Digital Twins in Automotive Market Projected to Surge to $34.6 Billion by 2032, Growing at 32.6% CAGR

WILMINGTON, NEW CASTLE, DE, UNITED STATES, February 18, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, “Digital Twins in Automotive Market," The digital twins in automotive market size was valued at $2.2 billion in 2022, and is estimated to reach $34.6 billion by 2032, growing at a CAGR of 32.6% from 2023 to 2032.

North America currently dominated the digital twins in automotive market in 2022. The region is home to numerous key automotive manufacturers and technology companies, which has contributed to the rapid adoption of digital twin technology. Europe is the second largest market for the green logistic in 2022. Europe is known for its robust automotive manufacturing base, including major players in the industry. This foundation provides a conducive environment for the adoption of digital twin technology, as companies strive to enhance their competitive edge and operational efficiency.

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Europe, particularly Germany, has been at the forefront of Industry 4.0 and smart manufacturing initiatives. Digital twins play a vital role in these efforts by enabling real-time monitoring, predictive maintenance, and data-driven decision-making across the automotive value chain. To offer these beneficial features, Germany-based digital twins developers joined forces with tech companies. For instance, in October 2022, SAP SE announced a partnership with Otonomo Technologies Ltd. for integration of Otonomo Smart Mobility Data Platform with SAP Digital Vehicle Hub. The integration enables the creation of digital twins of vehicles or vehicle components, offering a comprehensive view of vehicle lifecycle data. This collaboration between Otonomo and SAP may empower businesses to gain valuable insights and optimize their operations in the mobility sector. In addition, the collaboration aims to personalize the user experience by adapting to frequently visited destinations, including EV charging stations. Thus, numerous software and automotive companies in Europe expanded their presence globally and increased revenue from digital twins in automotive market.

System digital twin is a major segment of digital twins in automotive industry. One of the primary drivers for the system digital twin segment of the digital twins in automotive market is

increase in adoption of connected and autonomous vehicles, which enable real-time monitoring, diagnostics, and predictive maintenance of complex automotive systems.

Moreover, software providers focus on the development of digital twins for virtual testing. For instance, in April 2022, rFpro, a software specialist based in the UK, announced that it started development of a precise digital replica of the handling track of Nardò Technical Center in Italy. This virtual model aims to provide a realistic representation of the track, allowing vehicle manufacturers to expedite the development of next-generation electric vehicle platforms. By utilizing the digital twin, manufacturers may conduct comprehensive virtual testing and simulations within a fully representative virtual environment.

Furthermore, AI-powered digital twins enable predictive maintenance capabilities in the automotive industry. By analyzing real-time data from sensors embedded in vehicles, AI algorithms may detect anomalies, predict potential failures, and schedule proactive maintenance. This approach helps automotive manufacturers and service providers optimize maintenance schedules, reduce downtime, and improve overall operational efficiency.

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Moreover, digital twin solution provider expanded product portfolio powered by AI. For instance, in October 2022, Altair Engineering Inc., a prominent global provider of computational science and AI solutions, launched a comprehensive digital twin solution. This solution offers highly connected and cross-functional capabilities, making it suitable for deployment at any stage of a product's lifecycle. Digital twin solution by Altair is designed to enhance product development and optimization by providing advanced simulation and AI-driven capabilities.

In addition, automotive manufacturers adopt digital twins to improve performance of electric vehicle (EVs). For instance, in May 2022, Hyundai Motor Group conducted a pilot program in partnership with Microsoft Korea to validate the efficacy of digital twin technology in enhancing the performance of EV batteries. The collaborative initiative aims to demonstrate the capability of digital twins to accurately predict the service life of individual EV batteries and optimize their overall performance. This project incorporates advanced technologies such as artificial intelligence (AI), machine learning (ML), and physical models to analyze driving data and other pertinent factors that influence battery longevity. Thus, the digital twins in automotive market is expected to witness steady growth as digital twins offer automobile manufactures advanced monitoring and performance testing features.

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In the automotive industry, the COVID-19 pandemic has therefore presented obstacles as well as opportunities. Even though it momentarily hampered supply chains, R&D efforts, and on-site operations, it sped up the adoption of digital technology and highlighted the benefits of virtual

solutions, data analytics, and preventative maintenance.

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By type, the system digital twin segment is anticipated to exhibit significant growth in digital twins in automotive market in the near future.

By application, the product design and development segment is anticipated to exhibit significant growth in digital twins in automotive market in the near future.

By technology, the simulation tools is anticipated to exhibit significant growth in digital twins in automotive market in the near future.

By region, Asia-Pacific is anticipated to register the highest CAGR during the forecast period.

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The key players profiled in the digital twins in automotive market report include Altair Engineering Inc., ANSYS, Inc, Bosch Rexroth AG, General Electric Company, IBM Corporation, PTC Inc., Rockwell Automation, Inc., SAP SE, Schneider Electric SE., and Siemens.

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