



INTELLIGENT TRANSPORT SYSTEM
ASSOCIATION OF MALAYSIA

ITS SEMINAR AND EXHIBITION 2017

DRIVING ITS TO A NEW NORMAL

Connexion@Nexus

Bangsar South, Kuala Lumpur, Malaysia

21 - 23 February 2017

Organised by



In Collaboration



Supported by





INTELLIGENT TRANSPORT SYSTEM
ASSOCIATION OF MALAYSIA

TOLLING INNOVATION IN ASEAN

By KHAIRIZA KAMARUDIN





Agenda



01
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02 ASEAN
at a glance

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04 Cross
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Introduction



What is Innovation?

Wikipedia: *A new idea, product or method. The application of better solutions that meet new requirements, unarticulated needs, or existing market needs.*

Business Dictionary: *The process of translating an idea or invention into a good or service that creates value or for which customers will pay.*












Introduction





Introduction

TOLLING TECHNOLOGY COMPARISON

	 MICROWAVE	 INFRA RED	 RFID STICKER	 GNSS
PRICING	\$\$	\$\$\$	\$	\$\$\$\$\$
PROVEN				
FITMENT	TRANSFERABLE	TRANSFERABLE	PERMANENT	



Agenda



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**02 ASEAN
at a glance**

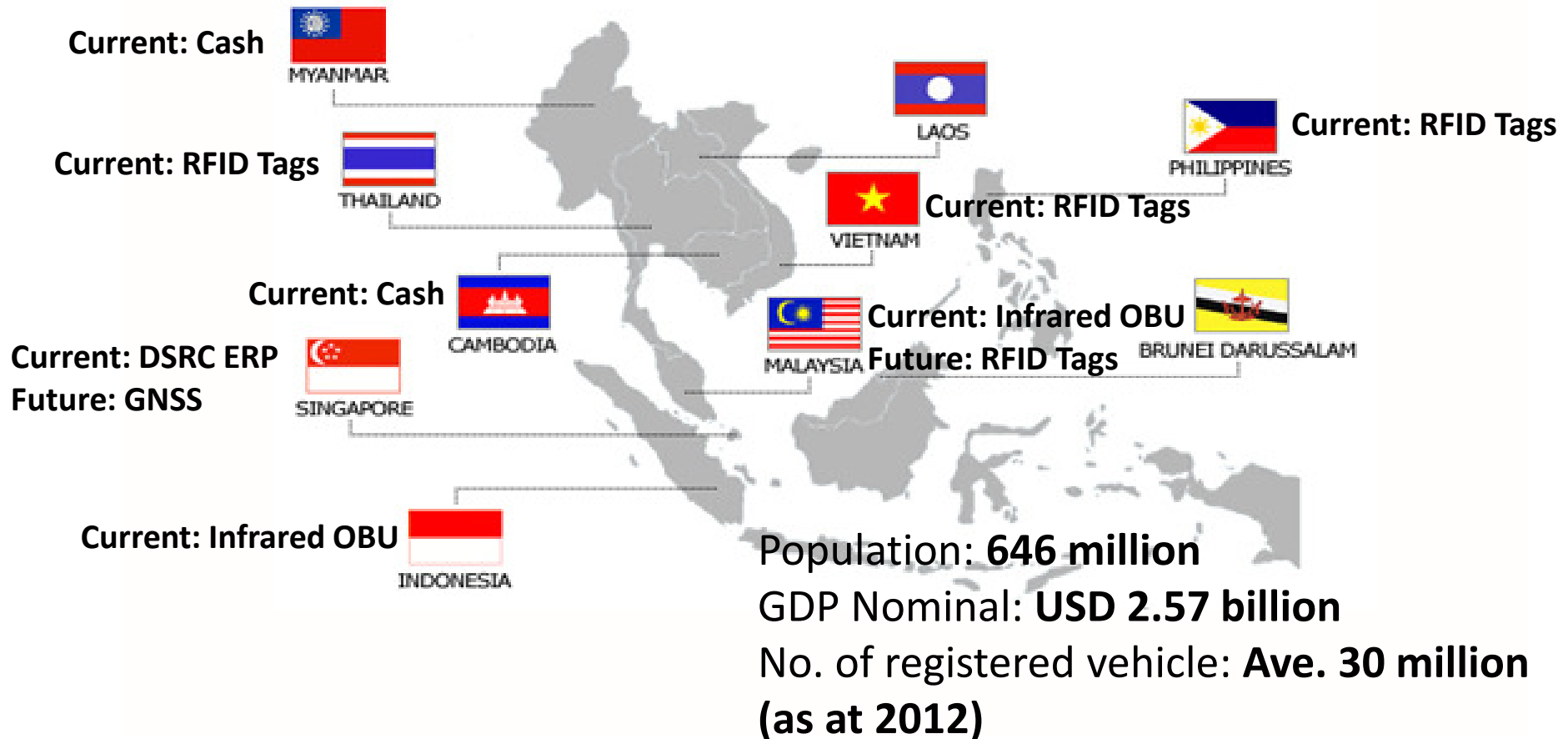
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ASEAN at a glance





