Ministry of Home Affairs,Govt. of India

Project

On

"Automated Traffic Monitoring System"

Prepared

By

National Police Mission

Micro-Mission: 03 (Communication & Technology)

Table of Contents

Annexures

Annexure – I	Number of Police Commissionerate Cities as on 01-01-2011
Annexure – II	Number of vehicles registered in Indian Metropolitan Cities in India
Annexure – III	Traffic violation cases booked through Automated Traffic Monitoring System in Bangalore City for 2010-12 period
Annexure – IV	Fine amount collected through Automated Traffic Monitoring System in Bangalore City for 2010-12 period
Annexure – V	Traffic violations booked through Surveillance Cameras in Bangalore City for 2010-12 period
Annexure – VI	Traffic violations booked through Enforcement Cameras in Bangalore City for 2010-12 period
Annexure – VII	Traffic violations booked through FTVR (Field Traffic Violation Report) in Bangalore City for 2010-12 period
Annexure – VIII	Traffic violations booked through IVRS, SMS, Facebook, Interned and Public-eye
Annexure – IX	Reduction of accidents in Bangalore City for 2003-2012 period

Title of the Project:

Automated Traffic Monitoring System

1. Introduction / Background

Increase in population and urbanization in India are going hand in hand and as a result many smaller cities in India have become million cities. The increase in the number of million cities have created pressure on the exiting recourses in terms of infrastructure, traffic, roads, lights, housing etc. This has led to an alarming increase in the number of vehicles plying on roads on each of these million cities. It has brought congestion and huge traffic jams resulting in increasing the commuters' journey time and reduced speed. If it goes unabated we are sure to see choked roads, frail environment leading to health problems and in a long run these cities will not be conducive for human living.

We have ignored the problems of traffic for quite some time and have been conservative in our preparedness to tackle it. The time has come when we need to bring in scientific technology and innovations to deal with traffic problems squarely. Some of the significant problems leading to traffic congestion in Indian cities are:-

i) Rising demand for travel due to increased population and other activities

Automated Traffic Monitoring System

2. Introduction / Background

Traffic management problems which are assuming alarming proportions in the cities of the industrially advanced countries are being experienced in the Indian cities too. They have reached a critical point strangulating the cities. Due to increased congestion and huge traffic jams, traffic flow is affected leading to increase in journey time and reduced average speed. This poses a problem for health and well being of the citizens and is also creating a burden on the health of environment. From the point of view of 'Road Safety', the conditions in the cities are far from satisfactory. This situation has arisen largely owing to an inadequate appreciation of the nature and type of a whole range of problems. Some of the significant problems leading to traffic congestion in Indian cities are;

i) rising demand for travel due to increased population and other activities;
ii) concentration of land use in certain areas such as central business districts and office areas;
iii) mixed nature of traffic;
iv) inadequate facilities segregating slow traffic;
v) insufficient road space;
vi) inadequate width of pedestrian sidewalks and their encroachment by hawkers;

vii) inadequate facilities to meet the heavy demand for parking requirements;

viii) lack of road sense and indiscipline on the part of road users;

ix) ineffective enforcement measures;

x) inadequate funds to meet the increasing demand for essential improvements; and

xi) non existence of a specific organization with specialized personnel to deal with traffic problems.

Above problems have contributed to huge traffic congestion in almost all Indian cities. Though majority of traffic problems are due to faulty urban planning by civic agencies, traffic police is most often blamed for chaotic traffic situation.

Today Indian Metros like New Delhi, Mumbai, Kolkata, Chennai, Bangalore and Hyderabad have between them nearly 20 million vehicles. As a consequence there are too many vehicles occupying disproportionately inadequate quantum of roads. Therefore, the greatest challenge for City Police Managers is Traffic Management at par with maintenance of order and prevention of crime.

Apart from enormous growth of vehicles, poor traffic enforcement is one of the major causes for traffic congestion and poor discipline on roads. Road users do not follow traffic rules and violation of these rules has become norm rather than an exception. Existing manual monitoring and challaning system

prevalent in most of the cities is not effective, as deterrence level is minimum. In manual monitoring and challaning system, there is no mechanism to punish repeat offenders. The system is also not transparent as manual booking system breeds corruption and harassment.

Existing Traffic Enforcement System has the following shortcomings;

i) Existing system of manual booking of traffic violation cases consumes lot of time and energy.
ii) As enormous time is required for manually challaning the traffic violators, Traffic Police officers do not give adequate time for traffic regulation and clearing traffic jams.
iii) Manual system of booking of traffic violation case is not transparent. It facilitates corrupt practices.
iv) In manual system, there is no record of previous traffic violations by the vehicle. Due to this, repeat offenders escape higher penalties.
v) There is a scope of pilferage and misappropriation of fine amount collected by Traffic Police. Many a times, unscrupulous police officers use duplicate receipt books.

In order to bring transparency in the whole process of older methods of challaning traffic violations, a new system **'Automated Traffic Monitoring System'** is envisaged as one of the projects under Micro Mission -03 (Communication and Technology) of National Police Mission.

3. Overview

3.1 Project Title

Automated Traffic Monitoring System

The **Automated Traffic Monitoring System** is one of the effective tools for enforcement of traffic rules on Indian roads in a transparent manner. The system aims at harnessing strength of technology and minimise human intervention to bring about the speed and transparency in the whole process of traffic regulation which will go a long way in solving the problems of traffic on roads to a great extent. The Automated Traffic Monitoring System for enforcement of traffic rules has been in existence in one or the other forms in Western Countries for more than 50 years.

