



Tolling Collection Systems *from* **Metro Infrasy**

Overview

Metro Infrasvs



- ❑ An emerging leader in Intelligent Transportation Systems.

- ❑ Having the platform of best engineering skills with qualified and trained staff .

- ❑ State of the art infrastructure → Fully equipped development centre for Software, Hardware and Simulation



Metro Infrasy's Clients & Projects



KMC BSC JV

Supply, Installation & Commissioning of 36 No.s of Electronic Toll Collection Systems & 24 No.s of Slow Speed Weigh in Motion Systems for Project of Six Laning of Chilkaluripet – Nellore Section of NH-5 for 183.620 km in Andhra Pradesh



Navuyuga Engineering Company

Supply Installation Commissioning and Maintenance of Tolling Systems on NH-7



DND FLYWAY:

Automatic Vehicle Classifications Sensors for DND FLYWAY for 27 lanes Toll Plaza at Noida.



Metro Infrasy's Clients & Projects



ISOLUX CORSAN SOMA:

Supply, Testing & Commissioning, Maintenance of Temporary Toll Management Systems of NH-1 for 32 Lanes.



KNR Constructions:

Supply, Testing & Commissioning, Maintenance of Toll Management Systems for 6 Lanes & 63 Kms of HTMS.



MADURAI TUTICORIN EXPRESSWAY LIMITED:

Supply, Testing & Commissioning, Maintenance of Toll Management Systems for 24 Lanes.



Metro Infrasy's Clients & Projects

HCC



HCC LIMITED and Sadbhav :

24 Lane Toll Collection Systems on NH-3 with WIM and HTMS.



GMR PROJECTS LTD.:

Supply, Testing & Commissioning, Maintenance of AVC Subsystems & Toll Collection Equipments for 36 Lanes for 3 projects.