ASEAN COUNTRIES AND TOLLING TECHNOLOGY



										
No. of Highway Concession/ Operators		37			8					31
Cash Collection		✓	✓	✓	✓	✓	✓			✓
Stop & Go Collection		✓	✓				✓			✓
Non-stop Collection	✓	✓	✓	✓	✓					✓
Video Tolling	✓									
GNSS	2020									
Highway Authority	LTA	BPJT	EXAT	DRVN	DPWH				PWD	MHA



Singapore



- 1st city in the world to manage road congestion
- Start with Area Licensing Scheme in 1975 and reduced 45% traffic level
- Implemented the improved and enhanced tolling system (Electronic Road Pricing) in 1998
- Traffic level decreased 15% further and increased at least 20% of public transport commuters.

HOW DOES ERP WORK?

1 CASHCARDS ARE INSERTED INTO IN-VEHICLE UNITS (IUs).



2 EACH TIME A VEHICLE PASSES THROUGH AN ERP GANTRY, ERP CHARGES ARE DEDUCTED FROM YOUR CASHCARD VIA SHORT-RANGE RADIO COMMUNICATION.



Singaporean Cars

- To install an in-vehicle unit with stored value card for payment deduction

Foreign Cars

- A flat rate of SGD5 daily



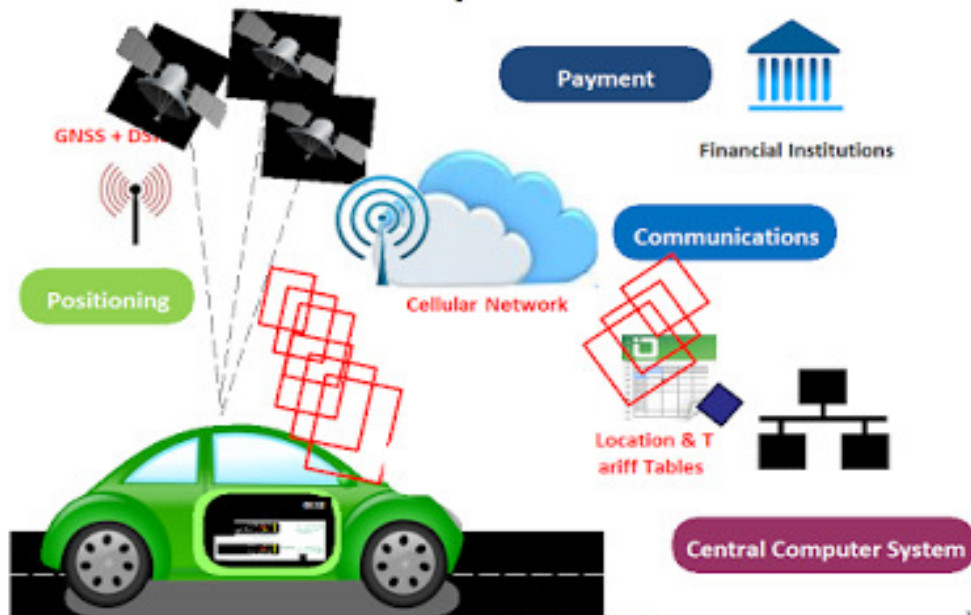
Singapore



Moving Forward

Implementation of satellite-based road pricing system by 2020

Next-Generation ERP System Architecture



3





Indonesia

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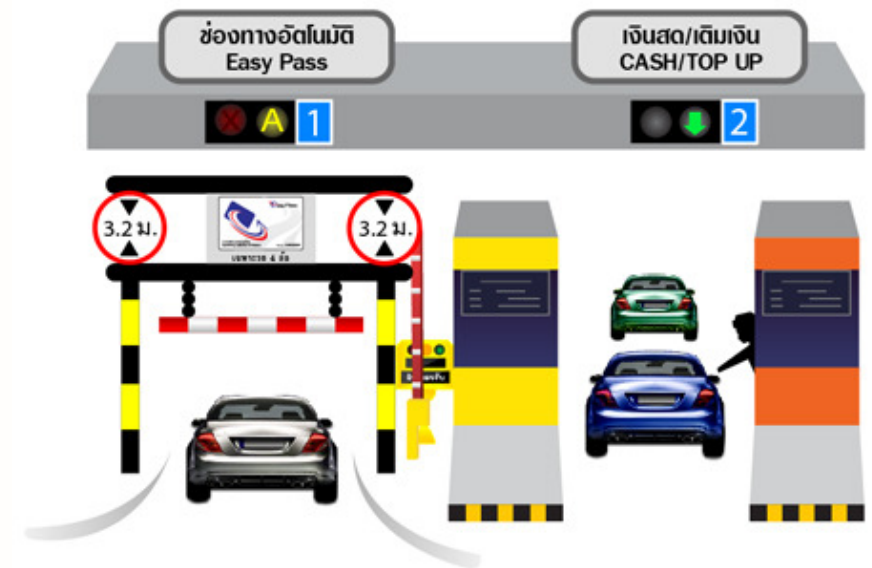
Thailand



- 1st highway named Chaloem Maha Nakhon Expressway operated since 1981
