



Integration of e-FIR Lodging System with Traffic Interceptor Vehicle in Indian Context

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Abstract - *The primary objective of a traffic enforcement system should be the reduction of fatal and serious injury road crashes, while the secondary considerations would be to ensure the free flow of traffic. The traffic police, in India, are facing many problems in controlling the violators and in using traffic enforcement system. On the other hand, e-FIR lodging system is an easy and efficient way of lodging an FIR which helps in maintenance of law and order in a particular area by recording the actual crime rate. This research paper proposes a model to integrate the services of e-FIR lodging system with that of Traffic Interceptor Vehicle. Traffic Interceptor Vehicle (TIV) is used for better traffic enforcement by issuing challans to the violators. This paper discusses some modifications in e-FIR lodging system so that it becomes possible to find out details about theft vehicles and the vehicles involved in crime. The Interceptor Vehicle will maintain a list of registration numbers which are lodged by complainant. On capturing the registration number which is in the list, the interceptor vehicle will notify the local police station by providing time and place details of particular vehicle.*

Keywords— TIV, IRTE, Jurisdiction, Enforcement, Violators.

I. INTRODUCTION

Designed for practical use by police in capturing video based moving violations including speeds of vehicles, the Interceptor is a comprehensive enforcement and education system. Initiated in 1995, IRTE developed the state of the art traffic enforcement technology vehicle called "Interceptor". This technology was recognized by the Government of India at the National Republic Day Parade in 1996 and again in 2001. The system comprises of suitably customized vehicle platform, enforcement equipment and software, hardware, complimented with data analysis centre [1].

In developed countries the enforcement agencies are supported by the civic/road authorities in order to efficiently perform their secondary role of traffic engineering which forms the basis of efficiency and safety of the movement of traffic. In developing countries like India, the role of traffic engineering is generally not provided by the road authorities, and therefore by default the traffic police are made responsible for traffic engineering without having the background and education on the subject. The traffic police unfortunately have to play the primary role for traffic engineering and enforcement for road safety as the secondary one.

The most common violations resulting in accidents are speeding and overtaking from the wrong side. Complementary violations are jumping traffic signals and entering one-way streets. In other words, the desire is to reach the destination earliest, even at the cost of breaking traffic rules. Generally, the individual reaps positive consequences of breaking traffic rules rather than negative. Hence, it becomes more a part of the driving habit to drive in this manner and the illegal system catches on. In Pune, people are amazed if a driver follows traffic rules and they nudge you on if you actually stop at a red signal, especially if a police person is not present [2].

The e-FIR lodging system is an easy and efficient way of lodging an FIR which helps in the maintenance of law and order in a particular area by recording the actual crime rate. Information of cognizable offence can be given by any person to police having jurisdiction. Despite FIR is outside the mischief of section 162 of Cr.P.C [8], still it is not substantive piece of evidence; that is, it cannot vouch safe the truth of its contents. It has to be duly proved as any other fact by evidence. Police officer shall reduce such information in writing. Informant's signature must be obtained and the contents of such information should be read over to the Informant. Information must be entered in record by the police officer. Police officer shall give a copy of such information to the informant and original FIR must be sent to the Magistrate. Despite a police officer refuses to register FIR, the aggrieved person can send such information to the Superintendent of Police by post. If FIR is made immediately after the occurrence of an incident and when the memory of the person giving it is fresh in his mind about it, the sanctity of such FIR will be increased. That too, FIR must not be made during the investigation [3].

II. RELATED WORK

Ashok et al. proposed a model [4] for enhancing the efficiency of road traffic enforcement system. The traffic police issues challans to the people who violate traffic rules. The violators have the choice of either paying the prescribed fine on the spot or go to the court at the prescribed date and time. But now, there is a need to modify the working of traffic enforcement system. The proposed model uses three concepts viz. locating/identifying the violator, identifying the

violation activity and violation enforcement (fine etc.). The violator's vehicle is identified by the traffic enforcement system and also classified based upon various characteristics like length, height, shape etc. After identification of violator's vehicle, it will take snapshot of driver's face and the vehicle's registration number plate, so that these can be used to issue fine ticket to the violator. The violator is informed for the fine ticket with the help of a customized message which will tell about the violation activity, fine amount and last date to deposit the fine. The proposed model is implemented using a simulator designed and developed on Java platform.

