Gesture Recognition in Retail - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-04-28 | 140 pages | Mordor Intelligence

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Report description:

The Gesture Recognition in Retail Market size is estimated at USD 3.26 billion in 2025, and is expected to reach USD 7.23 billion by 2030, at a CAGR of 17.26% during the forecast period (2025-2030).

The market will likely benefit from rising global per capita income, technological developments, and more digitization in the retail industry. The expanding use of the Internet of Things (IoT) and the growing need for comfort and convenience in product consumption are also driving market expansion.

As per the Global Alliance for Improved Nutrition, there will be around 13 million retail food stores in India by 2022. This included both conventional and new merchants within the sector. While there has been consistent growth since 2013, it has been chiefly constituted of traditional retailers. Many retail establishments would provide opportunities for the studied market to expand. Various prototypes have been created to make hand gesture detection more affordable than conventional interface tools like keyboards and mice. Hand gestures are highly expressive, easily interact with the environment, and effectively transmit information may cause leading suppliers' rising interest.

Reliable personal recognition is required by a wide variety of access control systems. Examples of these systems include ATMs, laptops, and cellular phones. If these systems fail to meet the demands of reliable and robust authentication, potential imposters may gain access to these systems. To enhance the security of access control systems, two-factor authentication (T-FA) has been introduced, wherein two factors are combined to authenticate a user. Such factors are expected to drive the studied market.

Further, retailers can use facial recognition technology to create faster and more frictionless transactions, increase customer satisfaction through rich analytics, offer targeted advertising, better manage employee attendance and store security, and

personalize experiences for VIPs and loyalty program members. Investments in smart retail technology will guarantee that merchants continue giving the best in-store experience possible, improving brand loyalty and sales.

The capacity of computers to visually recognize hand movements is critical for the future development of HCI. However, vision-based recognition of hand gestures, particularly dynamic hand gestures, is a difficult interdisciplinary challenge for three reasons: hand gestures are diverse, have multiple meanings, and vary spatiotemporally; the human hand is a complex non-rigid object that is difficult to recognize; and computer vision is an ill-posed problem in and of itself.

The COVID-19 pandemic made contactless communication essential. Gesture recognition, which was relegated to AR/VR and biometric authentication background, benefited from this. The market had a lot of room for growth if platform-independent gesture detection systems were developed. Additionally, consumers' familiarity with AR/VR systems and the minimum interaction required with screens can broaden its application in various industries. Smartphones and the advertising space worked together to seamlessly transmit relevant ads and deliver information in the digital sphere.

This is in response to numerous smart city projects that would be implemented in various nations.

Gesture Recognition in Retail Market Trends

Touchless Technology is Expected to hold the Major Share

Touchless technology is more energy efficient because it shuts off automatically rather than requiring human involvement, resulting in less energy loss and cost. Simple, manual measures, such as sanitary levers, can be used by businesses to safeguard personnel from contaminated surfaces. The lower likelihood of health-related charges and fines offsets costs incurred due to deploying touchless technology. Touchless technology has the potential to enable or improve a more streamlined, self-directed, and enjoyable consumer experience, with convenience at its center.

Further, with voice recognition software, users can carry out tasks verbally. Examples include Apple's Siri, Google's Home, and Amazon's Alexa. Small businesses have created voice recognition software for commercial and public uses, like voice-activated ATMs and train ticketing devices. Businesses may reduce typing time, do away with retaining manual records, and enable customers to audibly add events to their calendars by using voice-activated, touch-free devices.

Moreover, touchless gesture recognition can identify and prevent repeat offenders by screening everyone who enters the store against a database of known shoplifters and rowdy patrons. The system quickly provides workers with the offender's identification, location within the store, and reasons for block-listing when cameras equipped with face recognition software identify offenders to ensure that the person is approached appropriately and safely. By creating this block list of known offenders, mistakes and biases are lessened and eliminated. Also, this strategy frees up loss prevention staff, allowing them to concentrate on ensuring the security of customers and employees.

