Disinfection Robots Market - Global Outlook & Forecast 2023-2028

Market Report | 2024-01-09 | 399 pages | Arizton Advisory & Intelligence

AVAILABLE LICENSES:

- Single User License $4200.00
- Team License $4999.00
- Enterprisewide $5999.00

Report description:

The global disinfection robot market is expected to grow at a CAGR of 31.02% from 2022 to 2028.

MARKET TRENDS & DRIVERS

Evolution of Automated Guided Vehicles & Automated Mobile Robots

The demand for mobile robots and their use in hospitals has increased due to significant demographic trends and decreased medical costs. For healthcare systems, automated systems are designed to handle laboratory samples, pharmacy medicines, bulk material, central supply, and transportation. By automating these supplies, operating efficiency increases, which allows workforce transfer to other activities or departments. Automatic Guided Vehicles (AGV) are gaining attention to fulfill such activities, improving workflow. Also, additional control interface features allow AGVs to navigate and signal lifts, navigate and activate through automatic doors, activate waste compactors, and deliver trolleys for cleaning and activating cart-washing systems.

Advancement of New Electric Disinfection Robots

The demand for disinfection robots has dramatically increased due to COVID-19. Most available disinfection robots have a petrol-driven gun and an electric chassis. As the on-site refueling of robots is neither convenient nor clean, the development of purely electric disinfection robots was proposed to better address the needs of affected areas. Utilizing a broad mix of experience and expertise, a team quickly initiated the development of a new type of robot. Such advancements can likely bring more opportunities in the disinfection robot market.

United Nations Agency Impacts

World Health Organization (WHO) has been very active in reducing the incidence of HAIs in healthcare settings. WHO has been working with government bodies of various countries to spread awareness about preventive strategies to minimize the occurrence

of HAIs.
-It introduced its first set of guidelines to prevent HAIs in 2002. The impact of such policies on reducing HAIs was limited initially, which can be observed in the increased prevalence data.
-However, lately, there has been a strong push from various stakeholders, such as governments, payers, and regulatory bodies in the healthcare ecosystem, to reduce HAIs.
-Some of the essential efforts include staff re-education and increasing personal involvement in the day-to-day operations of healthcare facilities, posting large charts in the corridor of operating rooms, and tracking monthly surgical site infections (SSIs). Overall efforts are being directed to bring a cultural change among hospital staff and physicians and transparency in the process that ensures zero or negligible HAI cases.

Funding & Investments for Developing Disinfection Robots

The aggressive adoption of disinfection robots has increased demand and new large-scale investments worldwide, propelling the market. Across the board, such robots were deployed widely before the pandemic, followed by existing robotic platforms that can be adapted readily to address the most pressing current needs. Since existing platforms cater to the current demands, making investments will result in developing systems ready for future crises. Also, most companies are focusing on product line expansion to include disinfection robots integrating improved autonomous capabilities compared to existing products. Several companies are investing while supporting the robotic industry, providing greater control in shaping the future. Such investments mainly serve the pandemic response and post-pandemic recovery in various countries. One such investment was made recently by Robert Wood Johnson University Hospital in Tru-D, a UVC disinfection robot that protects patients and staff from harmful pathogens.

Adoption of Modern Disinfectant Technologies

Over recent years, there has been a growing consensus to improve the disinfection and cleaning of environmental surfaces in healthcare facilities. It has been proven in many epidemiological studies that careful disinfection and cleaning of environmental surfaces, daily and at the time of patient discharge, are essential elements of effective infection prevention programs in healthcare settings. With the incorporation of the latest innovative techniques in healthcare disinfectants, there is an improvement in the overall design, composition, and features offered by various products, thereby leading to an upsurge in demand among end-users. Several manufacturers are engaged in the manufacturing of cleaning and odor removal products as well as EPA-registered disinfectants. With the expansion of such a portfolio of products, HCPs are receiving the best-in-class solutions to keep themselves and patients safe. Therefore, the broader availability of such advanced and effective disinfectants can be incorporated into disinfection robots, boosting the uptake of such products and propelling the market growth.

INDUSTRY RESTRAINTS

Limitations of Disinfection Robots

Robots can extend societal inequalities, as some organizations and individuals may be unable to access this technology. Moreover, the risk of propagating unconscious bias by robots always exists. Evidence demonstrates that there will be a risk of consequences that can be raised due to the small and homogeneous individuals involved in developing and testing data-driven technologies. The fear of losing jobs, increased elderly isolation, and a decrease in patient contact with healthcare professionals is unavoidable with the advent of such robots. Such worries have resulted in violence against robots and hampered the disinfection robot industry's growth. Replacing technological investment with other societal initiatives is a growing concern for public health.

