

Unmanned Ground Vehicle - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2024 - 2029)

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Abstracts

The Unmanned Ground Vehicle Market size is estimated at USD 2.46 billion in 2024, and is expected to reach USD 3.93 billion by 2029, growing at a CAGR of 9.77% during the forecast period (2024-2029).

UGVs are designed to perform either too dangerous or impractical tasks for humans. They are commonly used in military applications for reconnaissance, surveillance, and explosive ordnance disposal (EOD). They can remotely inspect, disarm, or detonate explosive devices, minimizing the risk for bomb disposal experts. UGVs with manipulator arms, cameras, and other specialized tools can handle hazardous materials and safely neutralize threats. UGVs with sensors, cameras, and other specialized equipment can gather information, transmit data, and perform specific missions in challenging or hazardous environments.

UGVs employ several technologies to ensure communication and the relay of information between the platform and the controller. As autonomous UGVs lack manual support and rely solely on onboard sensors to determine operational parameters, external interference can affect one or more flight parameters by altering the data (commands) sent through the data link of the UGV. UGVs can help search for survivors in hazardous areas or deliver essential supplies. They often feature advanced technologies, including sensors, GPS navigation, computer vision, and machine learning algorithms. These capabilities enable them to perceive their environment, navigate obstacles, and make autonomous decisions based on their programming or real-time data analysis.

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information between the platform and the controller. As autonomous UGVs lack manual support and rely solely on onboard sensors to determine operational parameters, external interference can affect one or more flight parameters by altering the data (commands) sent through the data link of the UGV. Such threats have resulted in increased skepticism regarding the adoption of UGVs. As a result, the viability of safety measures employed to ensure the secure transmission of commands and other information and the vulnerability of UGV payloads and subsystems to cybersecurity threats are being questioned.

Unmanned Ground Vehicle Market Trends

The Military Segment is Anticipated to Show Significant Growth During the Forecast Period

The expansion of the military sector in the market is primarily due to the increasing utilization of unmanned ground vehicles (UGVs) by defense forces and the rising investment in acquiring advanced robots for combat missions. UGVs are employed in military applications to reduce soldiers' risks and offer solutions for physically demanding or hazardous tasks. This trend is projected to fuel the demand for UGVs in countries with the most active military personnel.

Military UGV uses include explosive ordnance disposal (EOD), forward reconnaissance, equipment carrying, manned-unmanned teaming, and mobile weapons platforms. For instance, in March 2024, Anduril Industries partnered with Hanwha Defense USA for the US Army's Small Multipurpose Equipment Transport (S-MET) Increment II initiative. This collaboration will see the development of an uncrewed ground vehicle (UGV) based on Hanwha's Arion-SMET platform, integrated with Anduril's mission software. The UGV boasts a payload capacity of 55 kilograms (121 pounds), a range of 100 kilometers (62 miles), and a speed of 43 kilometers (27 miles) per hour. The US Army intends to procure 2,000 next-generation S-METs, supplementing the 624 units already ordered from General Dynamics Land Systems in 2020.

Also, in January 2022, the Republic of Korean Army (RoKA) received two new 66 multirole unmanned ground vehicles (UGVs) manufactured by Hyundai Rotem. The company announced that the two multipurpose UGVs (MPUGVs) were delivered to the service following six months of evaluation by the Defense Acquisition Program Administration (DAPA) and the RoKA.

Thus, growing expenditure on the defense sector and rising procurement of unmanned

systems to improve soldiers' safety and the overall performance of critical missions will drive market growth during the forecast period.

Asia-Pacific is Expected to Showcase Remarkable Growth During the Forecast Period

Asia-Pacific is projected to show the highest unmanned ground vehicle market growth during the forecast period. The increase is attributed to the increasing demand for unmanned systems for combat operations and growing expenditure on the defense sector from China, India, South Korea, and Japan. According to the Stockholm International Peace Research Institute (SIPRI), in 2023, China and India were the second and fourth largest defense spenders in the world, with a defense budget of USD 296 billion and USD 83.6 billion, respectively.

Rising cross-border conflicts between India and China-Taiwan, political disputes among neighboring countries, and growing terrorism across the region lead to increasing military spending and procurement of advanced defense systems. The Indian government started the 'Make in India' initiative to support local defense OEMs in developing and manufacturing advanced defense products. For instance, in September 2023, Arrobot, an innovative startup in the aerospace and defense sector, introduced an advanced unmanned guided vehicle (UGV) designed explicitly for the Indian armed forces. This UGV is engineered to excel in challenging terrains, offering exceptional capabilities in logistics, surveillance, and reconnaissance. The UGV features an impressive carrying capacity of up to 200 kg on top and can effortlessly tow up to 600 kg while providing a wide 30-degree view. The startup has received over ten unique orders from multinational corporations and government undertakings in India. Additionally, it has ambitious plans to manufacture over 100 UGVs in the upcoming year.

Similarly, in August 2022, Edgeforce India, an Indian startup, unveiled Astro, an unmanned ground vehicle. Autonomous Surveillance and Tracking Rover (Astro) is a wheeled UGV that works in both teleoperated and autonomous modes for performing surveillance operations. It can integrate various types of surveillance equipment and perform numerous duties in all-weather, semi-amphibious, all-day conditions.

Moreover, China is closing the technology gap with the United States and Russia in developing unmanned ground vehicles (UGVs) that feature autonomous capabilities, such as waypoint navigation, targeting, obstacle avoidance, and terrain mapping. The

country is continuing to invest in research and development of unmanned ground vehicle platforms. For instance, in 2021, China deployed unmanned machine-gun mounted vehicles along the Indo-Tibet borders due to soldiers having difficulties breathing in the high-altitude Himalayas. In addition, according to a video released by the Chinese media in March 2023, the Chinese-made Dragon & Horse II 8x8 UGV (unmanned ground vehicle) entered service with the Chinese army and was used as a cargo vehicle to carry. Such developments are expected to drive the demand for the market in the region during the forecast period.

Unmanned Ground Vehicle Industry Overview

The unmanned ground vehicle market is semi-consolidated. Some prominent players in the market are Teledyne FLIR LLC, General Dynamics Corporation, Rheinmetall AG, QinetiQ, and Israel Aerospace Industries Ltd. Most of the UGV procurements and developments involve local players in developing countries.

Some smaller local companies are also partnering with global players to gain technological expertise. In a relatively new market like the UGV market, the number of start-ups and smaller companies with unique technological capabilities is high. In this regard, mergers and acquisitions are also expected to help players develop their capabilities. In May 2021, Teledyne Technologies announced the successful completion of the acquisition of FLIR Systems. Also, in May 2021, AeroVironment Inc., a robotic systems manufacturer for military and public safety applications, completed its acquisition of Telerob GmbH for USD 45.4 million.

Such acquisitions will help the companies develop their product portfolios and improve their share in the market. Product innovation will also play a vital role in the players' success, as the capabilities and applications of UGVs are constantly increasing.

Additional Benefits:

The market estimate (ME) sheet in Excel format

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