- Toll road payment – cash, coupon and Easy Pass
- User is given options to top up their Easy Pass card by cash or using MasterCard easyBills starting **2017**



ช่องทาง Easy Pass

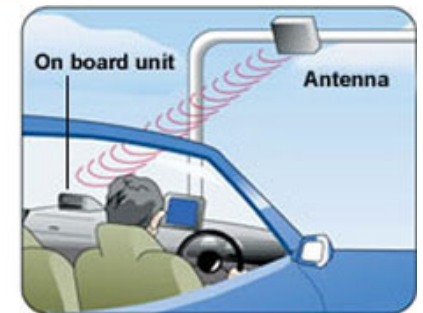




Vietnam



- Current toll system – cash and RFID tag at few highways
- Expanding the uses of RFID tag to all highways by end of 2018 and gate barrier will be removed completely by end 2020
- In 2016, there were proposal for payment using cashless smart card for highway user with no RFID tag to reduce delay (before full implementation of RFID system in the country)





Philippines



- 1st expressway : North Luzon Expressway (NLEX) and South Luzon Expressway (SLEX) built in 1970s
- E-Pass introduced in Aug 2008 by SLEX and Skyway and currently replacing with AutoSweep RFID sticker
- EC-Tag / easytrip installed in April 2008 by NLEX
- RFID sticker tag also known as EasyDrive introduced in 2015 and is being used in Cavite Expressway





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Malaysia



- 1st toll operations in 1966 Tanjung Malim-Slim River Toll Road (Federal Route 1) covering 20 km route
- North-South Expressway completed in 1994. It is the longest tolled highway in Malaysia with total length of 772 km from Bukit Kayu Hitam to Johor Bahru
- Toll roads total length in Malaysia is more than 2,000 km now.





