3D Sensor Market with COVID-19 Impact, by Type (Image Sensors, Position Sensors), Technology (Time of Flight, Structured Light), End-use Industry (Consumer Electronics, Industrial Robotics, Automotive), and Region, Global Forecast to 2026

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Abstracts

The 3D sensor market size is estimated to be USD 2.7 billion in 2021 and is projected to reach USD 9.4 billion by 2026; it is expected to grow at a CAGR of 28.1% from 2021 to 2026. The medical industry is growing at a significant rate across regions, especially with the introduction of new techniques for the treatment of diseases, e.g., the increased use of image sensors for X-rays, endoscopy, molecular imaging, optical coherence tomography, and ultrasound imaging. 3D image sensors are increasingly being used in the healthcare industry, owing to their low power consumption, high frame rate, and miniaturization of healthcare devices. Fairchild Imaging (US) (a division of BAE Systems Inc. (UK)), OmniVision Technologies (US), Aptina Imaging (US), e2v technologies plc (UK), Hamamatsu Photonics (Japan), and Panasonic Corporation (Japan) are some of the companies offering image sensors for this industry.

3D sensors are manufactured according to specific designs and interfaces. These specifications become a challenge for these sensors to integrate within any other device as not every device supports the same interface. For instance, newly developed technologies such as Microsoft Kinect are not flexible enough to be integrated with any device. Technological developments lead to these limitations, thereby restraining the growth of the market.

“3D image sensors: The fastest type of 3D sensor market .”

An image sensor is one of the important components of 3D technology, as the majority

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of the applications of 3D sensors require 3D imaging. There are three types of image sensors: CMOS 3D sensors, 3D electro-optical sensors, and 3D ToF sensors. CMOS 3D image sensors have undergone various developments, such as increased speed owing to a fast frame rate and improved resolution due to the increased number of pixels. These sensors have also improved in terms of power consumption, color concepts, and noise reduction. The CMOS 3D architecture allows for random pixel access and is equipped with the window of interest readout for applications requiring image compression, motion detection, or target tracking. Many consumer products such as smartphones, laptops, and PCs comprise 3D CMOS imaging integrated technology, which improves the accuracy and enables viewing the images from different angles. This technology is also used in video surveillance, security, defense, high-end digital cameras, and biomedical imaging.

“Time of Flight: The fastest technology of the 3D sensor market .”

ToF sensors provide a much higher frame rate and a lower z-resolution (approximately 1–2cm) compared with other 3D sensors. The results given by a 3D sensor are accurate for large measuring ranges, whereas, for small objects up to one meter, time of flight requires high speed, as the time difference is less (in the picosecond range). This technology uses a laser for a large measuring range and uses LED for a short range. It is majorly used in radar, laser, and acoustic devices.

3D sensors based on this technology are used in automotive, manufacturing, medical devices, human-machine interface, gaming, consumer electronics, robotics, and digital photography. Some of the companies providing such 3D sensors are Texas Instruments Incorporated (US), Infineon Technologies AG (Germany), and Melexis (Belgium).

“Consumer Electronics: Largest growing vertical of 3D sensor market”

The application of 3D sensors in consumer electronics is driven by the advent of AI technology, increased competition among consumer electronics companies, and a rise in the demand for enhanced features in consumer electronic products. 3D sensors are used in several consumer electronic products such as smartphones, laptops, cameras, wearable electronics, televisions, tablets, and scanners for 3D imaging, position tracking, depth sensing, measurement and designing, gesture and motion tracking, and security.

The implementation of 3D sensors in consumer electronics is increasing. For instance, a structure sensor can be used as a clip-on accessory for the iPad to scan objects in 3D to build a manipulable model of a room with complete measurements. GestureTek (Canada) provides 3D sensors for 3D displays and tracking systems, Infineon Technologies (Germany) for cameras, Apple Inc. (US) and Google Inc. (US) for mobile phones, and Neusoft (China) for wearable electronics.

