

Intelligent Transportation System in Hyderabad along Nh-44, Nh-65

Peddabala Sounyasri, V. Ranjith Kumar

Abstract— The road traffic is a regular problem of the any developed cities. India is the fast growing country, and the Indian cities are having a lot of traffic congestion. To improve the traffic management the road infrastructure improvement is required. One kind of the infrastructure of the road contains the Intelligent Transport Systems (ITS). Intelligent Transport Systems (ITS), used for efficient traffic management in developed countries, that cannot be proper using in India. ITS techniques have to undergo adaptation and innovation to suit the different traffic characteristics of Indian roads. Intelligent transport systems in Hyderabad can be studied about the two main road lines in the city. The project involves the all the (ITS) technologies in the city. The two main road lines are the National Highway-65 and National Highway-44. In this position paper, I present a comprehensive study of all available ITS systems, including both research prototypes and deployed systems. We next pose a set of interesting open research problems in the context of Hyderabad ITS. Though our paper focuses on the Hyderabad traffic scenario because of our hands-on experience of working with it, many of the problems and solutions outlined in this paper are relevant for other developing countries as well

Index Terms— Intelligent Transport Systems, GPS, GSM, VMS

I. INTRODUCTION

Intelligent transportation systems ITS are the application of modern information and communication technologies in roads and vehicles to promote safer travel, reduce the congestion, and maximize the capacity of existing infrastructure. Intelligent transport systems vary in technologies applied, from basic management systems such as traffic signal control systems, container management systems, speed cameras to monitor applications like security CCTV systems, car navigation, automatic number plate recognition, variable message signs, speed cameras to monitor applications, and to more advanced applications that integrate live data and feedback from a number of other sources, such as parking guidance and information systems, weather information systems.

1.1 NEED FOR THE STUDY

Manuscript received Sep 22, 2015

Peddabala Sounyasri, M.Tech, Transportation Engineering, Malla Reddy Engineering College (Autonomous), Secunderabad

V. Ranjith Kumar, Assistant Professor, Malla Reddy Engineering College (Autonomous), Secunderabad

In any development country economy will mostly based on transportation. The new technologies are used to decrease the congestion of traffic, travel time, air pollution, to improve the emergency management, toll pricing, and to detect the vehicles. The ITS is essential part in transportation of the developing city. Demand for transport is increasing day by day due to industrialization and urbanization during recent years. But the road infrastructure has not been developed along with the travel demand due to lack of resources. This imbalance is creating problem. To improve the modern technologies is necessary in transportation network to improve the city as a free of traffic congestion, travel time, parking management etc.

1.2 STUDY AREA

The Hyderabad is a huge developed city. One such a metropolitan city is Hyderabad. It is a 5th largest city in India, and it is the capital of both Telangana and Andhrapradesh states. In Hyderabad the population is more than 12 lacks Million & agglomerated area is 727 sq.kms on the Deccan plateau. In Hyderabad city having a high traffic congestion, incident managements, to erect these problems the ITS implementation is necessary. The Hyderabad metropolitan development authority (HMDA) is decided to implement the ITS technologies in the city. The implementation of ITS will ensure the city with proper facilities and information systems.

1.3 Objectives of the study

1. The major objectives of this study are
2. To relieve the traffic congestion in Hyderabad.
3. To improve traffic safety.
4. To reduce air pollution.
5. To increase the energy efficiency.
6. To promote the development of related industries.
7. To suggest the ITS technologies to the HMDA.

II. REVIEW OF LITERATURE

R. Stough and Guang Yang In this paper is examines the concept of intelligent transportation systems ITS as a method of improving the productivity of existing transportation systems.

Dinesh Mohan In this paper several ITS applications discussed by the author Indian conditions he gave the conclusion about what are the ITS technologies are suited to the Indian traffic congestion.

Rijurekha Sen and Bhaskaran Raman In this paper the author examines the Indian traffic conditions can benefit from several possible ITS applications.

Praveen Kumar, and Varun Singh the authors present a GIS-based ATIS for Hyderabad City, India. Development of

this GIS-based ATIS has been carried under the ArcView GIS environment.

