

Global Humanoid Robots Market: Analysis By Component (Hardware & Software), By Motion Type (Bipedal & Wheel Drive), By Application (Retail & Healthcare, Hospitality, Construction, Military & Defense, and Others), By Region Size and Trends with Impact of COVID-19 and Forecast up to 2027

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Abstracts

The global humanoid robots market in 2021 was valued at US\$1.53 billion. The market is expected to reach US\$12.07 billion by 2027. Humanoid robots are service robots, with their body shape built to resemble the human body. Humanoid robots are being used in the inspection, maintenance and disaster response at power plants to relieve human workers of laborious and dangerous tasks. Similarly, they are prepared to take over routine tasks for astronauts in space travel.

Humanoid robots with artificial intelligence algorithms find large application in the healthcare sector as medical assistants, training aids as these robots can execute tedious, and complex task from various body position. Therefore, surging demand from healthcare sector is one of the main factors that would drive the demand for humanoid robots in the forthcoming years. The market is expected to grow at a CAGR of approx. 41.21% during the forecasted period of 2022-2027.

Market Segmentation Analysis:

By Component: The report provides the bifurcation of the market into two segments based on the component: Hardware and Software. In 2021, hardware held the highest share of more than 50% in the market. On the other hand, the software segment is expected to grow at the highest CAGR in the forthcoming years on account of rising

adoption of artificial intelligence algorithms in humanoid robots to boost robot's performance.

By Motion Type: The report provides the categorization of the market into two segments based on the motion type: Bipedal and Wheel Drive. The bipedal motion type held more than 60% of the share in the market, in 2021. The segment is expected to grow at the highest CAGR in the forthcoming years segment owing to rising demand for biped robots as they are capable of walking on the feet like humans. In addition, beneficial features associated with the bipedal humanoids such as self-maintenance, autonomous learning, security, etc., that provide efficient assistance to human task is estimated to contribute to the bipedal segment growth in the forecasted period.

By Application: The report further provides the segmentation based on the application: Retail & Healthcare, Hospitality, Healthcare, Military & Defense, Construction and Others. The retail & healthcare held the highest share of more than 30% in the market. The market's expansion is aided by growing emphasis of the retail sector to enhance customer engagement by implementation of smart technologies such as humanoid robots and high adoption for personal assistance and caregiving to provide patients with personal care at hospitals and homes.

By Region: The report provides insight into the humanoid robots market based on the regions namely Asia Pacific, North America, Europe, and the Rest of the World. Asia Pacific held the major share of above 40% in the market owing to growing availability of most sophisticated and advanced robots at lower prices along with the large number of players present in the APAC region.

In North America, the US is expected to be the fastest growing region in the forecasted period. Whereas, in Europe region, Germany held almost 30% share in the market owing to the increasing adoption of humanoid robots by the industrial verticals due to modernization and industrialization in the region, surge in demand for automation in personal and professional sector, and increasing number of elderly care centres.

Market Dynamics:

Growth Drivers: One of the most important factors impacting the global humanoid robots market is accelerating adoption for educational purposes. With rapid urbanization and a rise in global education expenditure, academic domain has been proactively adopting advanced devices such as humanoid robots for providing an improved learning experience. In addition, the humanoid robots enable educators to create an enhanced

interactive education session, which is propelling their adoption and bolstering the market growth. Thus, accelerating adoption of humanoid robots for educational purposes have positively contributed to the market growth. Furthermore, the market has been growing over the past few years, due to factors such as rapid urbanization, surging demand from healthcare sector, increasing geriatric population, rising income levels, and many other factors.

Challenges: However, the market has been confronted with some challenges specifically, high initial cost and research & development expenses, lack of high level interfacing, etc.

Trends: The market is projected to grow at a fast pace during the forecast period, due to various latest trends such as growing demand from retail industry for personal assistance, rising adoption in aviation industry, expansion of construction industry, etc. Technological advancements have influenced the demand for robotics and driven its adoption by various applications. Humanoid robots provide the best interface for human–robot interactions as they can mimic a person, that makes humans treat humanoid robots as companions. All these are the result of continuous technological advancements and growing research in the robotics field. Hence, continuous technological advancements and growing research in the robotics field would congruently support the growth of the humanoid robots market also.

. Impact Analysis of COVID-19 and Way Forward:

In 2020, the pandemic affected growth of the humanoid robot market by halting the export of humanoid robot components, impacting the production of humanoid robots during the initial phase of 2020. However, the demand for humanoid robots increased in the healthcare sector in the second half of 2020. Humanoid robots handled COVID-19 panic situations at healthcare facilities by assisting and providing relief to over-burdened medical staff. They were used in hospitals to ensure the safety of the medical staff and supply food and medicines to the patients affected by the virus.

Competitive Landscape:

The global humanoid robots market is consolidated, with a few companies accounting for majority market revenue share.

The key players in the global humanoid robots market are:

Toyota Motor Corporation

Honda Motor Co., Ltd.

SoftBank Group Corp.

Toshiba Corporation

Kawada Technologies, Inc. (Kawada Robotic Corporation)

Hyulim Robot Co., Ltd.

Hanson Robotics Limited

Agility Robotics Inc.

Engineered Arts Limited

Hyundai Motor Group (Boston Dynamics)

UBTECH Robotics Inc.

Qihan Technology Co., Ltd.

Hajime Research Institute Ltd.

Some of the strategies among key players in the market for humanoid robots are product launches, mergers, acquisitions, and collaborations. For instance, in 2021, SoftBank Robotics signed a partnership agreement with Keenon Robotics to widen the applications of robotics systems in the service industry. Whereas, UBTECH Robotics, Inc., partnered with Ricoh USA, Inc., during the same year, to combine the deployment and maintenance of UV-C power disinfection system.?

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