

Optical Sensor Market - Growth, Trends, Covid-19 Impact and Forecasts (2023 - 2028)

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Report description:

The optical sensors market is expected to grow at a CAGR of 6.33% over the forecast period. Primarily due to the increasing number of smartphone users and advanced technologies driving the market growth. Furthermore, IoT-connected devices have opened massive opportunities for sensors in several applications like industrial, medical, consumer electronics, automotive, etc. According to Cisco's Annual Internet Report, by 2023, there will be nearly 30 billion network-connected appliances and connections, up from 18.4 billion in 2018.

Key Highlights

Increasing demand for advanced security features in smartphones has led to features such as an on-screen fingerprint scan and an optical sensor that detects and verifies fingerprints, driving the fiber optic sensor market. For instance, in May 2022, Vivo announced its latest flagship phone, the X80 Pro, and its most prominent new hardware feature is a larger in-display fingerprint sensor. The active area is far more significant than the tiny sensors found on most Android phones, meaning it's easier to unlock the phone without looking at the screen to align your thumb.

Further, Ambient sensors measure the room's light and adjust the screen's brightness accordingly. Thus, the increasing demand for smartphones is expected to drive the demand for these sensors. Countries like India, with a limited market penetration of smartphones, have witnessed double-digit growth in recent years. The same trend is anticipated to continue shortly. Also, the current trend of 4G feature phones is expected to aid the smartphone demand, driving the need for optical sensors.

Furthermore, the increasing adoption of electric vehicles creates opportunities for printed electronics to be used in battery condition monitoring. For instance, according to the IEA estimates, plug-in electric light vehicle worldwide sales amounted to 6.7 million units recently. Further, the IEA projects that, as a part of the Net Zero Emissions by 2050 Scenario, 300 million electric cars would be on the road and account for over 60% of new car sales.

Also, the adoption of these lighting systems in commercial and residential applications is expected to increase the demand for

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optical sensors. With LEDs and intelligent controls, Chicago planned to replace 270,000 city lights over the next four years till 2022. This initiative is expected to save Chicago USD 10 million in energy costs annually. With other cities following suit, the demand for optical sensors in these intelligent light systems is expected to increase.

The imbalance between image quality and price has led to increased competition, particularly for the consumer electronics segment, which has some of the most established players facing peer pressure over optimal pricing. Several small players are also facing difficulty with product differentiation, which leads to a potential barrier to their entry into high-volume applications. In this case, product differentiation can move a product from pure pricing to non-pricing factors.

Due to the outbreak of COVID-19, the global supply chain and demand for multiple sensors were majorly disrupted. With the shutdown in production in countries such as China, multiple industries observed a supply shortage of various products. ???Due to supply chain disruption, the raw material price increased, impacting the overall pricing of the proximity sensor.?

Optical Sensor Market Trends

Photoelectric Sensor is Expected to Register a Significant Growth

These sensors have been recognized for their full use in the industrial automation marketplace, owing to their high precision in detecting objects. These sensors have found a rising integration into a wide range of automated machinery, mainly for non-contact detections and measurements, including counting, monitoring, conveyor mechanisms, transport systems, machine tools, and assembly lines. For instance, in the parking assistance system, these sensors can detect the presence of objects in the pathway of the reversing vehicle and can raise the alarm to warn the driver.

Furthermore, in August 2022, Rockwell Automation announced Photoelectric Sensors for global applications. The latest Allen-Bradley 42EA RightSight S18 and 42JA VisiSight M20A photoelectric sensors are economical and easy-to-apply sensing solutions that deliver a wide range of sensing modes, mounting options, and unique features, making them optimal solutions for global operations. All samples have a visible red-light source to ease alignment, while multiple connection options and adjustment knobs for light or dark operation help reduce installation, setup, and maintenance.

In addition, favorable government policies promoting the manufacturing industry, coupled with the rising adoption of IIoT solutions, are the major factors driving the demand for photoelectric sensors. In addition, growing year-on-year automotive production and booming demand for processed food will further boost the demand for these sensors. Additionally, Philips recently announced an investment of INR 300 crores (USD 40.41 million) and planned to recruit 1,500 employees in India. The company announced plans to expand its Pune operations to increase manufacturing in India.