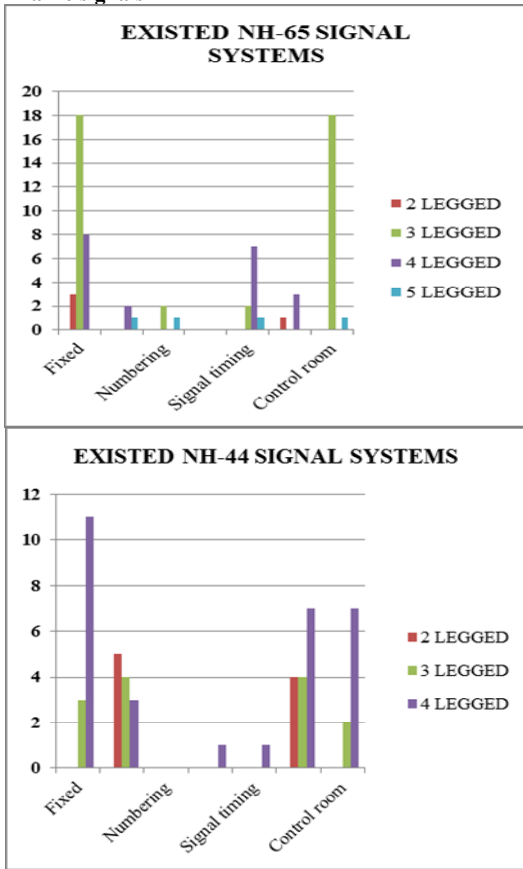
III. METHODOLOGY

The paper includes the different types of ITS technologies are studied in the stretch of NH9 (65), and NH7 (44) within the city. Primarily the Existed data collected from Traffic head office, nampally and commissioner office. Secondary data will surveyed along the stretch. The data includes the different types of ITS are in the city, and the future applications are also gives by the Indian road traffic conditions.

IV. RESULTS AND OBSERVATIONS

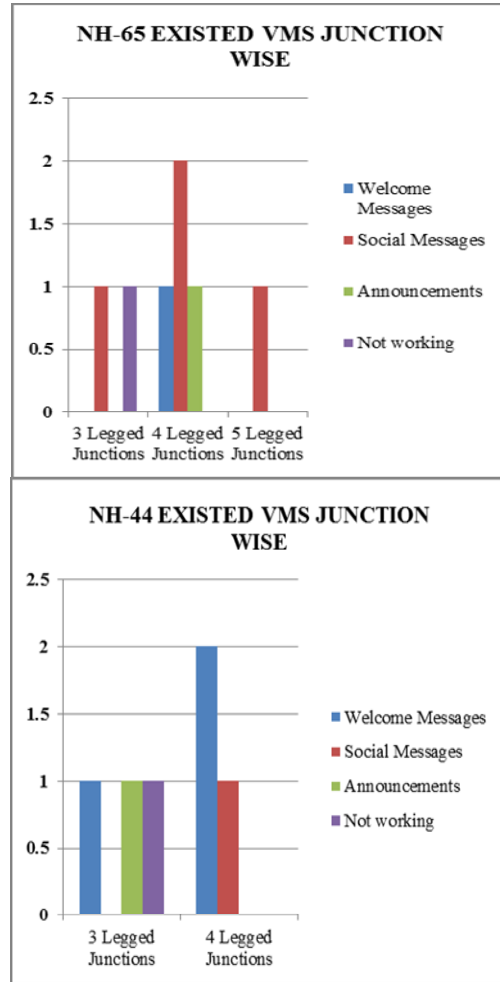
4.1 Advanced Traffic Management Systems (ATMS)

