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Leveraging IT for Transportation – Review & Analysis

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Abstract

Transport in India has become one of the most important aspects of life, being a necessity as well as convenience. Road transport has the largest share of GDP [2] in comparison to the other transport segments. This indicates that it is a most widely used segment with major contribution to the economy amongst the transport modes. However, diverse geographic conditions, poor infrastructure, poor planning, and complex tax policies are hindering faster economic growth. All the above factors are thereby resulting in poor public transport, high congestion on roads, increased pollution, growing indiscipline and deteriorating road safety. [1] This paper is focused on various challenges and solutions of Transportation.

Index Terms: GDP, Geographic Conditions, Infrastructure, Complex Tax Policies, Congestion, Deteriorating Road Safety

I. INTRODUCTION

India loses about INR 60,000 Cr. Due to traffic congestion, slow speed of freight vehicles and waiting time at toll plazas and checking points. [3] Moreover, because of lack of green corridor planning, traffic departments in cities find it difficult to navigate traffic in emergencies.

Citizens face many challenges like traffic congestion at toll, safety of passengers, authorized access to car, corruption etc. A new technology with a combination of GPS, RFID, GPRS, smart card reader, 3-axis accelerometer can help address many challenges. The device "On Vehicle Smart Module (OVSM)" which has all above mentioned technologies integrated with-in. This technology will eliminate the need of physical tolls or even policing one way areas and the required toll or fine will be automatically debited from the users' balance and user will also receive an e-receipt. This will take care of over speeding and reduce accidents, generate genuine revenue for the government. [1]

"I believe government has no business to do business. The focus should be on Minimum Government but Maximum Governance".

- *Shri. Narendra Modi*
  Hon'ble Prime Minister, Government of India

II. CHALLENGES IN IMPLEMENTING THE NEW TECHNOLOGY SOLUTIONS

There are many challenges that such a new technology might face in the current scenario:

- Infrastructure upgradation required: more research to define roadmap based on further directions would be required.
- Production & implementation challenges: Original Equipment manufacture's inability to immediately integrate such technologies in the near future.
- Acceptance of any new technology depends upon its benefits for the stakeholders. [1]

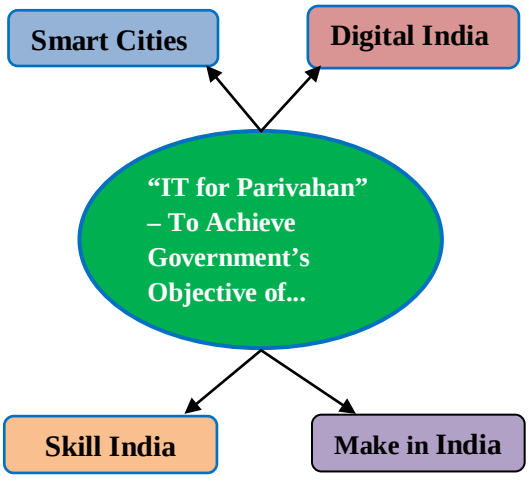

Figure 1: Future Benefits of OVSM Technology Implementation

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III. OVERCOME CHALLENGES – "CREDIT TRANSFER MODEL"

To overcome the mentioned challenges, a new concept i.e. CREDIT TRANSFER CONCEPT is proposed. In this concept credit will be transferred to user account.

The "On Vehicle Smart Module (OVSM)" user account will be linked to user's bank account and to the user's license, RTO records etc. This model will work similar to a mobile top-up scheme that in this case the top-up is for OVSM account that will be linked to a vehicle user. This helps in better monitoring and other stricter enforcement of laws. If user not following rules, they will be monitored and penalized for the violation of traffic rules. Using OVSM, reduce queuing ups for tolls, reduction in traffic congestion, also detection of theft and unauthorized use of vehicles. [1]

"Information Technology should be used as a decision support system in strengthening, maintaining and upgrading National Highways".

- *Shri. Nitin Gadkari*

Hon'ble Minister, Ministry of Road, Transport, Hoghways and Shipping, Government of India

CONCLUSION

The whole idea behind this technology initiative is to take the nation to the next level. It will contribute to development of the transport sector and help in simplifying the procedure by leveraging information technology.

Implementation of "On Vehicle Smart Module (OVSM)" based system is a step towards the digitization of road transportation and changing cities in to Smart Cities. Nationwide implementation of OVSM solution will create a market for manufacturing of these system components, which in turn support the Make in India scheme initiated by the government of India. [1]

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