

***AN INTRODUCTION TO FASTAG: ADVANTAGEOUS AND AUTOMATIC
MODE OF TOLL COLLECTION SYSTEMS IN INDIA***

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ABSTRACT:

This paper outlines the challenges encountered by typical toll assortment systems in India and brings out the necessity for having an automatic toll assortment system like FASTag, a program unrolled by National Highways Authority of India (NHAI) for Electronic Toll assortment on National Highways.

KEYWORDS: Toll Collection System, RFID, FASTag, radio waves, Toll plaza.

INTRODUCTION:

India may be a country with the second largest road network within the world. Out of the whole stretch of five.4 million kilometer of road network, almost 97,991 kilometer is roofed by national highways. The National Highways Authority of Republic of India (NHAI), a nodal agency of the Ministry of Road Transport and Highways is accountable for the upkeep and also the growth of the highways. Travel on these state/national highways conjointly called toll roads need a tax to be paid referred to as the Toll Tax. The govt. spends the taxes collected by suggests that of toll roads usage on the upkeep of those roads in order that the drivers and also the riders will travel well. The challenges related to the standard tolling method square measure as follows:

- restricted range of toll booths resulting in slow toll assortment method
- Slow toll assortment method at the toll booths ends up in a minimum of ten minutes average waiting time per vehicle
- Fuel wastage thanks to long waiting time at the tract
- Pollution
- Verbal arguments and physical fights among impatient travellers and also the toll attendants.

- Tract accidents that happen thanks to the sharp lane ever-changing by drivers for quicker clearance.
- Wastage of your time at booths includes a negative impact on transport sector furthermore because the whole economy. 2016 study by IIM, Kolkata same the country suffers losses of nearly Rs 40000 large integer each year thanks to delays in transportation. The study conjointly highlighted that, the delays diode to consumption of fuel value Rs ninety,000crore.

These limitations within the standard toll assortment systems entailed a direct revamp within the Indian toll assortment machinery. Thus, a step during this direction was taken by National Highways Authority of Republic of India (NHAI), a nodal agency of the Ministry of Road Transport and Highways by introducing “FASTag” that employs frequence Identification (RFID) technology and provides for seamless movement of FASTag affixed vehicles at toll plazas.

Such form of road tag brands square measure operating in several developed countries of the west and square measure famous by completely different names like Eazee Pass, SunPass within the United States of America, e-Pass in Australia, Salik in urban center etc.

WHAT IS FASTag:

FASTag may be a fast reloadable tag that enables for the automated deduction of toll charges while not the necessity to pause at toll plazas to create payments. This tag is connected to the vehicle's windscreen and uses Radiofrequency Identification (RFID) technology to figure. The theme was introduced on the Delhi-Mumbai arm of the Quadrilateral on four New Style calendar months in 2014, when it started as a pilot programme on the stretch of the Golden Quadrilateral between Ahmedabad and town in 2014. (Joshi, 2017). FASTag is presently in use at over 240 toll plazas on National Highways. The consumer ought to visit any of the aim of Sale (POS) locations at Toll Plazas / establishment Agency to urge his FASTag account created by paying a former fee of ₹ 2 hundred. FASTag account is procured by making a payment through cheque or on-line through Credit Card/ Debit Card/ NEFT/ RTGS or through net Banking. FASTag account is recharged upto Rs. 1,00,000.00 (Rupees One animal material only). Users can drive their vehicles through the FASTag lanes at the toll plazas once recharging their FASTag accounts and thus the toll amount ar automatically deducted from their accounts. the govt. has presently

created it necessary for all the vehicles ready-made or sold-out once New Style calendar month one, 2017 to have a FASTag.

WORKING:



Affixed on the wind defend of the vehicle could be a distinctive RFID tag that enables for creating toll payments directly from the bank or postpaid account joined thereto. FASTag glued to the Car's wind defend establishment Agency can electronically deduct the applicable toll fee from the customer's account joined to the FASTag. This deduction are done post the toll dealings. The client must adequately fund the account that is joined to FASTag. This recharge method could also be termed as indefinite quantity. The client receives associate SMS with requisite details to his registered mobile variety as presently because the toll dealings takes place. client can receive associate SMS alert in your registered telephone number whenever associate quantity is subtracted from your FASTag account. Fee due on every piece of land is obtainable on World Wide Web.nhtis.org additionally to being displayed at the involved toll plazas.

Periodic statement of account may additionally be obtained on web site of the establishment Agency once registration by the client

RFID TECHNOLOGY:

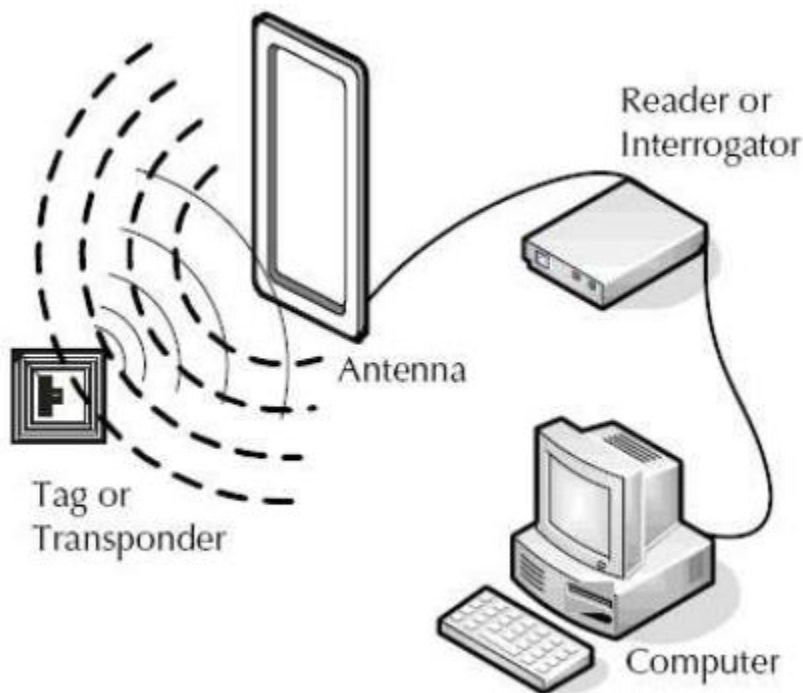


Figure 2: RFID System.