4.1.1 Traffic signals



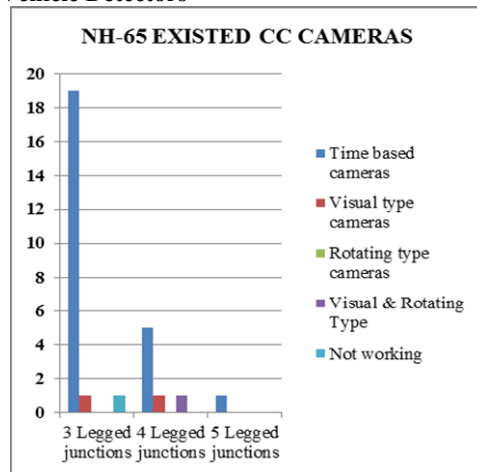
The signals are the two types operating are there in the city traffic. The signals are actuated and fixed type signals are using in Telangana I have observed Type of Signals-Solar & Automatic, Some places Virtual loop cameras used for presence or absence of vehicles, these cameras changes the signals time depends on vehicles volume, time. In some signals having a control room. The signals are actuated and fixed type signals are using in Telangana. Signal timing also some of the signal having a fixed time signals are used.

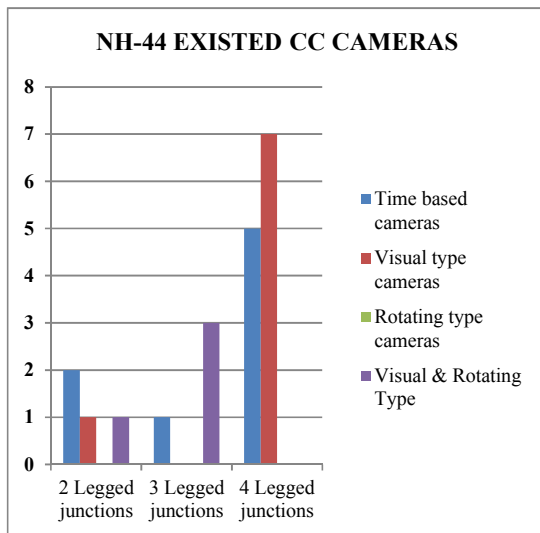
4.1.2 Variable Message Signs VMS



In Hyderabad total 17 VMS are provided to give the information about the road conditions to the road users. In the stretch of NH9 and NH7 the VMS placed given below and their using observations are given below. Some of the welcome messages, VMS social messages like don't drink and drive, human protection, announcements like RTO considerations, properly not using variable message signs.

4.1.3 Vehicle Detectors

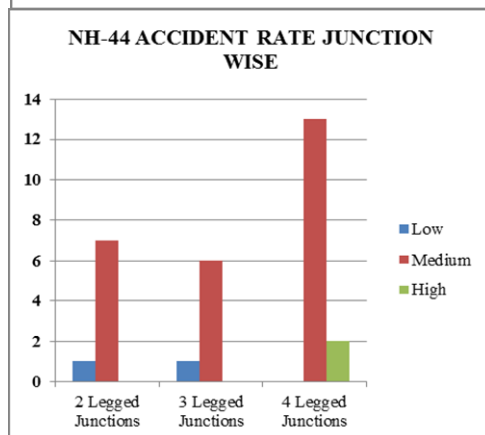
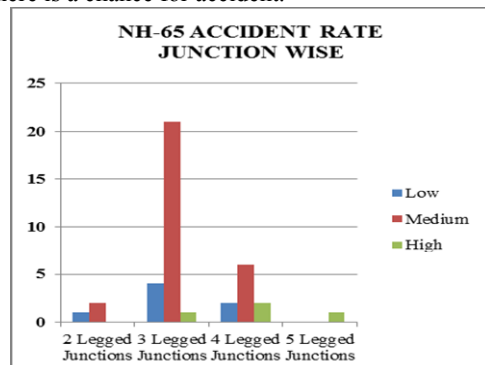




For vehicle detectors in Hyderabad cc cameras are using as to take photos of the vehicles. In Hyderabad, CCTVs and rotating cams signal jumping cameras are used for vehicle detection. CCTV cams are used just for observation of Traffic condition in variable places. Hand cameras, digital cams. Automatic Red Light Violating detections are less. time based cc cameras, visual look cc cameras, rotating type cc cameras are used some cameras doesn't working at the signals.

4.1.4 Speed Detectors

To avoid accidents, it may possible to view that sign boards and there is a chance for accident.