Moreover, with a greater inclination toward employing robotics and automation through Industry 4.0, there is a pressing need for precision in operations. Thus, driving the need for photoelectric sensors. The packaging, material handling, and automotive industries have emphasized the need for photoelectric sensors, owing to their collaboration of IIoT with Big Data and the reliance on data from smart sensors.

According to IBEF, in April 2022, 19 companies filed applications for the PLI Scheme for White Goods in the dual round of applications, with committed investments of INR 1,548 crore (USD 194.79 million). Further, as a part of the PLI scheme, 61 companies have installed component manufacturing facilities in 111 locations throughout 14 states and UTs, creating jobs across India. Such developments in the manufacturing industry will further drive market growth.

Asia Pacific?to Experience Significant Market Growth

Rapid Expansion of the end-user industries, like consumer electronics, industrial, automobile, and textile, are contributing significantly to the growth of the optical sensors market as these sensors themselves are used to improve the productivity of

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manufacturing set-ups as the data gathered by the sensors can be collated and acted upon immediately. According to IBEF, the Indian appliances and consumer electronics industry stood at USD 9.84 billion recently and is expected to more than double to reach INR 1.48 lakh crore (USD 21.18 billion) by 2025.

Furthermore, the increase in the demand and production of automobiles in the Asia-Pacific region is expected to promote the need for sensors in the market. For instance, as per the International Organization of Motor Vehicle Manufacturers (OCIA), the total production of automotive (including cars and commercial vehicles) in India increased to 30%, and the entire production of automotive (including cars and commercial vehicles) in China increased to 3%. Indonesia's total automotive output (including cars and commercial vehicles) increased to 63%. Various companies have expanded their presence in Asia-Pacific in response to such growth potential.

For instance, in August 2022, Renesas Electronics Corporation, a premier supplier of advanced semiconductor solutions, agreed to acquire Steradian Semiconductors Private Limited, a fabless semiconductor company that provides 4D imaging radar solutions based in Bengaluru, India. The acquisition of Steradian's radar technology would enable Renesas to extend its market presence in the radar market and boost its industrial and automotive sensing solution offerings.

According to IBEF, the Government of India expects the automobile sector to attract USD 8-10 billion in local and foreign investments by 2023. Furthermore, in April 2022, Tata Motors announced plans to invest INR 24,000 crore (USD 3.08 billion) in its passenger vehicle business over the next five years. Such investments in the automotive sector may further drive the studied market.

Furthermore, the increasing applications of a wide range of sensors in the smartphone market are expected to increase the demand for sensors in the market. For instance, in June 2022, Sony Group announced its plan to enhance its image sensor technology to expand its product portfolio and strengthen its market position. The company has been investing in its R&D capabilities to provide its customers with a solution for focusing on multiple targets when taking a picture via a smartphone. Such initiatives by the companies in the market are expected to increase the demand for sensors in the smartphone, thereby fueling the demand growth for sensors in the Asia-Pacific region.

Optical Sensor Market Competitor Analysis

The global optical sensors market is highly competitive and consists of several major players. The players focus on expanding their customer bases across foreign countries. These companies leverage strategic cooperative endeavors to boost their market shares and profitability. The companies operating in the market are also developing startups working on smart office technologies to strengthen their product quality.

September 2022 - OmniVision, a leading global developer of semiconductor solutions, including advanced digital imaging, analog, and touch & display technology, announced the OV08X, the industry's only 9.2 megapixels (MP) CMOS image sensor with a pixel size of 0.7-micron, enabling 4K resolution in a 1/5.7-inch optical format. The OV08X can be used in the most stringent 4mm y-dimension module laptops with 16:10 (1920x1200) aspect ratio monitors. It is the first image sensor for the laptop market to combine a four-cell color filter array and on-chip hardware remosaic, delivering high-quality, 9.2 MP Bayer output in real-time. The sensor is created with a low-power image signal processor to offer leading-edge light sensing and ultra-low power to maximize battery stamina.

February 2022 - Elliptic Labs, a global AI software company and one of the leaders in Virtual Smart Sensors, announced that its AI Virtual Proximity Sensor INNER BEAUTY would be shipping on Xiaomi's Redmi K50 Gaming smartphone. Elliptic Labs' AI Virtual Proximity Sensor delivers robust proximity detection without needing a dedicated hardware sensor. The AI Virtual Proximity Sensor reduces device cost and eliminates sourcing risk by replacing hardware with software sensors.

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