Our Solutions

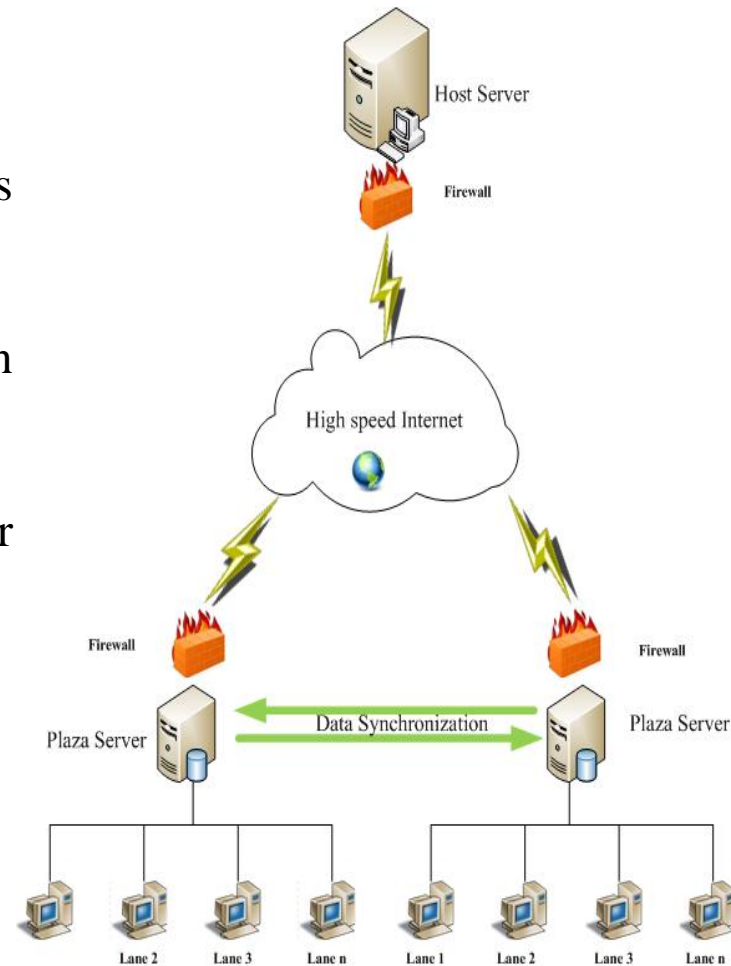


Toll Management Systems

SYSTEM ARCHITECTURE

Architecture Overview

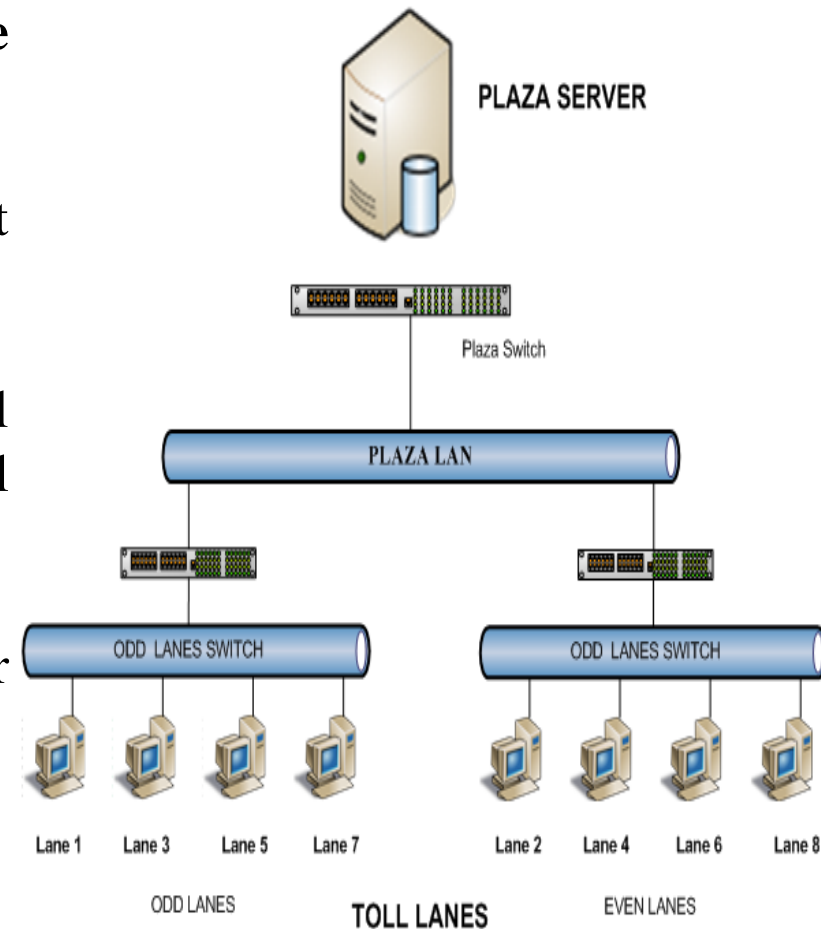
- **(Lane Level)** Deals with revenue collection & business logics.
- **(Plaza Level)** receives and consolidates information from the lane level for MIS generation & monitoring.
- **(Host Level)** acts as centralized data storage point for multiple plazas.



LANE LEVEL

The lane level is the most important interface with road users. Its main objectives are:

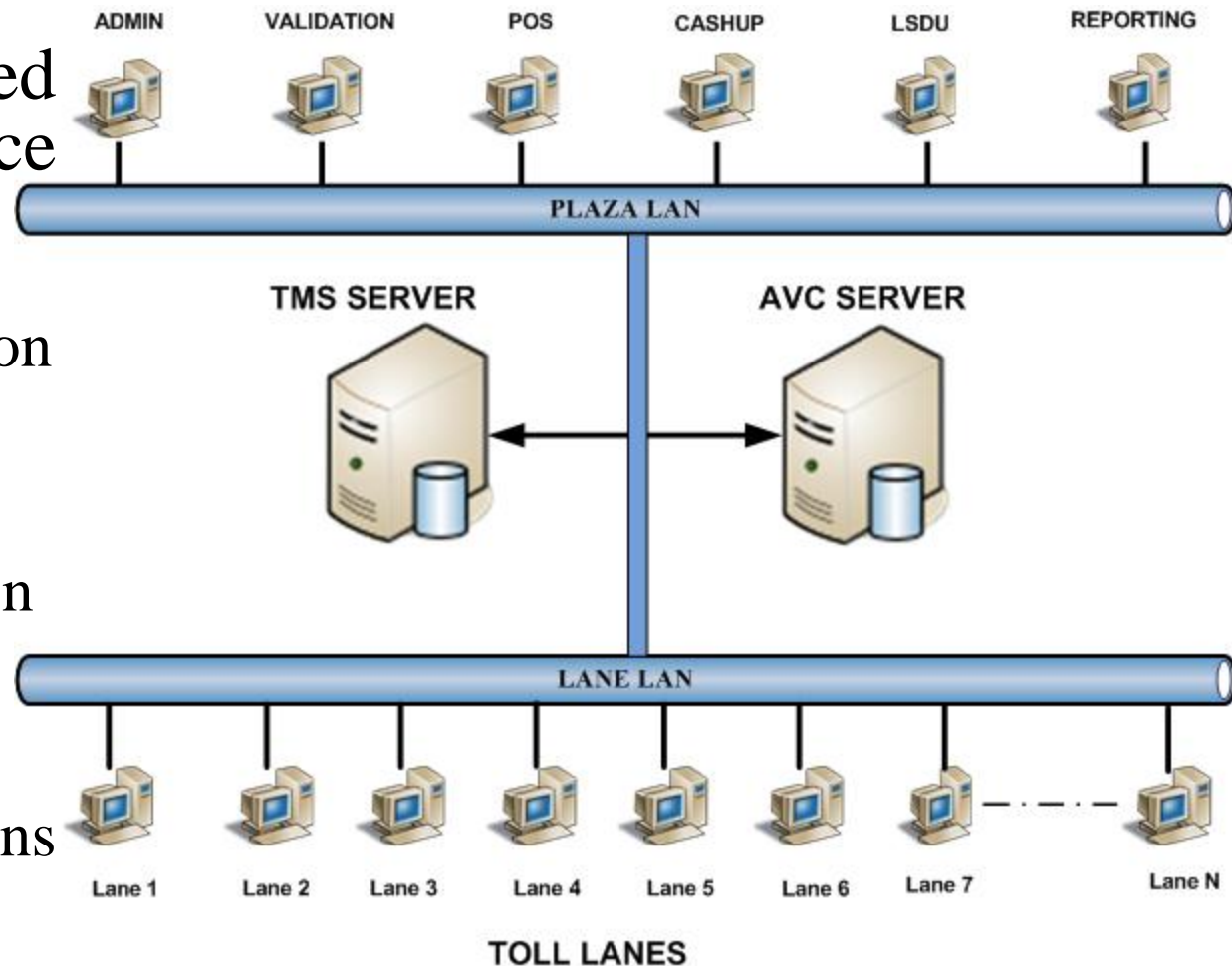
- To control & automate the vehicle movement process.
- To allow dynamic, semi-automatic or manual collection of money by means of electronic toll collection (ETC), prepaid cards, cash, etc.
- Provides online feedback to plaza level for shift information & device status.



PLAZA LEVEL

Plaza Level is oriented to realize Back office operations .