Ashok et. al. proposed a model [6] to automate the functioning of traffic interceptor vehicle. Design and condition of roads and vehicles coupled with road user's capacity and conduct are the major factors behind road accidents. Certain accidents occur despite best precautions because of defective roads and difficult driving conditions or hostile environment. However, a substantial majority of accidents occur due to human factors both on the part of driver and other road users. The traffic interceptor vehicle is used to control the violations in order to reduce the number of accidents. Efforts are being made to manage the traffic and to automate the working of traffic interceptor vehicle. In order to automate the functioning of traffic interceptor vehicle, some Govt. Departments, Organizations and Pvt. Agencies involved in traffic enforcement should be integrated through common central database. This research paper will discuss various details used by the traffic interceptor vehicle in order to issue challan to the violators using the information collected from the above said bodies.

Ashok et al. presented a research paper [5] which will help traffic police department in overcoming the problems coming in way of managing traffic on Indian roads. The model proposes that some Govt. Departments, Organizations and Pvt. Agencies involved in traffic enforcement should be integrated with traffic interceptor vehicle. It involves a database which is to be updated with the help of the above said bodies. Also, it includes GPS based map which will provide many services like indication of parking areas, accident prone areas, location of another traffic interceptor vehicles. The model includes a communication system which is integrated with traffic interceptor vehicle for better communication between interceptor vehicles so as to overcome traffic enforcement problems easily and efficiently.

Ashok et. al. proposed a model [7] for lodging FIR. FIR should be lodged when there is a crime. The forms of crime and the pattern of commission of crimes varies from place to place and at the same place from time to time. In India, after an FIR has been lodged, the contents of the FIR cannot be changed except by a ruling from the High Court or the Supreme Court of India. That is why some policemen refuse to register an FIR. The idea for writing this paper came from the episode "Satyamev Jayate" which is being run by Aamir Khan Productions telecasted on Star Plus. In the episode, it was shown that the people are afraid of the police and sometimes policemen take bribe to register an FIR, so there is need to change the existing system. This research paper proposes an e-FIR lodging system which is an easy and efficient way of lodging an FIR. It can be placed at district or tehsil level. It will help in the maintenance of law and order in a particular area by recording the actual crime rate. After getting the actual crime rate, suitable steps can be taken to curb the activities of antisocial elements. This research paper also discusses about the various components and services of the proposed system.

III. PROPOSED WORK

This research paper proposes a model for integration of services of e-FIR lodging system with the traffic interceptor vehicle. The integration is needed for finding details about the theft vehicles and the vehicles involved in crime.

e-FIR Lodging System

Vehicle theft case:- Yes/No

Registration Number of Vehicle:-
Manufactures/Model:-
Place (Last Seen/Parked):-
Date of Incident:-
Any Other Details:-
.....

Vehicle Involved in Crime:- Yes/No

Registration Number of Vehicle:-
Manufacturer/Model:-
Place (Last Seen/Parked):-
Date of Incident:-
Number of Person Involved:-
Any Other Details:-
.....

Figure 1. Details provided by Complainant about the Theft Vehicle and the Vehicle involved in Crime.

Now, some modifications are needed in e-FIR lodging system for increasing its efficiency. Some details should be provided by the complainant while lodging FIR about the vehicle. The FIR lodged by complainant is sent to local police station. The traffic interceptor vehicle is given access to the database having details about the vehicles. It will maintain a list of registration number of such vehicles as shown in Figure 2 and continue to capture the number plate of vehicles in order to seek these registration numbers.

Registration Number	FIR No.	Two Wheeler/ Four Wheeler/ Other	Remarks
HR 32 A 1234	U123	Two Wheeler	Stolen
HR 32 P 6152	U124	Two Wheeler	Involved in Crime
HR 31 A 1236	J122	Four Wheeler	Stolen