“APAC: The fastest-growing region in the global 3D sensor market .”

3D sensing technology in this region is mainly used in consumer electronics such as smartphones, gaming consoles, PCs, and laptops. The application of 3D technology is growing in the entertainment industry in this region. The low cost of labor has boosted the manufacturing of components and devices in this region and made it a hub of manufacturing companies.

APAC is the fastest-growing market for 3D sensors in various application areas. China and India are the fastest-growing economies in the world. In APAC, this market is growing owing to applications in not only consumer electronics but also in healthcare and automotive sectors. Sony Corporation (Japan) and ASUSTeK Computers Inc. (Taiwan) are among the companies manufacturing 3D sensors in this region.

The study contains insights from various industry experts, ranging from component suppliers to Tier 1 companies and OEMs. The break-up of the primaries is as follows:

By Company Type: Tier 1 – 40%, Tier 2 – 25%, and Tier 3 – 35%

By Designation: C-level Executives – 35%, Directors – 28%, and Others – 37%

By Region: APAC – 40%, North America – 28%, Europe – 22%, RoW – 10%

Infineon Technologies AG (Germany), OmniVision Technologies, Inc. (US), Sony Corporation (Japan), Cognex Corporation (US), Lumentum Operations LLC (US), ifm electronic gmbh (Germany), Intel Corporation (US), KEYENCE CORPORATION. (Japan), LMI Technologies Inc. (Canada), Microchip Technology Inc. (US), II-VI Incorporated (US), AIRY3D (Canada), ASUSTeK Computer Inc. (Taiwan), CronAI (UK), Leuze electronic GmbH + Co. KG (Germany), Mantis Vision ltd. (Israel), Melexis NV (Belgium), Microsoft (US), Occipital, Inc. (US), Orbbec 3D (US), Panasonic Corporation (Japan), Qualcomm Technologies, Inc. (US), Quanergy Systems, Inc. (US), Samsung (South Korea), and SICK AG (Germany) are among the many players in the 3D sensor market.

Research Coverage:

The report segments the 3D sensor market and forecasts its size, by value, based on by Type (Image sensors, Position sensors, Acoustic sensors, Accelerometers and Others), by Technology (Stereo Vision, Structured light, Time of Flight, Ultrasound and Others), by End-use Industry (Consumer electronics, Healthcare, Aerospace & Defense, Industrial robotics, Entertainment, Automotive, Security & Surveillance, and Others), and Region (North America, Europe, APAC, and RoW),.

The report also provides a comprehensive review of market drivers, restraints, opportunities, and challenges in the 3D sensor market. The report also covers qualitative aspects in addition to the quantitative aspects of these markets.

Key Benefits of Buying the Report

The report will help the leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall market and the sub-segments. This report will help stakeholders and gain more insights to better position their businesses and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the 3D sensor market and provides them information on key market drivers, restraints, challenges, and opportunities. The report also covers COVID-19 impact on 3D sensor market.

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Contents

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5 MARKET OVERVIEW

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6 3D SENSOR MARKET, BY TYPE

6.1 INTRODUCTION
FIGURE 27 IMAGE SENSORS IS EXPECTED TO BE LARGEST TYPE SEGMENT OF

3D SENSOR MARKET DURING FORECAST PERIOD

TABLE 8 3D SENSOR MARKET, BY TYPE, 2017–2020 (USD MILLION)
TABLE 9 3D SENSOR MARKET, BY TYPE, 2021–2026 (USD MILLION)
TABLE 10 3D SENSOR MARKET, BY TYPE, 2017–2020 (MILLION UNITS)
TABLE 11 3D SENSOR MARKET, BY TYPE, 2021–2026 (MILLION UNITS)
6.2 IMAGE SENSORS
6.2.1 INCREASING ADOPTION OF SMARTPHONES AND CAMERAS IS DRIVING GROWTH OF CMOS 3D SENSOR MARKET
FIGURE 28 CONSUMER ELECTRONICS EXPECTED TO BE LARGEST MARKET FOR