Automated Traffic Monitoring System will have following advantages over the manual Traffic monitoring and Challaning System

i) Will help in bringing more safety on roads

ii) Will result in reduction of rash and negligent driving

iii) Will avoids conflicts between police and public

iv) Will Increase awareness of traffic rules and regulations

v) Will reduce processing and disposal time of traffic violations

vi) Will bring transparency in enforcement of traffic laws and rules

vii) Will be Used as effective tool of e-governance to manage, monitor and administer

viii) Will empower traffic police personnel who monitor the traffic on the field by giving them wider reach and capabiliy to penalize the erring motorists.

ix) Will be helpful in enabling wider use of punitive actions such as suspension of Driving License, Registration Certificate and permits as provided in the IMV Act

x) Will be great facilitator in identifying frequent violators and initiating appropriate correctible action

xi) Will help in gathering complete data of motor vehicle owner's address, license holder's particulars and violation particulars.

3.2 Vision:

The project "**Automated Traffic Monitoring System**" is being proposed to bring substantial changes in the Traffic Enforcement system. The system has been conceived with following vision.

- To bring transparency in enforcement of traffic laws and rules and in Challaning traffic violations.
- To reduce rash and negligent driving by quality enforcement.
- To avoid conflicts between police & public during traffic law enforcement
- To increase awareness of traffic rules and regulations among road users

- To expedite processing of traffic violation cases and ensure speedy disposal.
- To use this as effective tool of e-governance to manage, monitor and administer law enforcement in the field of traffic monitoring and enforcement of traffic rules.
- To enable Traffic police personnel monitoring traffic in the field in tackling the erring motorists/drivers in a transparent and efficient manner
- To ensure better execution of IMV Act which allows suspension of Driving License, Registration Certificate whenever required
- To identify frequent violators and initiate appropriation corrective action for better compliance of rules and discipline on roads
- To assure availability of experts in this line who can very well provide valuable assistance in traffic law enforcement and software related issues.
- To provide on line and web-interactive assistance experts in best use of aid in various traffic law enforcement issues throughout the country.

2.3 Organizational Objective

- To establish a self sustaining Traffic Management System with no financial implications.
- To improve the quality of traffic law enforcement at all levels with the aid of best ICT tools and available manpower.
- Project also envisages setting up of TRAFFIC MANAGEMENT CENTRE at each District Headquarter.
- Involving general public in better management of traffic in cities.

3. The Business Case

Purpose of the Business Case

There are many big cities of more than 10 lakh population in India and with the passage of time more and more urbanisation is taking place. This will lead to a situation of hundreds of big cities in future. With increasing urbanisation, prosperity and availability of easy credit, more and more citizenry is opting for private automobile. The roads are cramped and the traffic management is becoming a gigantic problem. The uncontrolled traffic on the roads is leading to rampant traffic violations resulting in multiplication of problems, Chaos and accidental deaths.

Traffic Managers in Indian cities are way behind their counterparts in many other countries in use of technology for

monitoring, controlling, regulating and managing traffic problems and rampant violations, chaos and deaths on the roads.

Present traffic situation on Indian roads therefore calls for immediate deployment of technological means for traffic regulation and handling the challaning of violations on the roads of big Indian cities of population of 10 lakh on more.

Bangalore traffic police has pioneered a very good system called “BTRAC” for overall traffic management. They started the system in rudimentary form in 2009 and went on adding to it to create a very good facility for traffic management. **The best part and beauty of the system is that after initial investment, the cost can be recovered and it becomes completely financially self sustaining The State Governments have not to invest much for its long term maintenance and into adding and upgrading the system.**

The system is basically built on three components for its smooth functioning:

1. Traffic Management Centre
2. Automation Centre
3. Communication Network

i. The Automation System for Traffic Management works based on a well established communication network and where an automated technical process is used for capturing

and processing the traffic violations received through various inputs such as:

a. inputs reported from the police personnel of the Police Station, complaints by the public (SMS, E-mail, Facebook),

b. analysis of the live images/videos captured by the Enforcement / Red light Cameras

c. Field Traffic Violations noted by the Traffic Police Personnel on the field etc.

i. All these inputs are fed manually into a centralized Database server accessed through the workstation by the personnel at the automation center.

ii. The data so collected and organized properly is made available to all Police Stations over internet and can also be accessed over internet by hand held enforcement devices provided to the personnel on the field.

iii. This facilitates the general public to go to the nearest police station or to the Traffic personnel with hand held enforcement device to pay fine and compound the offences attributing to the “Anywhere Anytime” fine collection and disposal mechanism.

iv. Facility for online payment fines can also be provided.

Basically this systems works by the inputs given by

1) Enforcement/ Red light Camera

2) Surveillance camera

3) Field Traffic violation reports through digital cameras

4) Public complaints through

a) IVRS

b) e-mail

c) Face book

d) SMS

4. Critical Assumptions and Constraints

1) The system of Automated Traffic Monitoring System depends largely on the availability of data of all vehicles registered in the concerned state. It means, information regarding ownership data of vehicles registered in the State should be made available to traffic police for sending challans for traffic violations.
2) There shall be a mechanism for automatic transfer of ownership information from Transport Department to Traffic Police. In case of change of ownership, the transfer details should be automatically get updated in traffic police database, on a real-time basis.
3) It is assumed that the wireless or wired connectivity is available on mobile vehicles for data as well as voice in the area where project will be implemented.
4) Initially the operation and use of hand held and related software should be imparted to the cities where this project is desired to be implemented.
5) On completion of projects the States will be willing to take upon themselves to continue the work and take the project objective down to all police station levels
6) District Traffic Management Centre experts will undertake training program for resource building with respect to assisting and solving field problems and update software wherever required.

7) All the States will outsource the maintenance and management of the system initially initially till the department officers sufficiently assimilate required skills in maintaining and managing the system themselves.

5. Proposed Plan & Implementation Strategy:

5.1 Deliverables:

Once the project is implemented, the system will deliver following for the benefit to the public.

- A well regulated traffic resulting in reduced probability of accidents.
- Reduced number of injuries and deaths due to accidents
- Discipline on the roads.
- A fast and people friendly and less corrupt traffic system.
- Better enforcement of traffic rules.