Figure 2. Database maintained by Traffic Interceptor Vehicle

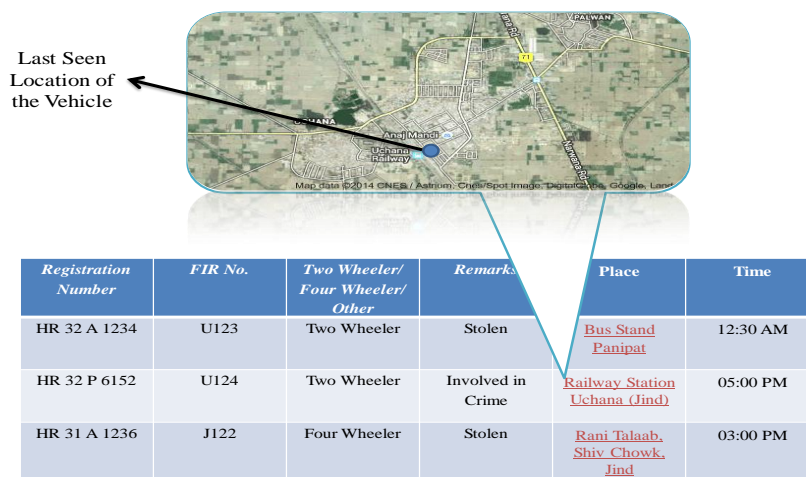


Figure 3. Response/Notification provided by TIV to Local Police Station

If the interceptor vehicle captures the vehicles then it will notify to the local police station by providing some details as shown in Figure 3. The interceptor vehicle provides details about place where the vehicle was last seen and the time details at which the vehicle was captured by the high definition camera present within traffic interceptor vehicle. Moreover, the place details are provided with the help of Google Maps, so that the location is clearly visible. A model is proposed to show the whole process of finding stolen vehicle and the vehicles which are involved in any crime. The proposed model is shown in Figure 4, in which the e-FIR lodging system placed at the road side is used to lodge FIR and the information is used by traffic interceptor vehicle for capturing the wanted vehicles.

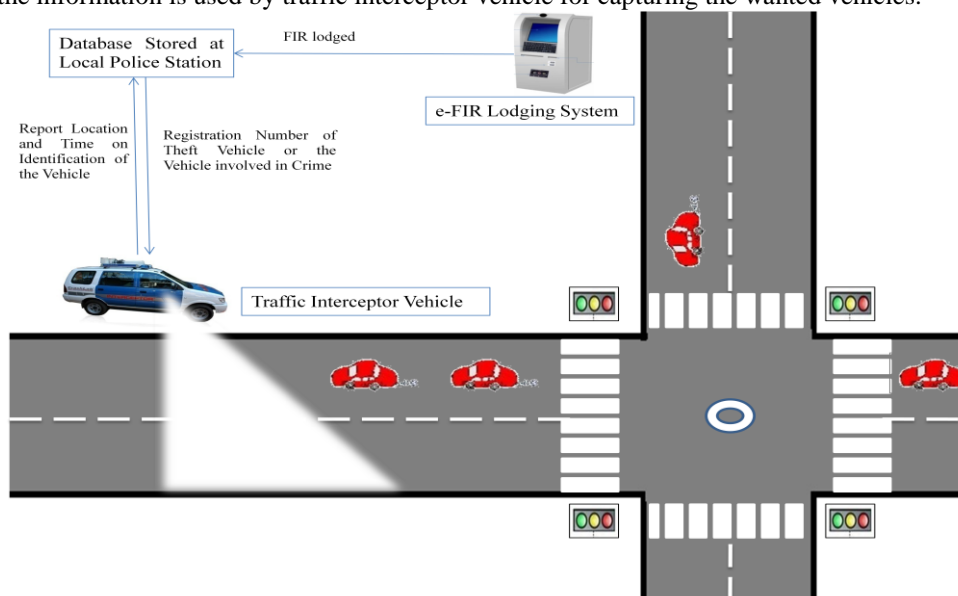


Figure 4. Model for Integration of e-FIR lodging system with TIV

IV. CONCLUSION

The Traffic Interceptor Vehicle is being used for better traffic enforcement by issuing challans to the violators but it can also be used to reduce the crime rate. As the convict come to know that the traffic interceptor vehicle present at road side is capable of capturing stolen/theft vehicles, he will surely hesitate to steal the vehicle that might be a two wheeler or four wheeler. The integration of TIV and e-FIR lodging system will create fear in the mind of convict for being caught while committing crime. Model proposed in this research paper will enhance the efficiency of both e-FIR lodging system as well as the traffic enforcement system.

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