

Connecting Roads and Technology: An Indepth Look at the Smart Highway Market

Rise in the number of vehicles & international trade among the developing nations, the increase in road traffic injuries drive the smart highway market growth.

PORTLAND, PORTLAND, OR, UNITED STATE, April 18, 2024 /EINPresswire.com/ -- According to the report, the global <u>smart highway</u> <u>market</u> garnered \$23.67 billion in 2018, and is estimated to reach \$92.38 billion by 2026, growing at a CAGR of 18.7% from 2019 to 2026. <image><image>

Smart highways, are also known as intelligent highways or smart roads.

The smart highway market refers to the industry involved in developing and implementing technologies aimed at improving the efficiency, safety, and sustainability of highways and transportation infrastructure. These technologies often leverage sensors, communication systems, data analytics, and automation to enhance various aspects of highway operations.

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The smart highway market has witnessed substantial growth in recent years, driven by increasing urbanization, technological advancements, and a growing emphasis on sustainable transportation solutions. Smart highways integrate various technologies such as sensors, cameras, and communication systems to enhance safety, traffic management, and overall efficiency. These highways leverage data analytics and real-time monitoring to optimize traffic flow, reduce congestion, and improve the overall driving experience. Moreover, initiatives aimed at reducing carbon emissions and promoting smart city development further fuel the adoption of smart highway solutions. With governments and private sector players investing in infrastructure modernization projects, the smart highway market is expected to continue its growth trajectory in the coming years.

By technology, the global smart highway market was led by the intelligent transportation management system segment in 2018 and is projected to maintain its dominance during the forecast period. The major factors that drive the adoption of intelligent transportation management system in smart highway market include rise in adoption of smart transport system to reduce the traffic congestion problems and various government initiatives for smart transport infrastructure. However, the monitoring system segment is expected to grow at a highest rate during the forecast period, owing to surge in adoption of various monitoring system for tracking the speed of the vehicle and to increase the safety of the road.

Region wise, the smart highway market was dominated by North America in 2018 and is expected to retain its position during the forecast period. The major factors that drive the growth of the market in this region include growing demand for smart road from several developed countries and increase in government funding for development of smart roads. However, Asia-Pacific is expected to witness the highest growth rate during the forecast period due to technological advancement and different government initiatives for smart highway projects.

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Key components of smart highway systems include:

1. Intelligent Transportation Systems (ITS): These encompass a variety of technologies such as traffic monitoring, electronic toll collection, dynamic message signs, and traffic management systems to improve traffic flow and safety.

2. Connected Vehicles: Vehicles equipped with communication technology can exchange data with each other and with roadside infrastructure to enable features like collision avoidance, traffic flow optimization, and enhanced navigation.

3. Infrastructure Sensors: Sensors embedded in the road surface or integrated into infrastructure components like bridges and tunnels can monitor traffic flow, detect road conditions, and provide real-time data for traffic management and maintenance purposes.

4. Smart Lighting: Lighting systems that adjust brightness based on ambient conditions or traffic flow can improve visibility and reduce energy consumption.

5. Renewable Energy Integration: Incorporating renewable energy sources such as solar panels into highway infrastructure can help reduce energy costs and environmental impact.

6. Advanced Traffic Management Systems (ATMS): These systems use data analytics and predictive modeling to optimize traffic flow, manage congestion, and respond to incidents in real

time.

7. Vehicle-to-Infrastructure (V2I) Communication: This technology enables vehicles to communicate with roadside infrastructure, such as traffic lights and signs, to receive information and coordinate movements more efficiently.

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The smart highway industry faces several challenges, including technological integration complexities, such as ensuring seamless connectivity and interoperability among various systems, infrastructure maintenance costs, and cybersecurity vulnerabilities. Additionally, regulatory frameworks often lag behind technological advancements, posing hurdles in implementation and standardization across regions. Furthermore, public acceptance and trust in emerging smart highway technologies, alongside concerns regarding data privacy and ethical considerations, present significant socio-economic challenges that necessitate careful navigation for sustainable growth and adoption.

The smart highway market encompasses a range of technologies aimed at improving road safety, efficiency, and sustainability through the integration of advanced communication, sensing, and infrastructure systems. Several key players are driving innovation and market growth in this sector.

- Siemens AG
- IBM Corporation
- Cisco Systems, Inc.
- Kapsch TrafficCom AG
- Schneider Electric SE
- LG CNS Co., Ltd.
- Alcatel-Lucent S.A. (acquired by Nokia)
- Indra Sistemas S.A.
- Huawei Technologies Co., Ltd.
- Intel Corporation
- Xerox Corporation (now Conduent)
- Qualcomm Technologies, Inc.
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