And the police will be benefited in following manner

- A well established communication network which could be utilized in future for other policing work as well.
- Surveillance network which will be very useful in monitoring not only traffic flow and its violations but also to monitor other crimes on the road like theft, bank dacoity etc.

- An automation centre
- A Traffic Control Centre
- A small traffic training centre which could be upgraded in future..

In order to deliver all this and implement Automated Traffic Monitoring System in a city with a population of one million, the following resources are required:-

i) Database server and their connectivity with Transport Department server

ii) 100 Nos. hand-held enforcement devices along with Bluetooth enabled printers

iii) Back-end connectivity between hand held devices and database server through a service provider.

iv) 50 Nos. surveillance cameras with connectivity to Traffic Management Center

v) 4 Nos. Enforcement cameras with connectivity to Traffic Management Center

vi) 200 Nos. digital cameras with online connectivity facility through a service provider to data base server.

vii) Printed blank challans for generating notices under Section 133 of IMV Act.

viii) 75 Nos. Traffic Police Officers of and above the rank of Assistant Sub Inspectors of Police.

ix) 250 Nos. Head constables / Police constables

x) Computer trained Police constables to man Traffic Management Center and Automation Center

5.2. Stakeholders

1. MHA
2. BPR&D
3. Public
4. State Police
5. Trffic Courts
6. Traffic Training Institutes.

5.3 Related Projects

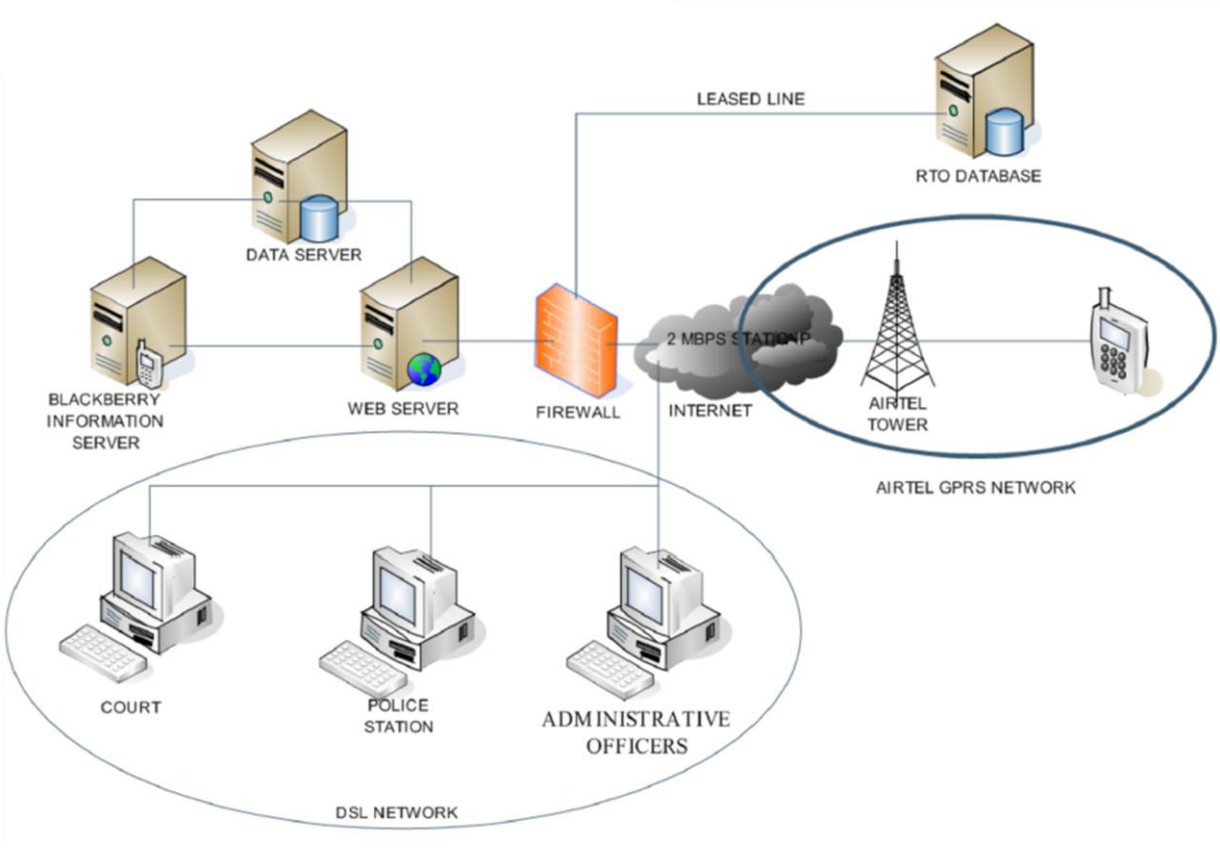
Nil

5.4 System Architecture

Traffic Enforcement System Architecture

- The solution enables traffic field personnel to access the backend infrastructure through a mobile handheld with ease in a high secured manner
- The handheld application will have the capability to print data from the screen on a Bluetooth / Wi-Fi enabled printer
- Push technology for data transfer. ‘Always ON feature’.

