

Space Robotics Market Size, Share & Trends Analysis Report By Solution (Services, ROVs), By Application (Near Space, Deep Space), By Organization Type (Commercial, Government), And Segment Forecasts, 2020 - 2027

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Abstracts

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Space Robotics Market Growth & Trends

The global space robotics market size is expected to reach USD 5.71 billion by 2027, registering a CAGR of 5.2% over the forecast period, according to a new report by Grand View Research, Inc. Space robotics is gaining traction in recent years owing to the growing exploration of outer space; the need for operations & maintenance of satellites, space stations, and other platforms; and the need for saving cost and mitigating safety issues. Furthermore, the rising trend of using autonomous systems and Artificial Intelligence (AI) technology in robotics is widening the horizon of space exploration.

Several countries are launching multiple spaceship and satellite programs for near and deep space exploration, which requires timely maintenance and repairs, creating the need for advanced robotics systems. Renowned space organizations, such as the National Aeronautics and Space Administration (NASA), the European Space Agency (ESA), the Canadian Space Agency (CSA), and the Japan Aerospace Exploration Agency (JAXA), are developing humanoid robots for their space programs to perform transportation, maintenance, and servicing operations, relieving crew from dangerous tasks. Moreover, the rising number of unmanned space missions are fueling the demand for space robots.

Space robotics provides greater access and operational handling capabilities in space. Moreover, the robots can help astronauts perform several cognitive tasks in the space station. Due to their larger application scope, robots are deemed relevant across all the mission phases, such as launch, operation, development, and flight system production. The rising number of scientific space research programs also boosts the demand for advanced robots with Machine Learning (ML) capabilities. Machine learning improves the autonomous functions of robots, such as sensing, planning, and navigation. The technology also helps in diversifying locomotion and increasing the autonomy level of space robotic arms. The scope of space robots is expected to shift toward robotic explorers and robotic assistance in the coming years.

Europe has been very active in the development of space robotics technology. The ESA is developing the European Robotic Arm (ERA), which is to be installed on the Russian segment of ISS. Moreover, the Luxembourg Space Agency (LSA) is developing a low-cost and scalable robotic arm for low-orbit satellite programs. The LSA is keen on building a space resource industry in the country. In 2019, the Luxembourg Government signed a memorandum of understanding with NASA to work on space programs jointly. These initiatives are expected to propel the market growth over the forecast period.

Space Robotics Market Report Highlights

The Remotely Operated Vehicles (ROVs) segment is expected to register the fastest CAGR over the forecast period owing to the increasing demand for autonomous robots in the space industry

The deep-space segment is estimated to be the fastest-growing application from 2020 to 2027 owing to the growing emphasis on outer space exploration programs

The government segment led the market in 2019 and is expected to retain the dominant position throughout the forecast years as government organizations, such as NASA, JAXA, ESA, and CSA, are collaborating with private companies owing to their robust R&D capabilities

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