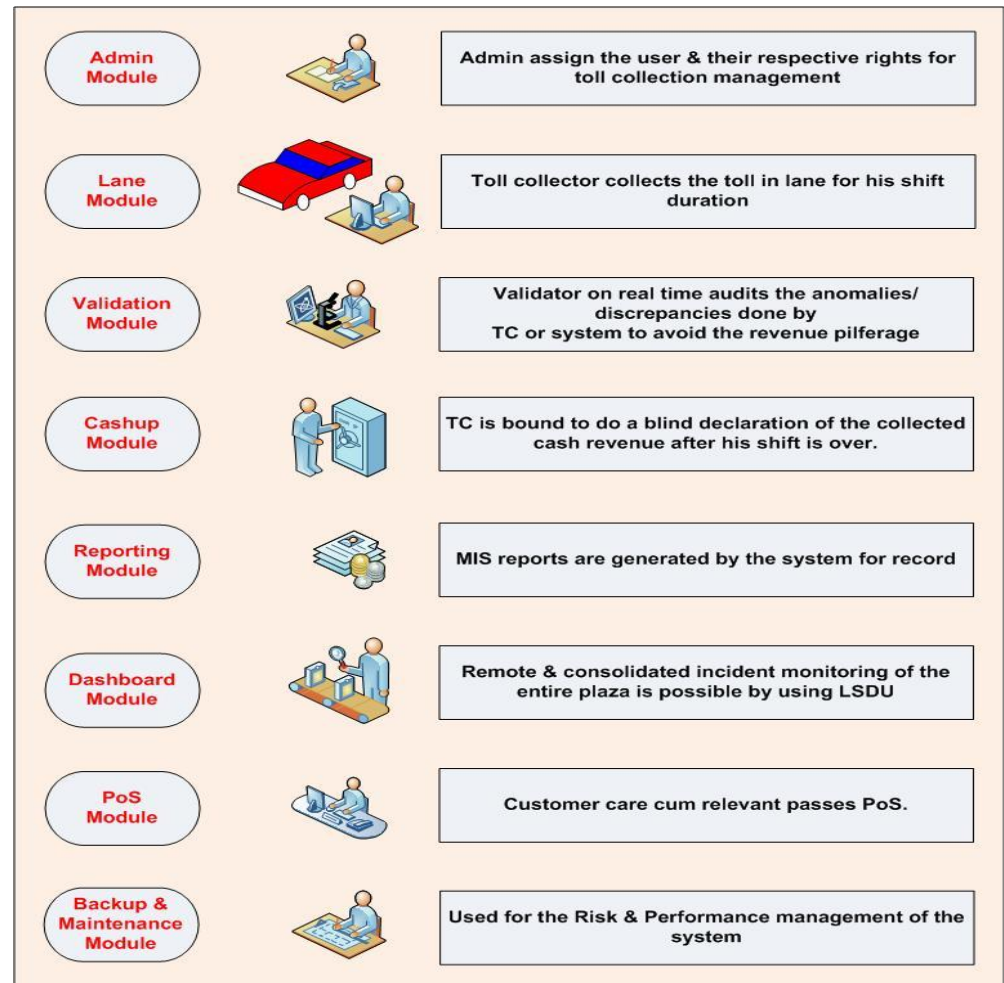
- Consolidate Information
- Control Equipments
- Revenue reconciliation
- MIS generation
- Supervising operations



PLAZA LEVEL

Some of the Plaza Applications which provides support to plaza administrative tasks are:

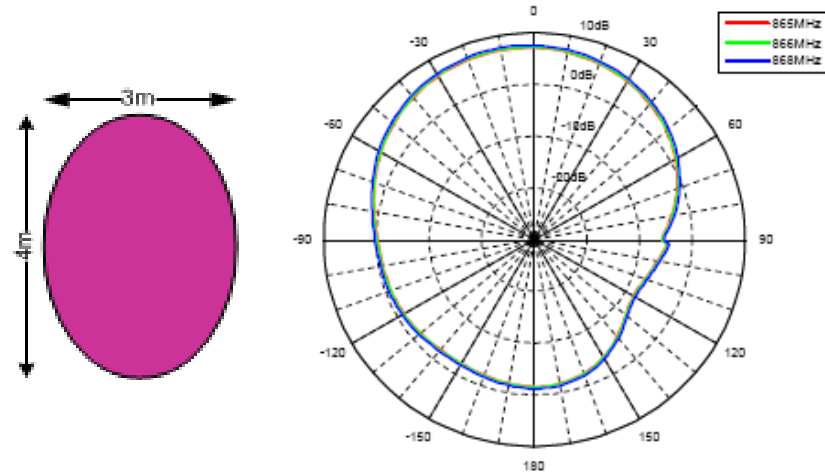
- Admin
- Validation
- Cashup
- Reporting
- LSDU
- PoS
- & Utility tools such as
- Backup utility
- Inventory
- Maintenance