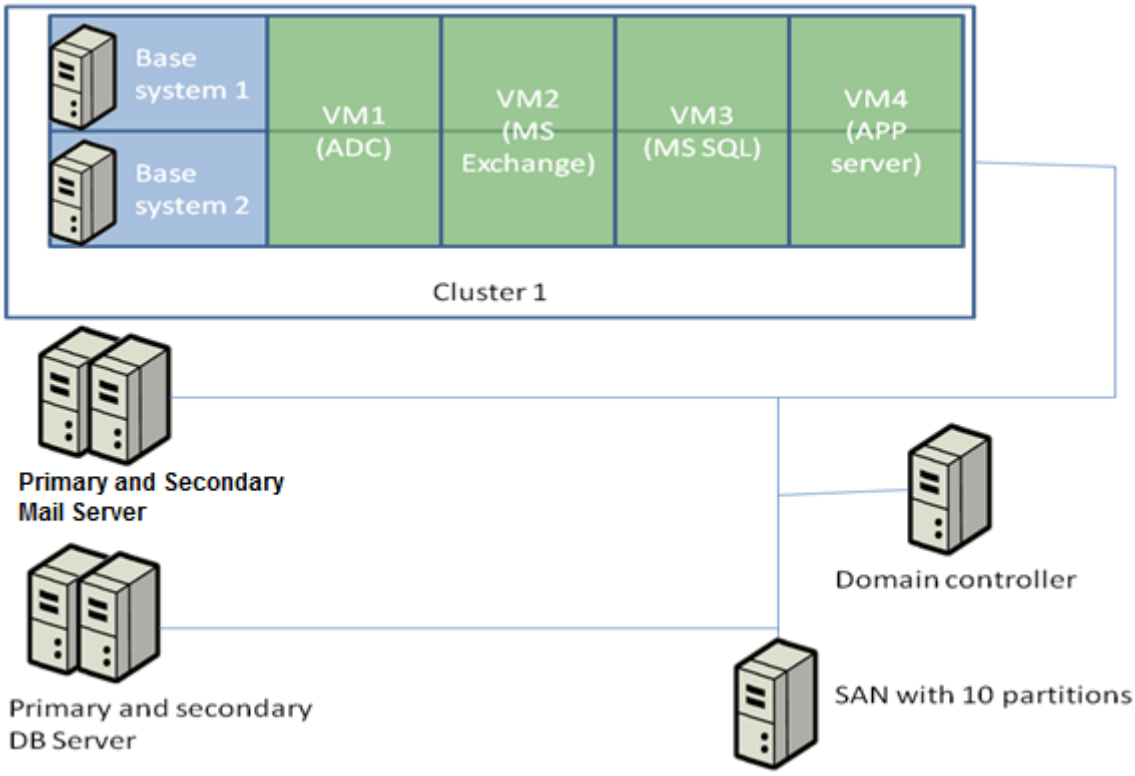
Network Architecture



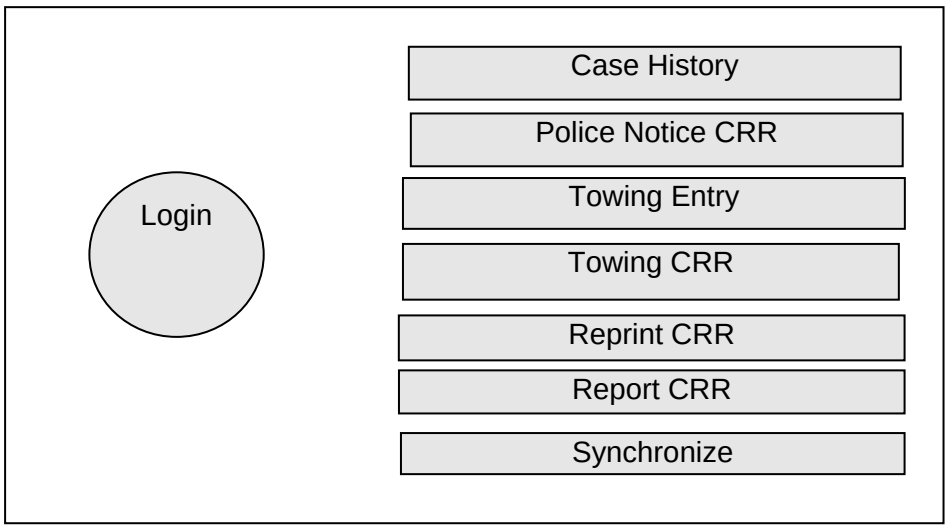
- The handheld devices with application will be using mobile packet data network (GPRS/EDGE/3G/4G) to reach the servers placed at State Data Center
- The application sitting on the handheld enables the officers to collect fines online
- In case of any network issues or server related issues, the data gets stored on the handheld and gets uploaded to the server automatically once the network connectivity is restored

Server architecture:

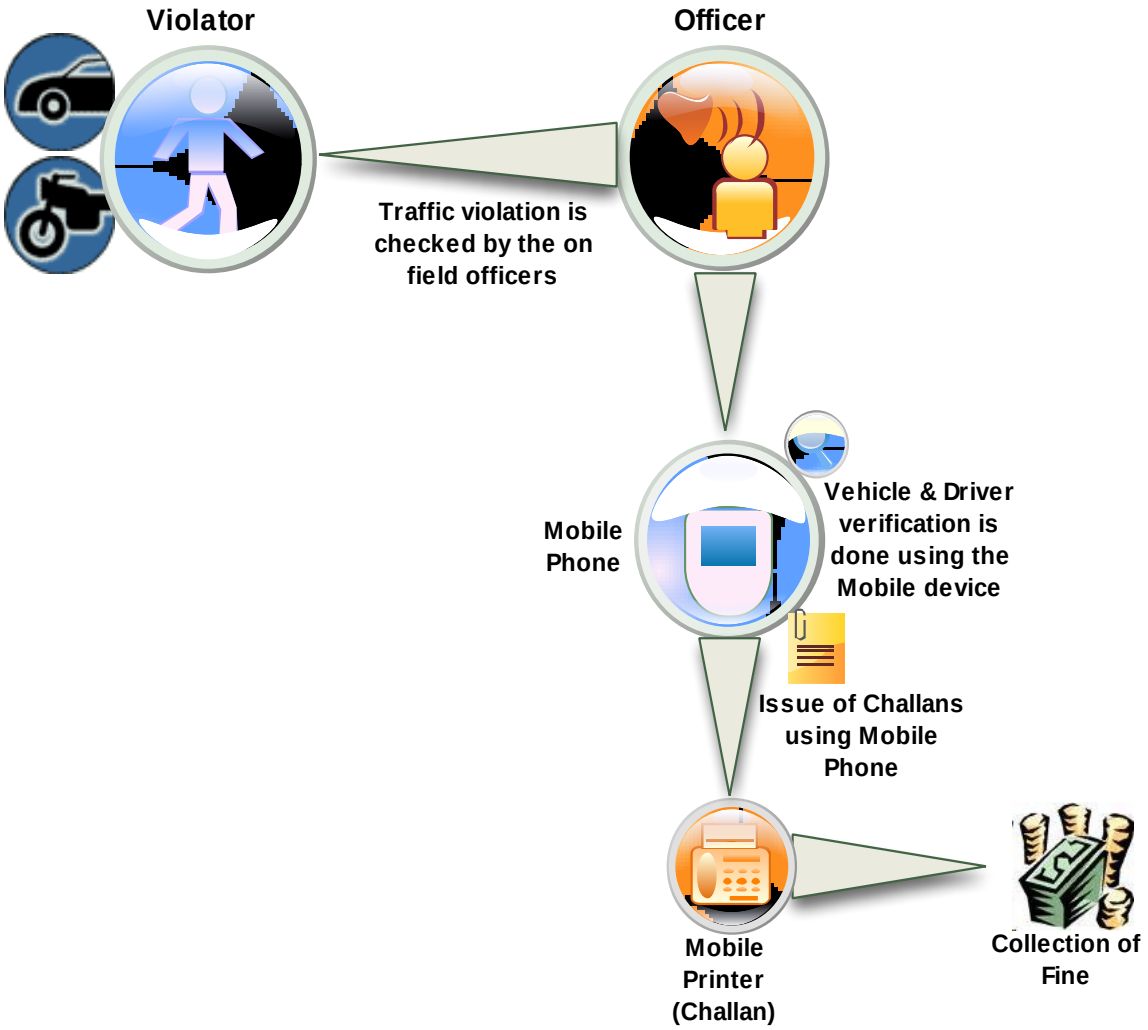
- Redundant infrastructure to enable with high availability
    - Application Servers
    - Data Base Servers
    - Mail Servers
    - Storage



Features of the Enforcement Application Software:



Process flow Diagram



Typical Management Information System Reports:

Reports will be provided to senior officers to monitor the activities. Web reports will be provided with the login and password to protect the data from unauthorised access. A hierarchy based MIS report sub modules can be designed as per the state police requirement.

Following are the reports that are generated for MIS purposes:

- Vehicle wise offences daily/monthly or weekly reports
- Police station wise offences
- Station wise case booked report

- Station wise amount collection report
- Station wise issual of police notice and ON THE SPOT FINE
- Station wise Charge sheet generation report
- Officer wise case booked and fine amount collected report
- Subdivision wise reports
- Report on cases booked and fine collected report
- Report of Cancellation of licenses
- Suspension & revocation for permit

5.5 System Components

Main Automation Centre:

The Automation centre depends on the computerized process of capturing the violations through various inputs discussed below. Processing the inputs reported from the police personnel of the Police Station, complaints by the public (SMS, E-mail, Facebook), Analysing the Live images/Videos

captured by the Enforcement/Red light Camera, Field Traffic Violations noted by the Traffic Police Personnel on the

field etc. All these inputs are fed into a centralized Database server accessed through the workstation by the personnel at the automation center.

The data so collected and organized properly is made available to all Police Stations over internet and can also be accessed by hand held enforcement devices provided to the personnel on the field. This facilitates the general public to go to the nearest police station or to the Traffic personnel with hand held enforcement device to pay fine and compound the offences attributing to the “Anywhere Anytime” Fine collection and disposal mechanism.

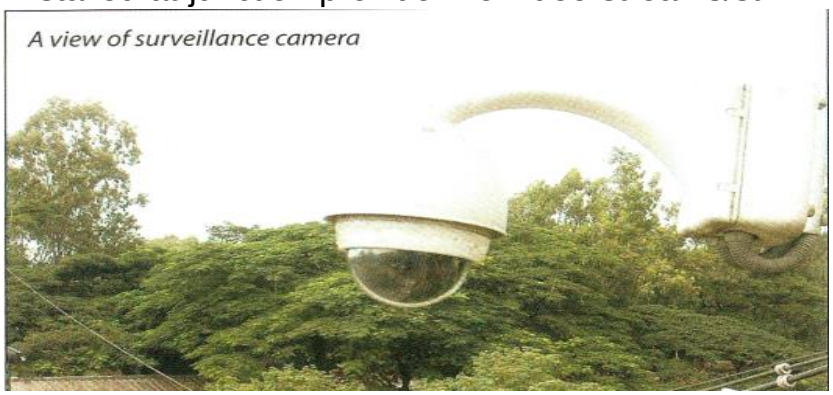
Basically this systems works by the inputs given by

1) Enforcement/ Red light Camera
2) Surveillance camera
3) Field Traffic violation reports through digital cameras
4) Public complaints through
    a) IVRS
    b) e-mail
    c) Face book
    d) SMS

1. **Red light camera** is a traffic camera that captures the image of a vehicle

that goes through an intersection where the light is red. This continually monitors the traffic signal and the camera is triggered by any vehicle entering the intersection above the preset minimum speed and following a specified time after the signal has turned red. The image of captured vehicle's registration number is perused and fed manually to the computer. The address of the Vehicle registered with the RTO is obtained through a interface with the RTO's Vehicle registration Database, along with details like, the owner of the vehicle, Make, Model, Class of vehicle. Based on the address obtained, a Notice under the provisions of Sec 133 of IMV Act is generated in an automated process, in which the details like Owner of the Vehicle, Date and time of Violation, make model, the fine amount and location, where the volition was noted are printed and sent to the Owner on the address.