SEGMENTATION INSIGHTS

INSIGHTS BY PRODUCT TYPE

One of the leading concerns in medical, clinical, and research facilities is microbial contamination control. Harmful or harmless microorganisms can risk patients, caregivers, and other personnel. Patients in hospitals and medical facilities have severe conditions or are immune-compromised, making them specifically susceptible to opportunistic microorganisms or secondary infections. Several disinfecting products were developed to decontaminate these critical spaces for such reasons. Two leading UV-C and hydrogen peroxide vapor methods have been incorporated into disinfection robots to allow decontamination in healthcare areas. These methods may differ in effectivity, cost, potential residual damage, and operational limitations. The Hydrogen Peroxide Vapor Disinfection Robot dominated the market and was valued at over USD 102 million in 2022. Hydrogen Peroxide Vapor Disinfection Robots (HPV) are another effective way to sterilize and disinfect surfaces contaminated with undesirable microorganisms. The biocidal mechanism of action for hydrogen peroxide is attributed to the chemical oxidation of cellular components that rapidly interrupts chemical processes vital to microbial survival and thus sterilizes the environment. For these reasons, HPV is used in many applications when personnel seek to disinfect environments contaminated by virulent microbes and dominates the product type segment in the global disinfection robots market.

Segmentation by Product Type

-Hydrogen Peroxide Vapor Disinfection Robots
-UV Disinfection Robots
-Disinfection Spray Robots
-Combined System Robots

INSIGHTS BY TECHNOLOGY TYPE

Commercial locations, including hotels, shopping malls, hospitals, and many others, require good sanitation and cleaning. People from diverse backgrounds interact with public spaces regularly. Some individuals may be ill and carry contagious pathogens. Cleaning and sanitation are becoming top priorities across all industries, particularly in public areas, especially after COVID-19. Developed nations increasingly anticipate utilizing a UV disinfection robot to sanitize these locations rather than relying on people. Such factors help to boost the demand for fully and semi-autonomous disinfection robots in the global disinfection robots market.

Segmentation by Technology Type

-Fully Autonomous Robot
-Semi-Autonomous Robot

INSIGHTS BY SENSOR TYPE

The disinfection robot consists of a mobile base equipped with multiple lidar sensors, such as ultrasonic and infrared, and an array of UV lamps mounted on top. The ultrasonic sensors segment held a dominant share of the global disinfection robots market in 2022. Ultrasonic sensors calculate the distance between the sensor and the target. By measuring, an ultrasonic sensor transmits data to the controller. The controller will control the movement of the robot whenever the sensor readings reach a limit threshold. Furthermore, ultrasonic sensor disinfection robots are highly manufactured in North American countries and are expected to have stable growth in North American countries.

Segmentation by Sensor Type

-Ultrasonic Sensor
-Infrared Sensor

INSIGHTS BY CONTROLLER TYPE

The Wi-Fi controller type segment held the most prominent global disinfection robots market share 2022. The intelligent disinfection robots, intended and developed as Wi-Fi-controlled devices, allow users to receive alerts, control the disinfection robots, and sync with other wireless devices. With smart homes and home automation, intelligent disinfection robots can trigger multiple smart home activities.

Segmentation by Controller Type

-Wi-Fi Controller
-Bluetooth Controller

INSIGHTS BY END-USER

The global disinfection robots market by end-users can be segmented as healthcare facilities, biopharmaceutical industry, transport, hospitality, etc. The healthcare facilities segment emerged as the largest end-user segment in the market. Healthcare settings such as hospitals, laboratories, clinics, and others have an increased risk of HAIs that could severely affect the patients, healthcare staff, and workers. Many studies have reported the contamination of air and surfaces by pathogens, emphasizing the importance of disinfection in hospitals. WHO has introduced guidance for HCPs and standard operating procedures for cleaning and disinfection of environmental surfaces. Disinfecting healthcare facilities has been considered necessary to control and minimize such infections. Disinfection robots aim to ensure a sterile hospital environment without exposing individuals to unnecessary risk. The robots can disinfect a standard-size patient room in as quickly as 10 minutes using ultraviolet light and disinfect over 18 rooms in one charge.

Segmentation by End User

-Healthcare Facilities
-Biopharmaceutical Industry
-Transport
-Hospitality
-Others

INSIGHTS BY DISTRIBUTION CHANNEL

The offline distribution channel segment dominated the global disinfection robots market in 2022 and is projected to witness the highest segmental growth rate during the forecast period. Offline sales of disinfection robots remained elevated compared with online sales due to factors to be analyzed before purchasing disinfection robots. Also, consumers are more decisive while purchasing electronic products as they want to be sure about various parameters. Certain companies, particularly local vendors, do not have an online presence. Such factors also contribute to offline sales of disinfection robots. Increasing pollution rates, urbanization, industrialization, and other reasons contribute to the penetration of disinfection robots, which is also expected to increase offline sales.