Malaysia



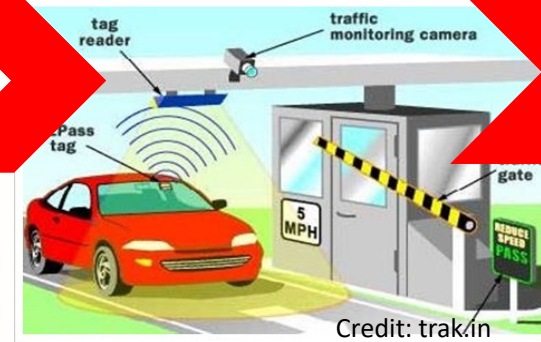
CASH

1994



ELECTRONIC TOLL
COLLECTION (ETC)

1994 - 2017



ETC RFID with Barrier

2017

**NEXT
INNOVATION?**

RFID MLFF?

2020..



Malaysia



Benefits of Moving from Cash to Cashless (ETC)

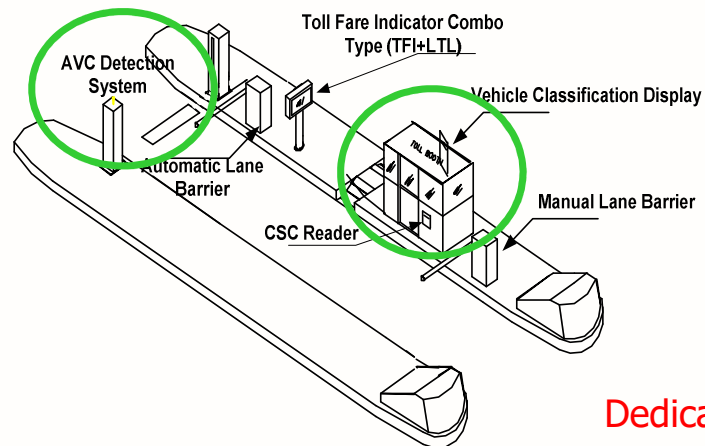
- ✓ Reduce cost of Toll Collection
- ✓ Reduce Fraud
- ✓ Faster Journey Time
- ✓ Less Congestion



