumer preferences, etc. These trends are driving the need for the miniaturization of MEMS sensors.

With an increase in demand for accelerometers and gyroscopes in smartphones, the MEMS for mobile devices market is expected to grow significantly during the forecast period, owing to the sheer number of devices shipped globally. For instance, in 2021, the total number of mobile subscriptions globally stood at around 6.3 billion and is poised to increase further, according to Ericsson forecasts.

The trend to achieve lower power consumption of MEMS devices has significantly characterized the studied market. Further, changing consumer dynamics, such as increasing fast and minimized charging times and charging optimization, drive the need for sensors in smart mobile devices, as they are developed to reduce power consumption, significantly reducing the charging time required.

The miniaturization of devices is one of the major factors driving the demand for MEMS in mobile devices. With the size of end devices shrinking, the manufacturers continuously look for ways to upgrade their technology to reap benefits.

MEMS devices vary from simple structures to complex systems with multiple elements under the control of integrated microelectronics. This creates a significant challenge when it comes to the manufacturing of MEMS-based sensors. The development cycle of MEMS-based sensors is long due to design complexities. Currently used CAD tools have been taking a

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significant amount of time for the design cycle with increasing complexity.

The effect of COVID-19 on the mobile devices market has been moderate. Moreover, the pandemic changes the perception of the current global supply chain in manufacturing, potentially leading to more localized value chains and further regionalization to minimize similar risks in the near future.

MEMS for Mobile Devices Market Trends

Fingerprint Sensors to Exhibit Considerable Growth

Fingerprint authentication is more secure than conventional methods, as the latter is based on passwords and personal identification numbers (PINs). Fingerprint sensing technology is rapidly being adopted in consumer devices, such as smartphones and tablets, due to its popularity and unique features, such as the ability to capture each individual's characteristics, like ridges, valleys, and minutiae points. The growing adoption of smartphones with fingerprint technology because of the speed and simple unlocking process created a need for MEMS sensors.

To capitalize on the market, in February 2022, Fingerprint Cards AB announced that FPC1552 curved, the company's second-generation slim and curved capacitive touch sensor, was integrated into the recently launched Redmi K50 by Xiaomi. The fingerprint sensor is placed on the side of the phone and features a curved surface for more seamless integration. It enables a range of the latest smartphone designs, including borderless and foldable phones, to enhance the user experience beyond offering a convenient and secure authentication method, doubling as the power button, volume control, operating the camera shutter, and scrolling.

There are three main types of fingerprint scanners: ultrasonic, capacitive, and optical. As the name suggests, optical fingerprint sensors rely on capturing an optical image, essentially a photograph, using algorithms to detect unique patterns on the surface, such as ridges or distinctive marks, by analyzing the lightest and darkest areas of the image. As it was adopted earlier during research, it is the dominant technology in the market.

The primary issue with optical sensors or scanners is that they are not challenging to replicate. The technology only captures a 2D picture, conceding the manipulation of distinct designs to prosthetics and good quality photographs. Therefore, this technology is expected to be replaced, though there is undergoing development of new techniques. Synaptics, which develops a range of scanners for smartphones and other products, unveiled its Natural ID FS9100 optical fingerprint sensor. The module can operate successfully under 1mm of glass and with wet fingers, which generally messes with capacitive alternatives.

Huawei appears to be working on improving optical fingerprint scanner efficiency. In December 2021, Huawei published a patent for the fingerprint identification method and its electronic equipment and media, detailing an innovative piece of tech that will improve fingerprint identification.

Asia-Pacific is Expected to Hold Significant Market Share

Significant demand for smartphones from countries such as India, China, Japan, and South Korea encourages many vendors to set up production facilities in the region. The availability of raw materials, along with low establishment and labor costs, has also motivated the companies to establish their production centers in the region. Along with the manufacturing benefits, strong demand and rapid growth are also influencing mobile phone companies to set up their production facilities in the Asia-Pacific region.

According to the most recent figures given by the Chinese government, Chinese subscribers are flocking to buy pricey new 5G cellphones. China's 5G phone shipments surpassed 266 million units in 2021, an increase of 63.5% over the previous year. 5G accounted for 75.9% of the total mobile phone shipments, according to the data from the China Academy of Information and

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Communications Technology (CAICT).

Xiaomi will open two new mobile manufacturing units and a television manufacturing plant in India. One of the two mobile manufacturing units is now operational, and the company has collaborated with DBG India to run the Haryana plant. BYD, a Chinese electronics company, will build the second facility in Tamil Nadu.

Moreover, in January 2021, Samsung introduced its new Samsung ISOCELL GN2, a new 50MP image sensor. It includes features such as a large 1.4-micrometer (?m)-sized pixels, an enhancement to its predecessor ISOCELL GN1 that offered up to 100MP imaging, powerful HDR, improved auto-focusing through Dual Pixel Pro technology, and vivid results via Smart ISO Pro, regardless of the lighting environment. The GN2 supports full-HD videos at 480 fps or 4K at 120 fps for wider mobile video-shooting capabilities. The continuous upgrades in its current offerings are expected to increase the uptake of these innovative sensors by smartphone manufacturers.

MEMS for Mobile Devices Market Competitor Analysis

The MEMS market is riddled with large-scale vendors that are capable of both backward and forward integration and command significant revenue generation capabilities. The intensity of competitive rivalry in the market is moderately high and is expected to increase in the coming years.

February 2022 - Bosch SensorTech GMBH expanded its wafer fab in Reutlingen in order to fight the ongoing worldwide chip scarcity. More than EUR 250 million will be invested in constructing new production space by 2025 and the requisite clean-room facilities. Bosch will be able to meet the ever-increasing demand for chips used in mobility and IoT applications as a result of this. August 2021 - Analog Devices Inc. completed the acquisition of Maxim Integrated Products Inc. Maxim is a privately held company that develops cutting-edge analog and mixed-signal products and solutions. The acquisition will further strengthen the company's position as a high-performance analog semiconductor company.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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