3D IMAGE SENSORS DURING FORECAST PERIOD

TABLE 12 3D IMAGE SENSOR MARKET, BY END-USE INDUSTRY, 2017–2020 (USD MILLION)
TABLE 13 3D IMAGE SENSOR MARKET, BY END-USE INDUSTRY, 2021–2026 (USD MILLION)
FIGURE 29 APAC IS EXPECTED TO BE FASTEST-GROWING MARKET FOR

3D IMAGE SENSORS DURING FORECAST PERIOD

TABLE 14 3D IMAGE SENSOR MARKET, BY REGION, 2017–2020 (USD MILLION)
TABLE 15 3D IMAGE SENSOR MARKET, BY REGION, 2021–2026 (USD MILLION)
6.2.1.1 CMOS 3D image sensors
6.2.1.2 3D electro-optical image sensors
6.2.1.3 3D time of flight image sensors
6.3 POSITION SENSORS
6.3.1 POSITION SENSORS ARE USED IN AUTOMOTIVE, MANUFACTURING, AND CONSUMER ELECTRONICS INDUSTRIES FOR VARIOUS APPLICATIONS
TABLE 16 3D POSITION SENSOR MARKET, BY END-USE INDUSTRY, 2017–2020 (USD MILLION)
TABLE 17 3D POSITION SENSOR MARKET, BY END-USE INDUSTRY, 2021–2026

8 3D SENSOR MARKET, BY CONNECTIVITY

9 3D SENSOR MARKET, BY END-USE INDUSTRY

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3D sensor market in Mexico
10.3 EUROPE
FIGURE 38 SNAPSHOT OF 3D SENSOR MARKET IN EUROPE
TABLE 125 3D SENSOR MARKET IN EUROPE, BY TYPE, 2017–2020 (USD MILLION)
TABLE 126 3D SENSOR MARKET IN EUROPE, BY TYPE, 2021–2026 (USD MILLION)
TABLE 127 3D SENSOR MARKET IN EUROPE, BY END-USE INDUSTRY, 2017–2020 (USD MILLION)
TABLE 128 3D SENSOR MARKET IN EUROPE, BY END-USE INDUSTRY, 2021–2026 (USD MILLION)
TABLE 129 3D SENSOR MARKET IN EUROPE, BY COUNTRY, 2017–2020 (USD MILLION)
TABLE 130 3D SENSOR MARKET IN EUROPE, BY COUNTRY, 2021–2026 (USD MILLION)
10.3.1 UK
10.3.1.1 Increasing development and demand for autonomous vehicles would drive 3D sensor market in UK
10.3.2 GERMANY
10.3.2.1 Presence of key automotive players using 3D sensing technology majorly drives 3D sensor market in Germany
10.3.3 FRANCE
10.3.3.1 Increased demand for automation in vehicles is expected to boost demand for 3D sensors
10.3.4 REST OF EUROPE
10.4 APAC
FIGURE 39 SNAPSHOT OF 3D SENSOR MARKET IN APAC
TABLE 131 3D SENSOR MARKET IN APAC, BY TYPE, 2017–2020 (USD MILLION)
TABLE 132 3D SENSOR MARKET IN APAC, BY TYPE, 2021–2026 (USD MILLION)
FIGURE 40 CONSUMER ELECTRONICS TO HOLD LARGEST SHARE OF 3D SENSOR MARKET IN APAC
TABLE 133 3D SENSOR MARKET IN APAC, BY END-USE INDUSTRY, 2017–2020 (USD MILLION)
TABLE 134 3D SENSOR MARKET IN APAC, BY END-USE INDUSTRY, 2021–2026 (USD MILLION)
TABLE 135 3D SENSOR MARKET IN APAC, BY COUNTRY, 2017–2020 (USD MILLION)
TABLE 136 3D SENSOR MARKET IN APAC, BY COUNTRY, 2021–2026 (USD MILLION)

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12 COMPANY PROFILES

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