2. **Surveillance camera(s)** installed at junction provide live video streams/still images to the Traffic management Center via a leased line network. The personnel at the automation Center look though the videos, still images and note down the violation. The Surveillance cameras are PTZ cameras and hence the personnel have flexibility of viewing the video/Images in various angles, enabling them to view the Images/Video with clarity while noting the

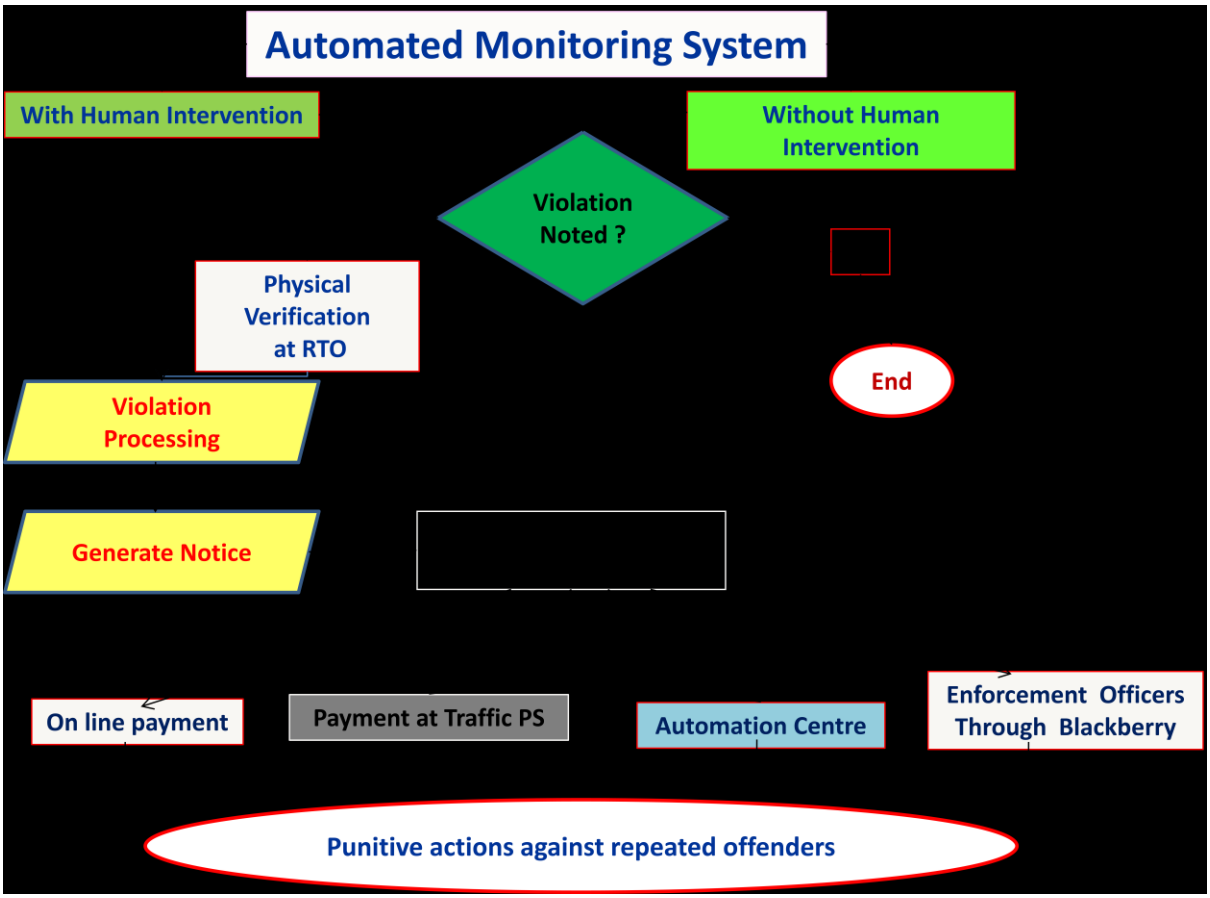

A view of surveillance camera

violation. Some of the violations noted are - not wearing helmet, crossing stop line, parking on zebra crossing etc., After Carefully observing the violation, the same is updated into the violation database for further processing.

3**. Field Traffic Violation Report:** This involves the constabulary noting down the details like the Registration Number, Type of Vehicle, Color and make in a pre-printed proforma called FTVR (Field Traffic Violation Report). The data on the FTVR is fed in to computer at the police station and sent to the Automation Enforcement Center equipped with computers, software and vehicle database provided by the M.V Department.

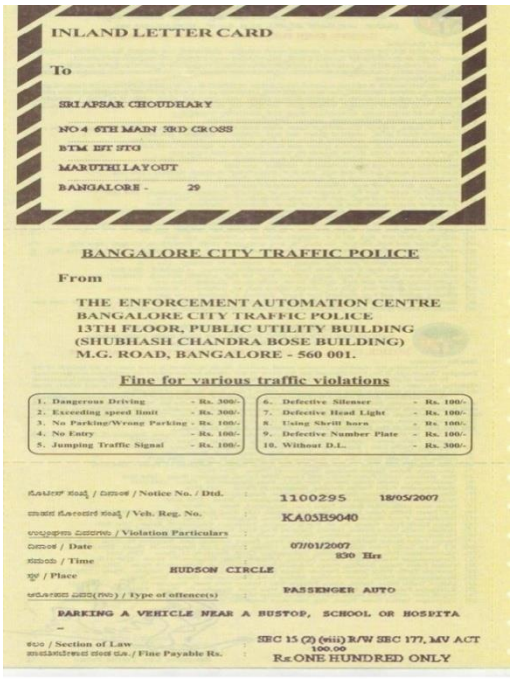
These violations are processed as earlier for surveillance camera and Section 133 notice is generated.

4. **Public complaints** which came to the traffic police through various models are processed as earlier and Section 133 notices are generated.



