Smart Fabrics For Transportation - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

Market Report | 2024-02-17 | 120 pages | Mordor Intelligence

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Report description:

The Smart Fabrics For Transportation Market size is estimated at USD 1.04 billion in 2024, and is expected to reach USD 3.92 billion by 2029, growing at a CAGR of 25.51% during the forecast period (2024-2029).

Key Highlights
-The electronics industry's drastic technological advancement has changed how people do and perceive things. The Internet of Things has connected everything. Smart fabrics are a crucial part of this technological advancement, playing a significant role in the future, with applications in the transportation industry.
-The miniaturization of various electronic components and the emergence of various advanced polymers are driving the market forward. Also, with the development of fabrics with antistatic properties, tremendous stain-proof capabilities and the overall ability of fabrics to interact with the environment, which further helps regulate temperature, are offered. These critical properties of smart fabrics have enabled their use in automotive vehicles.
-Moreover, the use of fabrics in automobiles is not only restricted to upholstery, but they are also widely used in floor mats, seat belt webbings, the interior ceiling, steering wheel, interior door panels, and gear shift covers. Additionally, fabrics are not only meant for the exterior surfaces, which are visible but are also used in the preparation of insulation for thermal control inside the vehicle. The versatile nature of the fabrics has made them a crucial component of automobiles, driving the market forward.
-The increasing adoption of bluetooth low energy (BLE) technology and miniaturization of electronic components is a crucial driver for the smart fabrics for transportation market growth. The BLE technology-enabled garments can sense and monitor data when connected to the Internet. There has been a rising trend of miniaturization of electronic components and systems, which has expedited the need for smaller assembly components for manufacturing smart fabrics. Radical developments in wireless and electronic technologies have enabled miniaturization and their integration into conductive textiles, which is expected to fuel the market growth during the forecast period.

-However, factors like slow penetration rate in developing countries, as well as lack of funding and capital expenditure, could be a matter of concern that could limit the market's overall growth throughout the forecast period.
-Further, with the outbreak of COVID-19, the market did not experience substantial growth. This is because manufacturing smart fabric needed a greater degree of automation and advancements in textile processing techniques such as electronic controlling systems, computer-aided design, automated inspection, etc. The industry did not come under the essential services segment as it was considered in the "apparel and lifestyle goods" category, resulting from which factories were not operating. However, in the post-COVID-19 market scenario, the market is expected to witness significant growth opportunities primarily due to the rising number of connected cars and heavy vehicles.

Smart Fabrics For Transportation Market Trends

Mobility Management to Witness Significantly High Growth Rate

- Mobility management in transportation mainly comprises all the systems that enable a driver to reach their destination quickly and safely, with optimal fuel consumption, by deploying the smart fabrics into the vehicle, which can overall enhance the vehicle features.
- Also, with the help of these smart fabric-sensing systems that are installed in the interior cabins, autonomous vehicles can access real-time traffic information through their onboard navigation systems. They can re-route the vehicle to a better route to avoid traffic jams. They can also provide information on refueling stations and parking lots, saving travel time.
- Because of the increasing traffic volume and high air pollution, micro-electric vehicles of the micro-mobility class, which are used for the first and last mile in urban and rural areas, represent a great opportunity. Textiles are trend-setting in this context: by saving the overall mass, fuel efficiency can be improved for a more extended range, and, in the case of freight transport vehicles, a higher payload is possible. In addition to the expected lower mass, another advantage of textiles in exterior applications is the possibility of functionalization utilizing sensors and actuators. The flexibility of the cover material and a new, unfamiliar feel also create potential as a novel design element.
- Over the next few years, due to the technological advancements in the Internet of Things (IoT), drivers can access highway warnings and messages to avoid accidents. Real-time data analytics can utilize the IoT and Big Data capabilities, enhancing mobility systems and ensuring concentrated device uptime. Ultimately, this can reduce vehicle management costs and benefit the transportation industry.
- With the surge in the penetration of autonomous and electric vehicles, the demand for smart fabrics may also increase, driving the market forward. According to CleanTechnica, BYD overtook Tesla as the best-selling electric vehicle brand in 2022. That year, BYD sold just under 1.85 million plug-in electric vehicles globally. Tesla and the SAIC/GM/Wuling joint venture completed the top three brands that year, with Tesla reporting 1.31 million sales. BYD is also the leading manufacturer of electric vehicles in China, based on sales.

North America Occupies the Largest Market Share

- The North American region occupies the most significant market share, primarily due to the technological advancements and rising technological penetration among users, as well as growing demand from end-user segments, such as automobiles, aerospace, shipping, and railways, which are the primary growth drivers for the smart fabrics for the transportation market, in this region.
- Moreover, major players in this region have launched many efficient and highly advanced products compared to older products to deliver the prevailing services. Also, the emergence of information technology and increased usage of the Internet of Things

(IoT) devices in automotive applications have added a whole new dimension to conducting business operations in this region. Also, deploying smart fabric functional systems based on IoT techniques is helping the transportation industry establish and maintain an operational process, directly boosting the market studied.
- Moreover, the region is witnessing a significant rise in the use of autonomous and electric automobiles. A rise in the usage of such vehicles will drive the demand for smart fabrics. This is expected to create ample opportunities for the market to expand and grow throughout the forecast period.
- The total revenue streams of Tesla, Inc., an American multinational automotive and clean energy company headquartered in Austin, Texas, reached approximately 81.5 billion U.S. dollars in 2022, with automotive sales accounting for over 67.2 billion U.S. dollars. Tesla, which began as Tesla Motors in 2003, is a brand of plug-in electric vehicles worldwide. This rise in such numbers will drive the market's overall growth exponentially.

Smart Fabrics For Transportation Industry Overview

In the competitive transportation market, smart fabric solutions have gained prominence, with numerous vendors operating domestically and internationally. The market exhibits a moderate level of concentration, but it is gradually moving towards a more fragmented state. Leading industry players employ key strategies centered around product design and innovation. Notable market participants include Kolon Glotech Inc., AIQ Smart Clothing Inc., and Interactive Wear AG, among others.

In February 2023, ThermoSiv introduced a cutting-edge smart fabric that sets a new standard in environmental efficiency. This innovative fabric emits heat in an eco-friendly manner, enabling clients in diverse sectors, including automotive and agritech, to conserve energy, enhance the user experience, and reduce costs. What sets ThermoSiv's fabric apart is its ability to precisely target and radiate heat to nearby objects, such as individuals or plants, thus ensuring their warmth without unnecessarily warming the surrounding air. The smart fabric from ThermoSiv is particularly beneficial for the automotive industry.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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