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NAN MUDHALVAN

SMART PUBLIC RESTROOM

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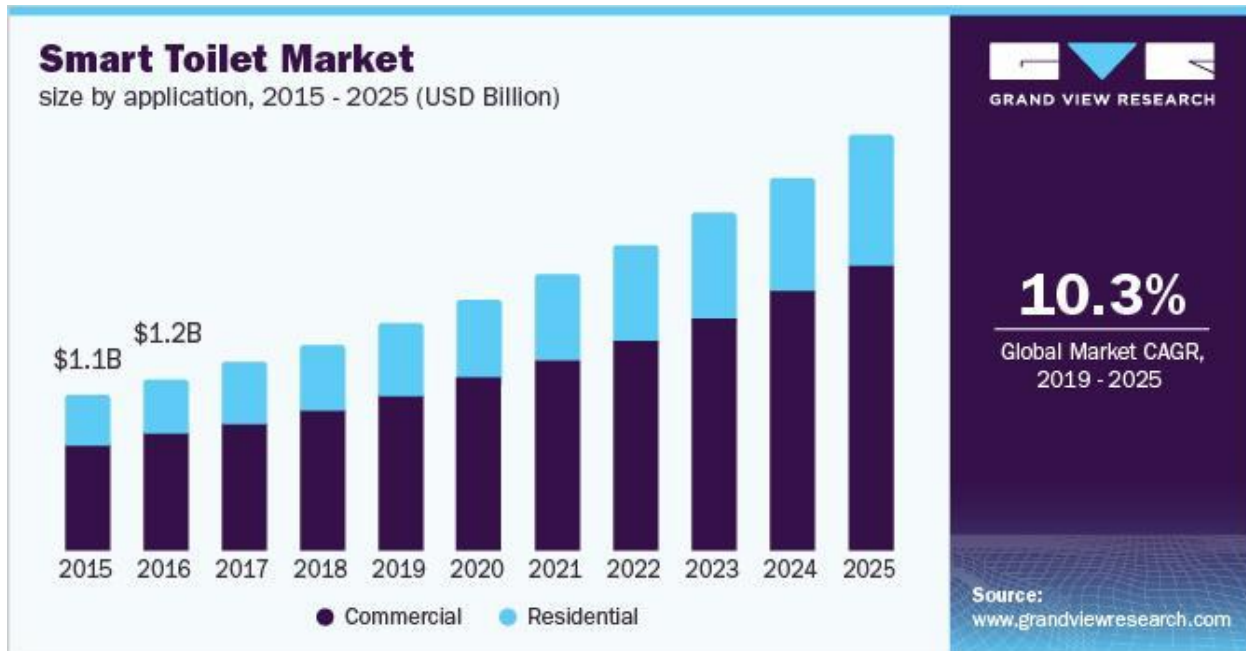
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INTRODUCTION

The global smart toilet market size to be valued at USD 12.7 billion by 2025 and is expected to grow at a compound annual growth rate (CAGR) of 10.3% during the forecast period. The rising need for convenient sanitary hygiene products among the consumers is expected to remain a favorable factor for the market growth in the coming years. These products are available in a ceramic toilet arrangement, along with in-built facilities including air dryer and warming water. It has been observed that intelligent bathroom products have become a style statement in developed nations including the U.S., U.K., Germany, and France. Furthermore, the industry participants are offering innovative hygiene technologies including UV lighting, auto flush, Bluetooth connectivity, and auto open seat covers to provide better bathroom experience to the consumers.



DEVELOPMENT AND IMPROVEMENTS

Over the past few years, demand for water conservation has been increasing at the global level. Implementation of various government initiatives in many countries on spreading awareness among consumers about the requirement of water conservation is driving the people to increase spending on advanced products, including smart toilet vanities. As per a recent study, in the U.S., around 4.8 billion gallons of water are flushed down every day. Smart toilets can use minimum water with intelligent toilet seats, making them a hygienic and convenient option from the buyers' end. These products can optimize the water and electrical energy usage in toilets, along with providing an aesthetic appeal.

It has been observed that smart toilets are loaded with different features including UV bacterial killing light nozzle and anti-bacterial seats. Furthermore, shifting inclination towards bathroom decoration as a part of lavish home décor is driving the people to purchase these products. Rising utilization of smart toilets in the commercial real estate and hospitality sectors is playing a crucial role in increasing the product's adoption. Additionally, the growing popularity of the internet of things technology and voice-controlled equipment at the global level is expected to open new market avenues over the next few years.

RECENT DEVELOPMENTS

In June 2023, Duravit added the newest member, the SensoWash D-Neo, to the popular D-Neo family. It is a compact shower toilet that offers state-of-the-art, high-quality shower-toilet hygiene with sophisticated brand technology.

In March 2023, Roca launched its cutting-edge and sophisticated In-Wash Insignia shower toilet, which offers the highest level of comfort and hygiene with sophisticated digitalized and personalized functionalities

In June 2022, Kohler, an American leading provider of bathroom furniture and plumbing products collaborated with Daniel Arsham for the creation of a 3D printed sink. At Milan Design Week 2022, Kohler introduced new digital bathroom solutions as well as an immersive art piece by Daniel Arsham.

In January 2021, Toto Ltd. the world's largest Japanese toilet manufacturer launched Artificial intelligence (AI) based 'Wellness Toilet'. The wellness toilet tracks and analyses the mental and physical state of its users using a variety of cutting-edge sensing technologies. This data provides wellness improvement recommendations on the smartphone app for the user.

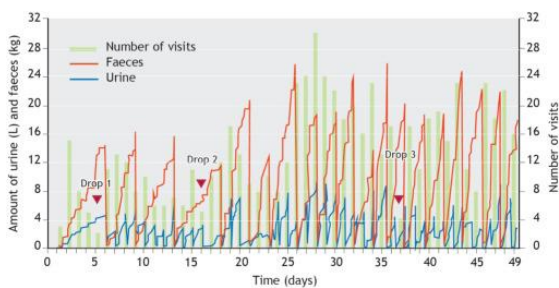
SMART RESTROOM MARKET TRENDS

The smart toilet industry is being driven by the increased demand for water-saving solutions. The need for water conservation and water resources is one of the fundamental goals to achieve for smart toilet manufacturers. Water sustainability is becoming crucial along with the growing world population. Smart water-saving technology of smart toilets assist to reduce the total water consumption. Additionally, the rising construction of commercial and residential buildings accelerated the growth of this market.

Increased demand for smart toilets from the present trend of smart homes, increasing technological advancements, and expanding acceptance of smart technologies in corporate, residential, and commercial buildings are all propelling the global smart toilet market. Additionally, increased consumer demand for convenient sanitary hygiene products and the growing popularity of voice-activated equipment and internet of things technology is likely to boost demand for smart toilets on the global scale.

Furthermore, the increased usage of advanced washroom technologies is expected to fuel the market growth in the forecast period. To deliver a better washroom experience to users, industry leaders are continually implementing diverse advanced hygiene technologies, such as auto flush, Bluetooth connectivity, UV illumination, and auto open seat covers. However, the installation of smart toilets is a complicated, and expensive procedure. The maintenance cost of the product is also high. Furthermore, the traditional toilet systems are less expensive and more familiar to individuals. These challenges are anticipated to restrict the growth of the smart toilet market.

SYSTEM ANALYSIS



CONCLUSION

The integration of sustainable materials, energy-efficient lighting, and eco-friendly cleaning solutions aligns with modern environmental and sustainability goals. By reducing the environmental footprint of restroom facilities, this project demonstrates a commitment to responsible and eco-conscious design