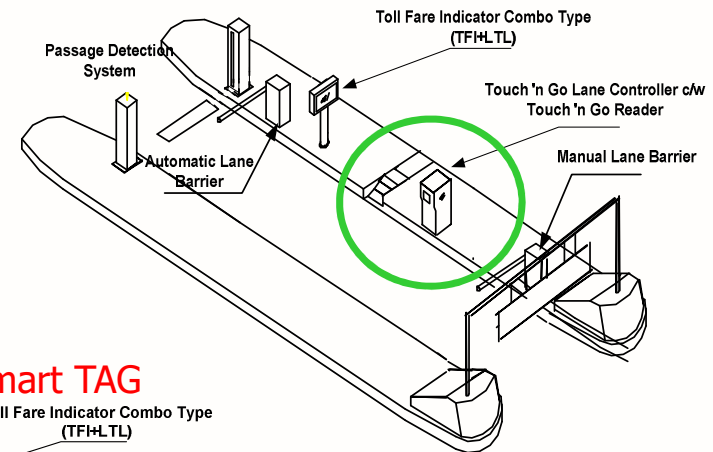
Malaysia



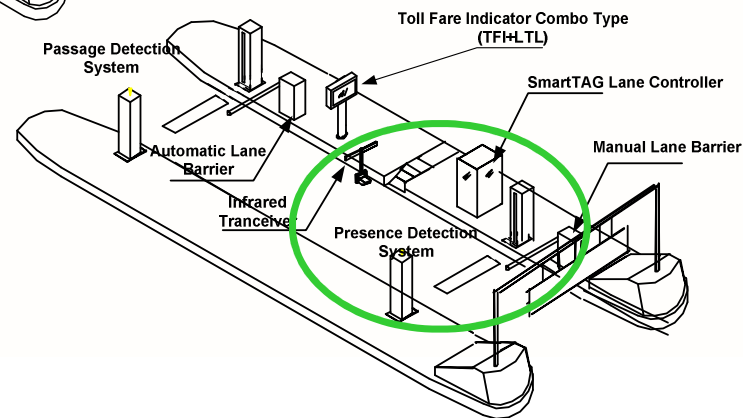
Mixed Mode : Cash + TNG



Dedicated TNG

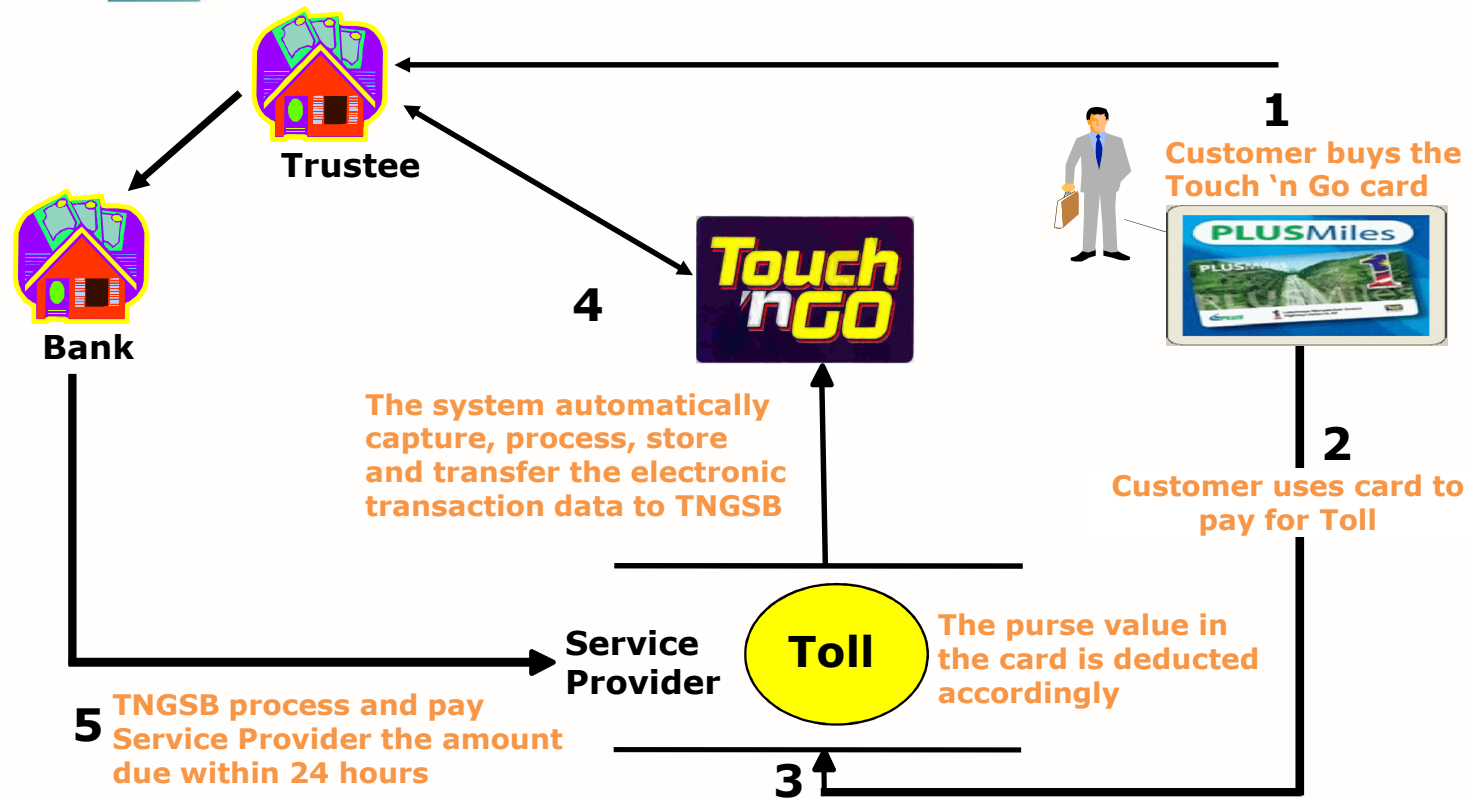


Dedicated Smart TAG





Malaysia





Malaysia



Toll Innovation for Closed System at PLUS

The Vehicle Registration Number (VRN) System is
“a closed toll collection system for cash transaction
using the transit card based on smart card”

Benefits

- Recyclable Transit Card - reduces operational cost
- Mitigate potential fraud/payment violations via license plate number/image capturing
- Enhance efficiency - card monitoring and management system
- Environmentally friendly



Private authorities (concessions) is currently exercising a testing to use passive RFID tag as a toll collection method. The effectiveness of RFID usage in Malaysia are still in POC stage.