Segmentation by Distribution Channel

-Offline
-Online

GEOGRAPHICAL ANALYSIS

Europe accounted for a dominant position in the global disinfection robots market by contributing the highest revenue share. The growing number of HAIs, better access to healthcare disinfectants, awareness for maintaining safety against infectious diseases, high healthcare expenditure, increasing demand for automated devices in healthcare, and presence of several prominent market players are the primary factors contributing to the significant market share. The rise in chronic diseases and COVID-19 patients, coupled with the growing need to create safe environments, is expected to drive the market's growth during the forecast period. Further, North America had the second-largest share in the global disinfection robots market in 2022. The presence of a vast patient population suffering from HAIs, the prevalence of infectious diseases, the growing need to maintain safe and hygienic conditions, government regulations to deploy disinfection services, and technological advancements are increasing the demand for disinfection robots in the region.

Segmentation by Geography

-Europe
oGermany
oItaly
oFrance
oThe U.K.
oSpain
oRussia
oPoland
-North America
oThe U.S.
oCanada
-APAC
oChina
oJapan
oIndia
oAustralia
oSouth Korea
oSingapore
-Middle East & Africa
oSouth Africa
oSaudi Arabia
oTurkey
oUAE
oEgypt
oKenya
-Latin America
oMexico
oBrazil
oArgentina
oChile
oColombia

VENDOR LANDSCAPE

The global disinfection robots market is highly fragmented, with five major vendors dominating the market and a massive pool of emerging players and startups, boosting the market's growth. The major contributors to the global disinfection robots market include Blue Ocean Robotics, Xenex Disinfection Services, Taimi Robotics Technology, Nevoa, and XAG. Other emerging players include Akara Robotics, Ava Robotics, Bioquell, Engmotion, Finsen Technologies, Geekplus Technology, Grizzly, Mediland, Pudu Technology, and many others. The global industry is gaining attention due to the advent of COVID-19. In addition, several startups and emerging players offering disinfection robots are entering the market. These vendors exclusively offering disinfection robots are equipped with either a UV-C light system or disinfection spray system and sometimes both.

Key Company Profiles

-Blue Ocean Robotics
-Nevoa
-Taimi Robotics Technology
-XAG
-Xenex Disinfection Services
-PHILIPS
-SIEMENS AG
-Altoros

Other Prominent Vendors

-Akara Robotics
-ALVO Medical
-Amy Robotics
-Ava Robotics
-Badger Technologies
-Bioquell
-Bridgeport Magnetics Group
-Clearpath Robotics
-Corvus Robotics
-Engmotion
-Fetch Robotics
-Finsen Technologies
-Geekplus Technology
-Grizzly
-H-Bots Robotics
-imedtac
-Keenon Robotics
-Mediland
-MetraLabs
-Nanyang Technological University
-OMRON
-OTSAW
-Pudu Robotics
-Rubedo sistemos

-SESTO Robotics
-Shanghai Huifeng Medical Instrument
-Shenzhen EAI Technology
-SIEMENS & AuCMA
-SIFSOF
-Skytron
-Techmetics Robotics
-Tru-D SmartUVC
-UVCLight.co.uk
-UVC Solutions
-Vanora Robots
-TMI Robotics
-RobotLAB Inc
-A.O. Smith
-LG Electronics
-VackerGlobal
-KENT RO

KEY QUESTIONS ANSWERED:

1.How big is the disinfection robots market?
2.What is the growth rate of the global disinfection robots market?
3.Which region dominates the global disinfection robots market share?
4.What are the significant trends in the disinfection robots industry?
5.Who are the key players in the global disinfection robot market?

Table of Contents:

SCOTTS INTERNATIONAL

Disinfection Robots Market - Global Outlook & Forecast 2023-2028

Market Report | 2024-01-09 | 399 pages | Arizton Advisory & Intelligence

To place an Order with Scotts International:

- - Print this form
- - Complete the relevant blank fields and sign
- - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Single User License	$4200.00
	Team License	$4999.00
	Enterprisewide	$5999.00
	VAT	
	Total	

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*		Phone*	
First Name*		Last Name*	
Job title*			
Company Name*		EU Vat / Tax ID / NIP number*	
Address*		City*	
Zip Code*		Country*	
		Date	2025-06-23
		Signature	