Robotic Artificial Muscles Market to Grow 17.4% During Forecast Period – Astute Analytica

CHICAGO, UNITED STATES, February 8, 2023 /EINPresswire.com/ -- Global Robotic artificial muscles market to grow with a CAGR of 17.4% by 2022-2030.

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Robotic artificial muscles are those that are capable of generating motions that are activated biologically. These robot systems carry out a wide range of tasks, including power-to-weight ratios, intrinsic compliance, and many others. These artificial muscles have the potential to be used in a number of applications because of improvements in control methods, modeling, and fabrication. They are typically found in medical technology or intelligent textiles. This promoted market expansion through industrial sectors.

Market Dynamics

The market share has been greatly impacted by the increased incidence of diabetes and other disorders that increase the demand for prosthetics. The International Diabetes Federation estimates that 463 million individuals (20-79 years old) worldwide had diabetes in 2019; this number is anticipated to reach 700 million by 2045. Amputations are frequently required as a result of foot ulcers, which are a danger for many diabetes patients. The Amputee Coalition of America also states that vascular disorders are thought to be the leading reason for lower limb amputations.

With improvements and investments in artificial intelligence technology research and development, the market for robotic artificial muscles is expanding globally. It is possible that extensive artificial intelligence research focused on improving amputees' quality of life will lead to the creation of cutting-edge devices.

Its use as an industrial actuator, which also causes a strong rise in the market for robotic artificial muscles, which is anticipated to grow significantly throughout the forecast period, is another driver boosting market expansion.

Budget issues arise because of the high expense of these muscles. Additionally, the need for qualified staff raises investment costs, which slightly restrains market expansion.

Segmentation Summary

By Type Segment

Piezoelectric actuators maintained the highest share of the global robotic artificial muscle industry due to significant efficiency, excellent positioning precision, and high speed and stress.

By Application Segment

The biomimetic robots segment is likely to have a remarkable revenue share in the global robotic artificial muscles industry due to their comprehensive usage in powered exoskeletons, robots, and industrial actuators.

Regional Analysis

Due to its accomplishments in technology, science, and major improvements in research and development, Europe leads the market. Arquimea ingeniera, for instance, has developed STAMAS to produce cutting-edge robotic hands and legs. The study uses Electro-Active Polymers (EAP) and Shape Memory Alloys actuators to help astronauts improve finger movements and counteract the effects of microgravity on their bodies. Researchers have also created strong artificial muscles that have altered the market trends for robotic artificial muscles. In response to heat, the artificial muscle can swell and contract. Japan, United States, and other nations also make significant contributions to the market. A team of researchers at the Massachusetts Institute of Technology created artificial muscles that can stretch and lift heavy weights.

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Prominent Competitors
Some of the well-known companies in the global robotic artificial muscles market are:
RSL Steeper Group Ltd
Össur
Liberating Technologies, Inc.
Environmental Robots Incorporated (ERI)
KAIST's Creative Research Initiative Center for Functionally Antagonistic Nano-Engineering
Chas. A. Blatchford & Sons Ltd.

Ottobock
Proteor
Ohio Willow Wood Company
Other Prominent Players

What are companies doing?

Liberating Technologies is concerned with the creation and distribution of prosthetic upper limb devices. This business created and produced VariGrip Prosthetic, which offers below-elbow amputees support and control. Another prosthetic, known as the Boston Digital Arm System, was created by Liberating Technologies with above-elbow amputees in mind. The business has historically developed prosthetics for people of all ages.

The MXene material was ionically cross-linked to a synthetic polymer by a team of researchers from KAIST's Creative Research Initiative Center for Functionally Antagonistic Nano-Engineering to create a robotic muscle. While retaining the muscle's strength and conductivity, the combination offers flexibility.

Environmental Robots is a pioneers in the development of biomimetic nano-sensors, nanoactuators, artificial muscles, science kits, and other products. In order to promote the use of electroactive polymers, ERI created a science kit called the Contractile Polymeric Artificial Muscle. Its purpose was to raise knowledge of the technology of chemically activated polymers among scientists, engineers, researchers, and students.

Segmentation Outline
The global robotic artificial muscles market segmentation focuses on Type, Material, Actuation Mechanism, Application, and Region.
By Type
Piezoelectric actuators
Electroactive polymer (EAP) actuators
Shape memory polymers (SMP) actuators
Soft-fluidic actuators
Others

By Material
Ionic EAPs
Conducting polymers (CPs)
Carbon nanotubes (CNTs)
Electroactive gels
Others

By Actuation Mechanism
Electric Field Actuation

Thermal Actuation
Pneumatic Actuation
Others

By Applications
Grippers and manipulators
Walking robots
Biomimetic robots
Humanoid robots
Medical robots
Self-reconfigurable robots
Wearable and assistive robots
Others

By Region
North America
Europe
Asia Pacific
Middle East and Africa
Rest of the world

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About Astute Analytica
Astute Analytica is a global analytics and advisory company that has built a solid reputation in a short period, thanks to the tangible outcomes we have delivered to our clients. We pride ourselves in generating unparalleled, in-depth, and uncannily accurate estimates and projections for our very demanding clients spread across different verticals. We have a long list of satisfied and repeat clients from a wide spectrum including technology, healthcare, chemicals, semiconductors, FMCG, and many more. These happy customers come to us from all across the Globe. They are able to make well-calibrated decisions and leverage highly lucrative opportunities while surmounting the fierce challenges all because we analyze for them the complex business environment, segment-wise existing and emerging possibilities, technology formations, growth estimates, and even the strategic choices available. In short, a complete package. All this is possible because we have a highly qualified, competent, and experienced team of professionals comprising business analysts, economists, consultants, and technology experts. In our list of priorities, you-our patron-come at the top. You can be sure of best cost-effective, value-added package from us, should you decide to engage with us.

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