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Cross Border Toll



Vision

Moving towards a cross countries “*borderless*” highway in ASEAN which enable road users to easily pay tolls throughout the whole ASEAN using one contract subscription, an on-board unit and a single provider.



Cross Border Toll



Current implementation in Europe:

- For trucks over 3.5 metric
- Cross country highway between Germany, Austria, Denmark, Sweden and Norway using the TOLL2GO; a microwave technology and satellite-supported toll system GNSS.
- Service implementation start since Sep 1st, 2011.





Cross Border Toll



The potential benefits



Improves economy



Increase tourism sector



Multi-payment options

The technical challenges



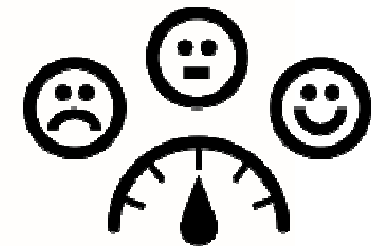
Integration of different
tolling architecture



Fluctuation of currency



Personal data security



User satisfaction



Cross Border Toll



To make it happen

- To set a common platform or integration of existing system depending on technologies that are tolerable by most ASEAN countries.
- Standard payment system i.e. via credit card, debit card, e-payment that have the ability to cater seasonal discounts, flexi charge, etc.
- Establish a Central Tolling Agency (CTA) in each country to monitor the fleet charges, govern tolling policy, data centralization and enforcement.

Government to Government Initiative

- Multilateral relations





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Way Forward

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TOLLING INNOVATIONS OF THE FUTURE

FULL ETC



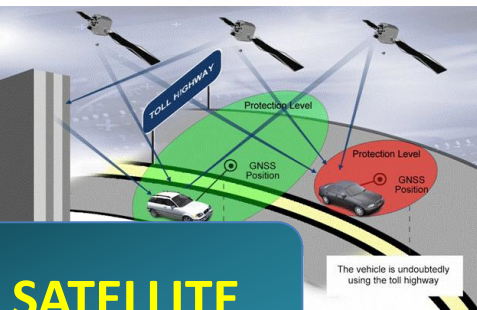
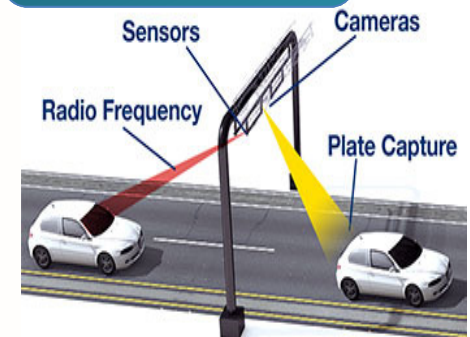
MLFF



CONGESTION PRICING

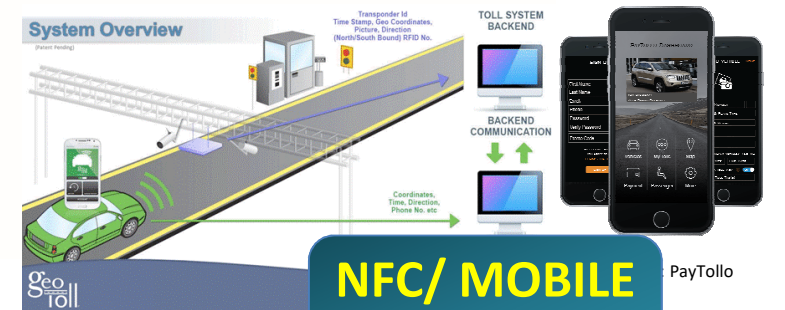


VIDEO TOLLING



SATELLITE

ANPR



NFC/ MOBILE PAYMENT



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Thank You