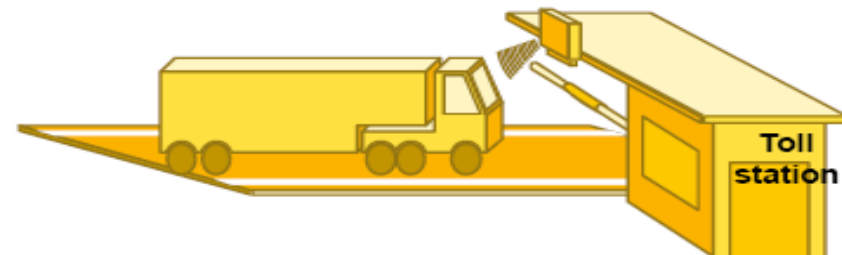
RFID Usage & Operation

RFID Usage

- The Threshold antenna's wide beam width provides extensive coverage across a boundary edge.
- Strong far-field performance.
- Wide beam width to maximize zone coverage.
- Optimized performance for operation from 865 - 868 MHz



Typical Installation



Traffic Violation

Controlling Traffic Violation

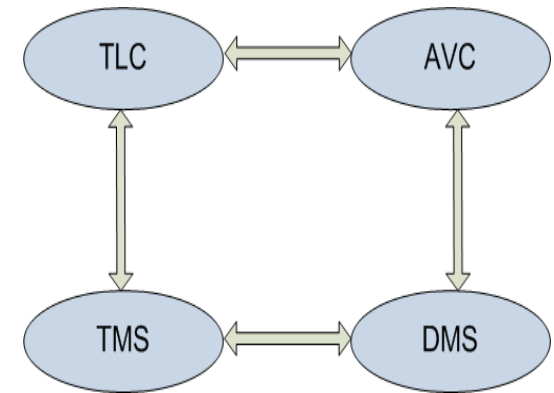
- IR barrier Safety : Ensures that any unpaid vehicles are not crossing the barrier.
- Violation alarm : In case of Run through violation alarm & Light sounds with a notification at the plaza control room.
- Violation reports : All violations are registered into the system and a report for the same can be withdrawn.



AVC Systems



- Offered Infrared Based AVC
OEM - Kapsch, Austria
Sensors - SICK Germany
- Completely independent AVC
- 10 Million Cycle MTBF (or 5 years life time)
- No shifting Cost



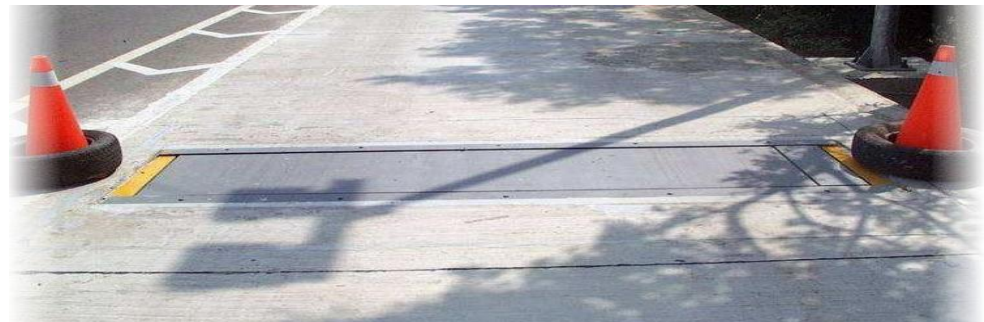
	Item	Accuracy per thousand (1,000) vehicles after validation
1.	Class 1 classification	96-98%
2.	Class 2 classification	93-94%
3.	Class 3 classification	95-97%
4.	Class 4 classification	95-98%
5.	Vehicle Count Accuracy	99.5-99.9%