Touchless-based gesture recognition point-of-sale (POS) systems can rapidly and easily verify customer identity and allow payments. Customers do not require a credit card or smartphone to complete the transaction, similar to previous biometric verification techniques. Using gesture recognition technology can help stop fraudulent transactions. The most recent anti-spoofing technology stops thieves from fooling the facial recognition system even if a user's card or smartphone is stolen. This technique prevents efforts at spoofing by ensuring that the face in front of the camera is a real person and matches the database.

According to US Census Bureau, total retail sales will have reached roughly USD 7.1 trillion by the end of 2022, an increase of approximately half a billion US dollars over the previous year. Several world's top retail corporations, such as Walmart, Costco, and Amazon, are headquartered in the United States. Amazon, in particular, has seen exceptional revenue growth in line with the

global expansion of e-commerce. Such huge retail sales are expected to drive the studied market.

Asia-Pacific to Witness the Fastest Growth

According to the Ministry of Statistics and Programme Implementation (MOSPI), India's consumer spending climbed from INR 22079.81 billion (USD 246.32 Billion) in the second quarter of 2022 to INR 22295.72 billion (USD253.07 Billion) in the third quarter. Further, According to Statistics Bureau Japan, the average monthly household spending on online food purchases in 2021 was over JPY 2.3 thousand, whereas spending on home electronics was only over JPY 1.2 thousand. In 2021, monthly household online spending was close to JPY 16,000. This may create an opportunity for retail players to deploy gesture recognition systems to enhance the customer experience.

Moreover, According to Global Agriculture Information Network, In 2022, there will be around 13 million retail grocery stores in India. Within the category, this encompassed both traditional and new retailers. While there has been a consistent number growth since 2013, it was largely made of traditional stores. Further, According to the National Bureau of Statistics of China, in 2021, there were 292,383 retail chain stores across the country.

Future studies should extend and integrate the proposed technology with the Internet of Things (IoT) to achieve full automation and increase gesture recognition segmentation performance in less-than-ideal conditions. To improve segmentation performance for non-ideal iris images, including different-sized iris, dark iris, occlusions owing to spectacles or eyelids, illumination, non-cooperative samples, and specular reflections, a high-efficiency iris image segmentation technique based on deep learning was developed.

The vendors in the market are developing new products to capture the market share. For instance, in March 2022, Baidu AI Cloud, a provider of AI clouds, unveiled an AI sign language platform capable of producing digital avatars for sign language translation and live interpretation in minutes. This platform, released as a new product of Baidu AI Cloud's digital avatar platform XiLing, promises to help break down communication barriers for the deaf and hard-of-hearing (DHH) community by increasing access to automated sign language translation.

As China's economy has grown, consumer demand and living and spending patterns have altered noticeably. Retail brands and shopping centers have continued to seize the business opportunities created by new consumption actively, not only by adopting new technologies to realize digitalization of all aspects of retail, improving the efficiency of the entire value chain, and lowering operating costs, but also by actively innovating and formulating new business models to create refined retail services, retail products, and retail space.

Gesture Recognition in Retail Industry Overview

The gesture recognition in the retail market is fragmented. Some key players are Sony Corporation, Apple Inc., and Google LLC. Product launches, high expenses on research and development, partnerships and acquisitions, etc., are the prime growth strategies these companies adopt to sustain the intense competition.

In February 2023, WiMi Hologram Cloud Inc., a global Hologram Augmented Reality ("AR") Technologies provider, created a 3D gesture tracking algorithm. This is a way of monitoring a user's gesture by collecting the target gesture's position and translating its movement into a continuous trail of points in a video frame to decode human gestures using mathematical algorithms. A three-dimensional gesture tracking algorithm is an important area of research in computer vision. The system tracks user motions using gestures, camera attitude, and position information, which somewhat helps solve the gesture-tracking problem in video streams.

In July 2022, STMicroelectronics, a global semiconductor pioneer servicing clients across various electronics applications, released its latest FlightSense Time-of-Flight (ToF) multi-zone sensor. When delivered with a suite of essential software algorithms, the combination provides a turnkey solution for user detection, gesture recognition, and intruder warning, specifically suited for the PC market.

Additional Benefits:

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

Table of Contents:

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