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India Electronic Toll Collection Market By Type (Automatic Vehicle Identification System, Violation Enforcement System, Automatic Vehicle Identification System, and Others), By Technology (Radio Frequency Identification, Dedicated Short Range Communication, Global Navigation Satellite System, Video Analytics, Cell Phone Tolling, and Others), By End User (Highway, Urban Area), By Region, Competition, Forecast & Opportunities, 2029

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Abstracts

India Electronic Toll Collection Market is anticipated to grow at a high CAGR in the forecast period. The significant impacting factors in the India electronic toll collection market include continuous growth in demand for effective traffic management at toll collection centers, cashless traveling facilities, and reduced environmental pollution. However, the high initial installation cost and high operational costs of the electronic toll collection system hamper the market growth to a certain extent. The market has witnessed significant growth, owing to an increase in the adoption of electronic toll collection (ETC) across the country and stringent government regulations regarding toll collection.

According to new legislation announced by the Ministry of Road Transport and Highways, all commercial vehicles in India with a national permit must include both an RFID electronic tolling tag (FASTag) and vehicle tracking (a national permit is a federal authorization, which enables commercial vehicles to transport goods across all states). This follows a previous announcement that mandates the sale of FASTags with all new 4- wheeled vehicles, and this is expected to further accelerate the already rapidly

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growing penetration of ETC in India. For instance, India saw a 46% rise in electronic toll collection through FASTags in 2022, and the Indian government aims to build 65,000 km of national highways by 2022 with a budget of USD 741.5 billion.

A sophisticated technology for automatic charge collecting on roads is the electronic toll collection (ETC) system. Vehicles are automatically charged by the ETC system without the need for a human to do anything or for the driver to stop. By utilizing cutting-edge technical solutions, such as GPS & GNSS toll collecting and tracking technologies, electronic toll collection helps to manage traffic in very crowded locations efficiently. The FASTag is a gadget that deducts toll payments directly from the vehicle-linked prepaid account using radio frequency identification (RFID) technology. It was created as a part of a scheme for electronic toll collection at toll booths on national roads by the National Highway Authority of India (NHAI). The success of the effort has been aided by the government's enthusiastic support of new regulations and standards for the installation of these systems and tolling.

India Electronic Toll Collection Market: Drivers & Trends

Rising Demand for Effective Traffic Management at The Toll Collection Center

Smooth traffic flow is guaranteed and time at the toll booth is reduced with proper and efficient traffic management. The volume of traffic traveling on national roads is rising, which leads to more traffic jams at toll plazas and wasted time and fuel. The new electronic toll-collecting system makes toll payments directly from the passenger's associated prepaid or postpaid account using technologies like RFID and an onboard device called a 'tag.' The tag contains a distinctive identifying number that allows the vehicle to be located and the appropriate fee to be charged. Additionally, all of these aspects of electronic toll collection have advantages, such as the convenience of users not having to stop at toll booths to pay, which eases traffic and helps the market expand.

Cashless Travelling

Electronic toll collection systems enable the central management of toll operations through a single integrated solution. ETC ensures that payment at the toll is made electronically. The facility of cashless transactions offered by this system not only saves travel time but also avoids traffic delays. This act as a key driving force behind the rise of the India electronic toll collection market.

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Reduced Environmental Pollution

The continuous growth of traffic and lack of a proper tolling system account for maximum air pollution, owing to the release of pollutants during vehicle operation. The heaviest congestion occurs near a toll gate where a vehicle makes a brief stop to pay the toll amount, which increases air pollution. The aim behind electronic toll collection is not only to eliminate the delay occurring on toll roads, toll bridges, toll tunnels, and more but also to improve fuel consumption and reduce pollution levels (emissions). Electronic toll collection has a positive impact on the environment as it allows the free flow of traffic at the toll plaza.

Mobile and Satellite-based GPS Systems Witnessing Investment Rise

The commercialization of global positioning systems (GPS or GNSS) has substantially broadened its scope of application in various daily activities. For instance, the use of GPS systems installed onboard vehicles could also be utilized for toll collection purposes thereby effectively eliminating the need for any tolling infrastructure or system requirements. Moreover, other benefits, such as low cost per transaction, maintainability, accessibility to web-based accounts, and no infrastructure required for integration of new routes, are expected to drive the demand for GPS-based toll collection systems. In addition, the availability of the cost of sharing the GPS technology owing to sharing of service also lowers the cost of maintenance and operational costs of this system. Thus, providing a substantial advantage over the existing toll collection systems. However, the recent growing awareness of data privacy, data protection regulations, and its ability to enforce violations are expected to restrict the penetration of this technology to a wider audience. As a result, the post subsequent improvements in data privacy and protection are achieved and regulated by the government, the technology is expected to create lucrative opportunities for market players.