WIM



- Weigh all vehicles from light vans to 150 tone articulated trucks.
- Simple Transportation and fastest set up time
- Light weight low profile
- Multiple power sources
- Advanced steel construction so easy maintenance.
- Indigenous
- Advanced data management
- Classification of over 100 unique vehicle types
- Vehicle-By-Vehicle data storage RS485 Communication Port (Data transmission up to 1Km).
- WIM system is designed to suit various type of highway location.
- In Corporate with tested high-speed Micro controller & Very high-speed Monolithic A/D converter.



Project Management Portal

- A common web portal which is shared with client.
- All the tasks, milestones & files can be assigned, tracked and archived at a common platform.

The screenshot displays a web portal interface with a navigation bar at the top containing tabs for Overview, Messages, To-Dos, Milestones, Writeboards, Chat, Time, and Files. Below the navigation bar is a section titled "Project overview & activity" with links for "New message", "New to-do list", "New milestone", and "New file". The main content area features a section titled "Upcoming Milestones" with a sub-section "Due in the next 14 days". This section contains a calendar grid showing dates from Sunday to Saturday. A task is scheduled for Thursday, September 9th, with the description "FAT with Clients Engineer Visit with 1 set of equipment at factory.".

Sun	Mon	Tue	Wed	Thu	Fri	Sat
TODAY	Sep 6	7	8	9 FAT with Clients Engineer Visit with 1 set of equipment at factory.	10	11
12	13	14	15	16	17	18

Project Management Portal

Metro Road Systems P Ltd Mail - Search... Madhucon Project | Madurai - tu... +

[Back to Dashboard](#) | [Switch to a different project](#) [Project Settings](#) | [My info](#) | [Sign out](#) **HELP**

Madhucon Project | Madurai - tuticorin Expressways Ltd Madhucon Projects

[Overview](#) | [Messages](#) | [To-Dos](#) | **[Milestones](#)** | [Writeboards](#) | [Chat](#) | [Time](#) | [Files](#) [People & Permissions](#) | [Search](#)

Milestones (Today is 5 September)

Completed

- Thursday, 14 January** Harish Kumar
 - FAT in manesar**
- Friday, 2 April** Nitin Thakur
 - Data Cable Installation**
- Friday, 2 April** Nitin Thakur
 - AVC enclosure Installation**
- Friday, 2 April** Nitin Thakur
 - TLC Enclosure Installation**
- Friday, 2 April** Nitin Thakur
 - Foundation for all the equipments**
- Friday, 2 April** Nitin Thakur
 - Conduit Laying**
- Friday, 2 April** Nitin Thakur
 - Loop Cutting**

+ Add a new milestone

+ Add ten at a time

Subscribe to iCalendar

If you use [The Backpack Calendar](#), [Apple iCal](#), [Mozilla Calendar](#), or any program that supports the iCalendar standard, you can subscribe to your Milestones. [Learn more](#) about iCalendar and Basecamp.

Advance Features Offered



Real time validation of current shifts.

➤ Any or all the transaction can be validated on real time basis thus helping the operation in gaining the control over discrepancies in lane.

➤ Video or image or both can be provided for validation.

➤ Even non pass vehicle numbers can be blacklisted .