How 133 notice are served and compounded

Notices are served through the post and sometimes they are served through the courier service. If the owner of the vehicle pays the fine it gets deleted in the server. If not it comes up in the hand held hand set of traffic officer. If the owner wants to clear the pending fine by approaching –



INLAND LETTER CARD

To

SKI AFSAR CHOUDHARY
NO 4 6TH MAIN 3RD CROSS
BTM IST STG
MARUTHI LAYOUT
BANGALORE - 29

BANGALORE CITY TRAFFIC POLICE

From

THE ENFORCEMENT AUTOMATION CENTRE
BANGALORE CITY TRAFFIC POLICE
13TH FLOOR, PUBLIC UTILITY BUILDING
(SHUBHASH CHANDRA BOSE BUILDING)
M.G. ROAD, BANGALORE - 560 001.

Fine for various traffic violations

1. Dangerous Driving	- Rs. 300/-	6. Defective Silenser	- Rs. 100/-
2. Exceeding speed limit	- Rs. 300/-	7. Defective Head Light	- Rs. 100/-
3. No Parking/Wrong Parking	- Rs. 100/-	8. Using Shrill horn	- Rs. 100/-
4. No Entry	- Rs. 100/-	9. Defective Number Plate	- Rs. 100/-
5. Jumping Traffic Signal	- Rs. 100/-	10. Without D.L.	- Rs. 300/-

Notice No. : 1100295 18/05/2007
Veh. Reg. No. : KA03B9040
Violation Particulars
Date : 07/01/2007
Time : 830 Hrs
Place : HUDSON CIRCLE
Type of offence(s) : PASSENGER AUTO
PARKING A VEHICLE NEAR A BUSTOP, SCHOOL OR HOSPITA
Section of Law : SEC 15 (2) (viii) R/W SEC 177, MV ACT
Fine Payable Rs. : 100.00
Rs:ONE HUNDRED ONLY

1. Any traffic police station
2. Any traffic ASI, PSI, PI
3. Payment at centralised automation center
4. Online payment

Citizens can settle the traffic violation challans issued against their name as well as parking violation issued to them by visiting the Traffic Automation Center or any other traffic police station or traffic police center. These places are connected using a dedicated network to the Central Application Server kept at Traffic Management Center. Citizens can also pay their traffic violation notices online through traffic police website from the comfort of their home.

Other advantages of the system

- To provide more transparency in enforcing traffic law by using cameras and e-enforcement.
- Effective e-governance to manage, monitor and administer.
- To empower police with a better system for enforcing traffic discipline.
- Facilitate in identifying frequent violators and initiate appropriation corrective action.
- To have complete data of motor vehicle owners address, license holder's particular, and violation particulars.

Respective offenders automatically tracked and notices with enhanced fines are sent to repeated offenders.

6 Previous Experience:

Bangalore Traffic Police under B-Trac project has already implemented Automated Traffic Monitoring System from the year 2003. Some other cities also had initiated Automated Enforcement in a limited way. On an average Bangalore Traffic Police books around 8000 traffic violation cases through cameras and another 8000 through hand held Blackberry devices. Bangalore Traffic Police has booked over 5.2 million cases against traffic violations in the year 2012 and has collected a fine amount of Rs. 54.52 crores during the same period. Bangalore Traffic Police is presently using 5 Enforcement Cameras, 175 Surveillance Cameras and around 500 digital cameras for online booking of cases. This system has brought dividends for Bangalore Traffic Police in the form of greater transparency and effective enforcement of traffic laws. Apart from this, the ready availability of data on past violations has enabled Bangalore Traffic Police to send 4587 driving licenses for suspension. Annexure 3 to 8 provides details of traffic violations booked by Bangalore Traffic Police through Automated Traffic Monitoring System.

7 Training

7.1 Training of Traffic Police Personnel for Automated Traffic Monitoring System

Training is one of the important requirements for successful implementation of any new project. Generally Police officer and men are trained in maintenance of law & order, prevention and detection of crime. They are seldom given any specialized traffic management training. It is important that before implementation of Automated Traffic Monitoring System, traffic officers and men should be given adequate training to enable them to handle hand held enforcement devices, sophisticated cameras and other equipments

Bangalore City has a specialised Traffic Training Institute with good training facilities for traffic policemen of the State. Bangalore Traffic Police has an expertise in Automated Traffic Monitoring System with 10 years experience. The Automated Traffic Monitoring System has started in Bangalore City in the year 2003.

Initially the Bangalore Traffic Police Traffic Training Institute can be used for training traffic police personnel for the pilot project. Traffic police officers from the selected cities can be trained at this center till the completion of the pilot project. Bangalore Traffic Police undertakes to provide training facility free of cost.

8. Summary of financial implications:

8.1 Financial implication for introducing Automated Traffic Monitoring System in a city of one million population

(Rs.)

Hardware / Software	Component	Qty	Cost (in crores)
Hardware	Surveillance Camera with leased line connection (Costing for passive components not considered like Poles, Civil works, UPS & Batteries / Solar system)	50	5.00
	Enforcement Cameras	4	1.00
	Servers	4	0.20
	Computers	60	0.30
	Printers	10	0.25
	Network Storage		0.30
	Handheld Devices	100	0.15
	Handheld Printers	100	0.28
	Back-end connectivity for handheld devices for 3 years		1.20
	200 Nos. Digital Cameras with back-end connectivity for 3 years		0.24
Software	IVRS software		0.20
	Automated Challan Generation		0.30
Others	Printing		0.30
	Manpower		0.50
	Integration of all Equipments		0.10
TOTAL			**10.32**

8.2 Pilot Project:

It is proposed to introduce Automated Traffic Monitoring System as a pilot in two one-million plus cities. After the success of the pilot the same can be rolled over entire cities of India. Government of India should release the money to States for implementation of the project in one instalment.

8.3 Cost Benefit Analysis:

The Automated Traffic Monitoring System is a revenue generating model. The initial investment of Rs. 10.32 Crores for a city of one million population can be recouped within one year. This is due to fine amount collected from violators of traffic rules through Automated Traffic Monitoring System. Therefore, entire system is self sustaining and does not require any funds for expansion. The State Governments may be advised to give all the fine amounts collected to police for expansion of the programme within the city.