RFID technology allows a device to capture the digital signal encoded in RFID tags or sensible labels that transmit the radio waves. RFID is assessed below a broad technology known as Automatic Identification and knowledge Capture (AIDC). It uses radio waves to mechanically establish individuals or objects, collect knowledge concerning them and enter the collected knowledge directly into the pc systems with very little or no human intervention. RFID Systems contains of 3 components: i. AN RFID tag or a sensible Label

- ii. AN RFID reader
- iii. An Antenna

RFID tags consists of AN computer circuit ANd an antenna, that arwont to transmit knowledge to the RFID reader (also known as AN interrogator). The RFID reader then converts the radio waves to a lot of usable type of knowledge. data collected from the tags is then transferred through a communication interface to a bunch automatic data processing system, wherever the information is hold on in a very information and analysed at a later time (Satyasrikanth P, 2016). By mistreatment RFID technology at each parcel, congestion and therefore the long queues of traffic is avoided which is able to mechanically lead to time saving moreover together won't ought to do the payments manually. additionally AN Electronic Toll assortment System isable to see if a automobile is registered in a very toll payment program, and it alerts enforcers of toll payment violations, and debits the collaborating account.

BENEFITS OF ADOPTING FASTag:

FASTag has caused many socio-economic and environmental advantages to its participants.

To the Road Users:

- Convenience of cashless payment
- Non-stop motion & reduced commute time
- Cashback* of fifty for FY – 2018-19 Applicable for visits created at NHAI plazas solely
- Online Portal for purchasers SMS alerts for low balance and toll transactions etc.

To the Toll Operators

- Improved lane utilization
- transactions Lower operative prices Reduced effort in management at piece of land
- Better audit management through centralized user accounts
- pollution
- Reduced use of paper and reduced toll payment hassles

To the govt

- Improves transparency of toll Savings
- Savings on fuel, reduction of emissions from idleness and continual stops at Toll Plazas
- Reduced pollution
- Reduced use of paper

CHALLENGES FACED BY FASTAG:

- FASTag charge is high for multi-axle vehicles – Multi-axle vehicle homeowners area unit hesitant to choose FASTag because the toll charges for such vehicles area unit quite high. A truck needs over Rs. 2,000 for ten journeys whereas a automobile will create ten journeys at a way lower price. this provides individuals the concepts for deploying automobile tags in trucks.
- FASTag might not be approved – once there's no quantity within the account, no credit is given to the users. Then the user must pay in money. Moreover, at times, the RFID scanner goes through technical problems, exploit a FASTag user in a very fix to pay the toll quantity in money.
- FASTag are often purloined or lost – Since the FASTag comes in a very tag kind, it will simply be purloined or lost. In such a scenario, the user should request the agency to dam the FASTag account instantly and method reissuance.
- FASTag are often wrong charged – occasionally, thanks to technical glitches, a FASTag user is also wrong charged. In such a scenario, the user is left with the sole choice to report the matter as presently as he/she involves comprehend it and arouse a compensation.
- FASTag could face malfunction or harm – A user should report regarding an equivalent and arouse a replacement
- FASTag faces the difficulty of discipline the least bit most each piece of ground – Vehicles while not the FASTags enter the selected lane whereas those with FASTags anticipate their flip, behind these vehicles. • Same lane for electronic toll assortment (ETC) and extremely influential person (VIP) – There ought to be an avid ETC lane at each piece of ground. Not having an avid ETC lane suggests that the aim of FASTag fails because it causes a delay within the journey of FASTag users.

- National Highways Authority of Bharat (NHAI) doesn't involve itself in FASTag payments, it's not provided any software system for an equivalent instead, it's authorised many banks to handle them. Since, every bank is mistreatment its own software system it's given rise to ton of payment connected problems that desires a right away rectification.
- FASTag project desires correct observance to make sure refunds area unit created on account of request errors.
- there's no UN agency sale package providing discounts or free journeys for industrial operators who have multiple vehicles crossing toll plazas many times.
- the govt should guarantee straightforward handiness of FASTags through numerous channels and additionally educate the individuals on mistreatment the dedicated FASTag lanes since the conception is new, it's in a very emerging stage in Bharat.

CONCLUSION:

Although RFID based mostly FASTag is seen as Associate in Nursing advantageous mode of toll assortment system in Asian nation providing various socio-economic and environmental advantages to each – the user and also the collector, till its drawbacks or the challenges don't seem to be uprooted to the bottom, the module shall still face serious crunch and will not work as supposed. By planning acceptable solutions to handle the challenges two-faced by FASTag it is created a technologically superior mode of toll assortment eventually proving itself to be a game changer in automatic toll assortment system, within the years to come back. Also, plans area unit afoot by the fossil fuel Ministry and personal Oil selling corporations that FASTags might be utilized by shoppers for getting gasoline at gasoline pumps and even for parking facilities

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BIO

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