Toll Collector Name: ddiip Plaza: Tuticorin Toll Plaza Lane No: 1 Shift No.: 16790425 Date: 05/02/2010

Transaction Category: TNSTC

Transaction Number	DateTime	Receipt Number	Amount	Anomalised
19990169	2/5/2010 12:38 PM	65583	0	
19990170	2/5/2010 12:41 PM	65584	0	
19990171	2/5/2010 12:47 PM	65585	0	
19990172	2/5/2010 12:49 PM	65586	0	
19990173	2/5/2010 12:50 PM	65587	0	

All Transactions
All Anomalies
Discrepancies
Exemptions
Violations
Passes
TNSTC

Toll Collector Class: 4 Exemption Class:
AVC Class: Simulation:

Payment Mode: State BUS Pass Type:
Owner: dsdf sdf Vehicle No.: TN11CC1232

PLAY

Amount: Pass Amount: 7584 Accept Toll Collector Accept AVC Audit Transaction

Automatic Shift Validation BlackList

Refresh Close >>

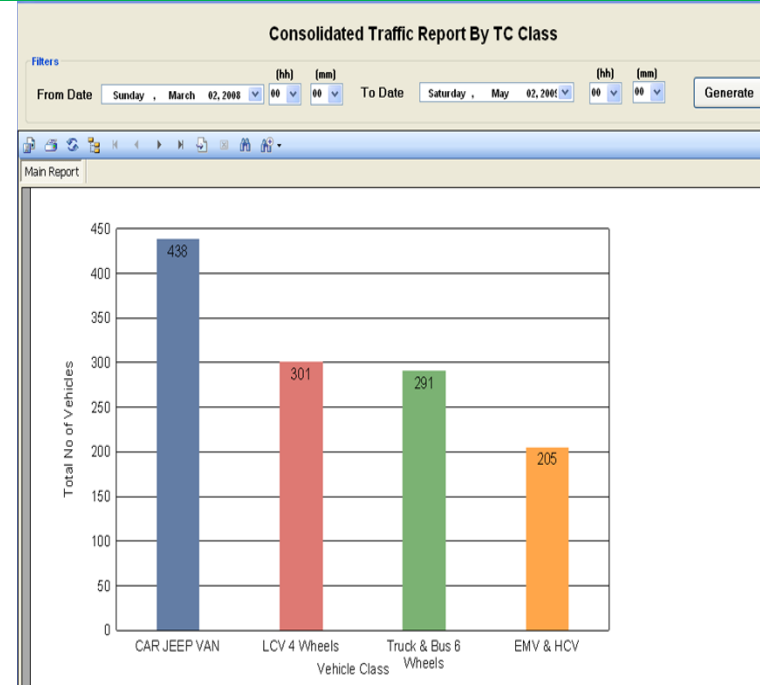
Advance Features(Optional)

- Touch Screen Integration
- Biometric controlled access
- License plate Image Capture for validation of passes.
- Car binding in passes
- Configurable video clip for Lane Incidences.
- System registered float & bleed off functionality.



Advance Features Offered

- **End of shift reconciliation for each toll collector.**
 - Cashup declaration of the toll collector can only be made after validation of specific discrepancies.
- **User oriented system instead of typical shift based system.**
 - Complete revenue is linked with the system user instead of shifts.
- **Separate MIS control Panel for Management.**
 - A comprehensive graphical control panel is developed displaying issue status & priority level.



Service Provider's Obligation

- High UP Time
- Low MTTR
- Ready availability of adequate spares and tools to ensure low MTTR
- Strong inventory control mechanism
- Stringent penalty for non-conformity to SLA
- Stringent set of routine checks and measurements and strong follow-up action
- Defined Preventive and Corrective Procedures
- Software driven SLA evaluation.
- Client Training , Online Testing and Certification Program



Service level **Penalties**

Tough Penalties for not meeting **SLA Requirements**

TYPE-I or **TYPE-II** whichever is higher but not both.

Fault Category	Mean Time to Respond	Mean Time to Repair
A	Upto 2 hrs	8 hrs
B	Upto 6 hrs	24 hrs
C	Upto 24 hrs	72 hrs





THANK YOU

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