Annexure – I

Number of Police Commissionerate Cities as on 01-01-2013

Sl. No.	Police Commissionerate Cities in India
1.	Amritsar
2.	Bangalore
3.	Barrackpore
4.	Bhubhaneswar
5.	Chandigarh
6.	Chennai
7.	Coimbatore City
8.	Faridabad
9.	Gurgaon
10.	Hubli-Dharwad
11.	Hyderabad
12.	Jaipur
13.	Jalandhar
14.	Kolkata
15.	Ludhiana
16.	Madurai
17.	Mangalore
18.	Mumbai
19.	Mysore
20.	Nashik City
21.	New Delhi
22.	Pune
23.	Salem City
24.	Tirunelvelli
25.	Trichy
26.	Vijayawada

Annexure – II

Total number of vehicles registered in

Indian Metropolitan Cities

(***in thousands***)

Sl. No	Cities	2001	2004	2008	2012 (Approx)
1	Ahmedabad	846	1075	1410	N.A
2	Bangalore	1593	1891	3175	4500
3	Chennai	1257	2015	2240	3500
4	Delhi	3635	4237	4844	7200
5	Hyderabad	951	1356	1811	3000
6	Kolkata	664	875	1120	2500
7	Mumbai	1030	1199	1640	1500

Annexure – III

Traffic violation cases booked through Automated Traffic Monitoring System in Bangalore City for the last 3 years.

Month	2010	2011	2012
Jan	132382	221839	211836
Feb	140072	190690	257798
Mar	187595	224413	319600
Apr	228155	217959	293504
May	258349	231563	298386
Jun	230831	240773	260539
Jul	246687	230442	230148
Aug	253645	215563	229699
Sep	235410	253037	208385
Oct	220465	254537	203812
Nov	212295	282411	21530
Dec	235537	250303	240490
Total	**2581423**	**2813530**	**2775727**

Annexure – IV

Fine amount collected through Automated Traffic Monitoring System in Bangalore City for the last 3 years.

(Amt. In Rs.)

Month	2010	2011	2012
Jan	15687400	23742600	20399000
Feb	16485900	20306800	25351100
Mar	21233700	23921900	30932100
Apr	25630700	23093600	28622600
May	28690600	24372800	30709500
Jun	25376500	23788100	26777100
Jul	26844700	21136800	23280200
Aug	27585400	21111200	22840600
Sep	25552300	24845400	20615500
Oct	23828300	24520800	20012700
Nov	23022800	25055500	20374900
Dec	25050600	23128500	23839800
Total	**284988900**	**279024000**	**293755100**

Annexure – V

Traffic Violation Cases booked through Surveillance Cameras in Bangalore City for the last 3 years.

Month / Year	2010	2011	2012
Jan	0	19390	34794
Feb	2059	15982	30697
Mar	14903	15814	30390
Apr	8852	10641	25195
May	5811	10085	38094
Jun	7683	11773	37182
Jul	7415	12853	41221
Aug	7037	8600	42141
Sep	4860	13505	36131
Oct	4265	20954	40628
Nov	21883	30002	42845
Dec	22555	30138	43523
Total	**107323**	**199737**	**442841**

Annexure – VI

Traffic Violation Cases booked through Enforcement Cameras in Bangalore City for period 2010-2012 .

Month / Year	2010	2011	2012
Jan	0	0	8447
Feb	0	0	3708
Mar	229	190	4669
Apr	386	50	3295
May	880	2399	4604
Jun	2852	1538	3762
Jul	966	984	3226
Aug	768	2577	1224
Sep	520	2080	2576
Oct	8	3217	1183
Nov	0	5150	12
Dec	0	4840	26
Total	**6609**	**23025**	**36732**

Annexure – VII

Traffic Violations booked through FTVR (Field Traffic Violation Report) in Bangalore City for the period 2010-2012.

Month / Year	2010	2011	2012
Jan	83404	83383	152897
Feb	87047	75057	160928
Mar	89291	82581	160360
Apr	73560	74767	99546
May	67411	83361	115350
Jun	74956	91312	146136
Jul	87087	100598	176606
Aug	100183	94940	159710
Sep	92573	183596	126986
Oct	72537	223398	141763
Nov	89935	209924	126237
Dec	101225	177042	125344
Total	**1019209**	**1479959**	**1691863**

Annexure – VIII

Traffic Violations booked through IVRS, SMS, Facebook, Internet and Public-Eye for the period 2010-2012.

Year	IVRS	E-mail	SMS	Public Eye	Face book	Total
2010	91	169	0	--	0	**260**
2011	433	949	669	--	495	**2546**
2012	1133	1563	1209	557	1058	**5520**
Total	**1657**	**2681**	**1878**	**557**	**1553**	**8326**

Annexure – IX

Reduction of accidents in Bangalore City for the period 1993-2012

Sl. No.	YEAR	Total Accidents	Killed	Injured
1	1993	7648	608	5095
2	1994	8198	587	6616
3	1995	8677	678	6966
4	1996	8474	715	6566
5	1997	8722	704	6637
6	1998	8360	726	6358
7	1999	7896	639	6026
8	2000	8391	659	6347
9	2001	9026	703	6929
10	2002	9856	820	7577
11	2003	10505	883	7980
12	2004	9101	903	6921
13	2005	7578	836	5899
14	2006	7561	915	6048
15	2007	8426	981	6591
16	2008	7772	892	6150
17	2009	6875	761	5668
18	2010	6483	858	5343
19	2011	6024	762	4976
20	**2012**	**5502**	**755**	**4471**

Ministry of Home Affairs,Govt. of India

Smart Policing

Projects

"Automated Traffic Monitoring System"

"Golden Hour Trauma Care Center"

"Establishing Social Media Labs & Collection of Intelligence from the Social Media"

Micro-Mission: 03
(Communication & Technology)
National Police Mission