India Electronic Toll Collection Market: Restraints

High Initial Installation and Operational Costs of Electronic Toll Collection System

The most advanced and complicated technique of collecting tolls is the electronic toll collection system. ETC is still developing even after more than 20 years of usage. ETC system implementation is challenging and expensive since costs vary greatly depending on the project's scope. Whether the system is new or updated has an impact on the price as well. Based on the degree of the customized software needed for the business rules, the back-office operation, the project location, and the required signs, it is

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predicted that the price range will fluctuate. ETC is costly as a result of the high initial installation costs and significant operating expenses associated with its adoption. This serves as a significant hurdle and slows the market's expansion.

Insufficient Standardization Levels and Evaluation Metrics for Electronic Toll Collection Systems

ETC systems generally vary as per the requirement of the state or central agencies and their efficiency is greatly influenced by the vehicle classification and interoperability of the system. Moreover, the toll collection system deployed could utilize a range of technologies for providing a seamless toll collection process. As a result, ETC systems lack fixed evaluation metrics, guidelines, or regulations that govern system aspects, such as interoperability, uniformity, and volume of traffic handled.

Moreover, the availability of other services, such as reports & monitoring, gathering insights about traffic patterns, congestion management, and pollution control, can also be tracked through the data generated through ETC systems. Also, the improvement of ETC systems to incorporate a greater region within the country along with its interoperability across different states or administrative provinces generally varies from one ETC solution to another. Thus, the streamlining of the basic characteristics associated with RFID systems and other frequency-based systems is expected to limit its reachability among small and moderate tolling gateways.

India Electronic Toll Collection Market: Opportunities

Stringent Government Regulations Regarding Toll Collection

While giving toll collectors more responsibilities, electronic toll collection offers a reliable traffic management solution. The development of electronic toll collecting has been greatly aided by technological breakthroughs, which have also inspired governments all over the nation to make significant investments in toll lanes. The FASTag gadget has been adopted by the National Roads Authority of India (NHAI) as a part of a plan for electronic toll collection at toll plazas on national roads. The prepaid account that is linked to the car is used by this gadget to deduct toll payments immediately using radio frequency identification (RFID) technology. The development of the business has been fuelled by the government's positive assistance in formulating new rules and laws regulating the installation of these systems and tolling. Additionally, FASTag is expected to offer the convenience of cashless payments and is said to allow for almost continuous vehicle movement through toll plazas. These favorable government policies

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for electronic toll collecting provide attractive potential for business development.

Market Segments

The India electronic toll collection market is segmented by type, technology, end user, and region. Based on type, the market is segmented into automatic vehicle identification system, violation enforcement system, automatic vehicle identification system, and others. Based on technology, the market is segmented into radio frequency identification, dedicated short range communication, global navigation satellite system, video analytics, cell phone tolling, and others. Based on end user, the market is segmented into highway and urban area. The market analysis also studies the regional segmentation to devise regional market segmentation, divided among North, East, West, and South.

Market Players

Key players in the India Electronic Toll Collection market are Arya Omnital, KENT Intelligent Transportation Systems (India) Pvt. Ltd., TollPlus, Tollman International Pvt Ltd, Thales India, Mitsubishi Heavy Industries, Siemens India, Transcore Holdings Inc., Cubic Transportation System India Private Limited, and Neology Inc.

Report Scope:

In this report, the India electronic toll collection market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

India Electronic Toll Collection Market, By Type:

Automatic Vehicle Identification System

Violation Enforcement System

Automatic Vehicle Identification System

Others

India Electronic Toll Collection Market, By Technology:

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Radio Frequency Identification

Dedicated Short Range Communication

Global Navigation Satellite System

Video Analytics

Cell Phone Tolling

Others

India Electronic Toll Collection Market, By End-User:

Highway

Urban Area

India Electronic Toll Collection Market, By Region:

North India

East India

West India

South India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in India Electronic Toll Collection Market

Available Customizations:

India Electronic Toll Collection market with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

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Company Information

Detailed analysis and profiling of additional market players (up to five).

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