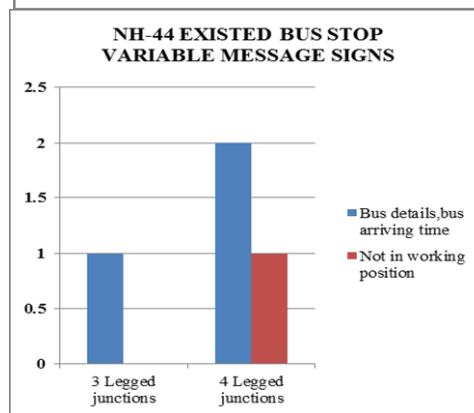
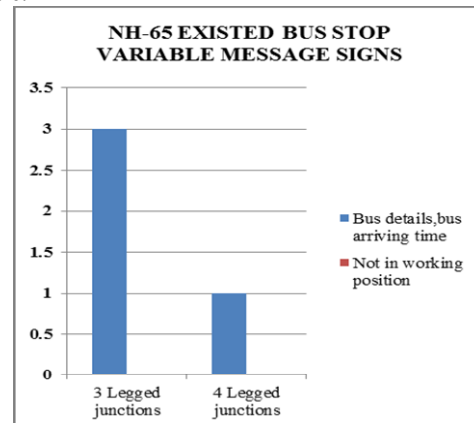


In Hyderabad, only Speed Laser Guns are used for high speed vehicle detection. Speed laser Guns less in Hyderabad.

Speed laser guns are used only in the high accident rate causing places only.

4.2 Advanced Public Transportation Systems (APTS) Automatic Vehicle Location Based On GPS

Public transportation ITS technologies are using Automatic vehicle location based on GPS and GSM in Hyderabad. The system consists of four modules: BUS Station Module, In-BUS Module, BASE Station Module and BUS Stop Module.



In the stretch of NH-65, NH-44 of the city having a bus stop VMS is total 8 no of bus stop VMS are installed in the bus stops. In NH-44 4 legged junction of suchithra bus stop the VMS is not working yet. And some of the bus stops do not have bus stop VMS along the stretch.

V. RECOMMENDATIONS

5.1 RECOMMENDATIONS FOR THE STRETCH IN HYDERABAD CITY

The recommendations are given to the not only the stretch it applies along the city of the Hyderabad. The recommendations are given based on types of ITS technologies.

Signals:

Total 122 junctions are there in NH-44, NH-65&Major junctions in Hyderabad

- 37 junctions are having fixed signals, 14 junctions are having solar signal. We have to implement the 37 fixed signal junctions are replacing with solar

signals. Solar signals mainly implemented in 2 legged & 3 legged junctions.

Ex: Dhullapally X-road, Kompally, Jeedimetla.

- 11 junctions are having manual signals, 36 junctions are having Automatic signals. We have to implement the 11 manual signal junctions are replacing with Automatic signals, by operating the Control room. Automatic signals mainly implemented in 3-legged & 4-legged junctions.
- Density control room using IR sensors and microcontroller & Sydney coordinated adaptive traffic system. We have to implement the major 4-way & 5-way junctions
- Ex: Khairathabad, LB Nagar, Dilsuknagar etc...
- We can reduce the traffic congestion, accidents, delay of time& money.

Variable Message Signs (VMS):

Total no of junctions in NH-44, NH-65 & Major junctions in Hyderabad: we have observed 122 junctions. In this only some places have VMS boards those are “17 Junctions”.

Example: L B Nagar, Banjara hills, S R Nagar etc.

- Accident informative VMS:
 - NH-44&65 (2, 3&4-legged) junctions: 38 junctions having high accident rate.
 - Need to contact with 100,108 emergency services to pass the information from those services to control room.

Example: Khairathabad, Uppal X-road etc.

- VIP informative VMS:
 - NH-44&65 (2,3&4-legged) junctions :12 junctions.
 - Need to contact with Traffic police.

Example: CM camp office road.

- Drainage problems informative VMS:
 - NH-44&65 (2, 3&4-legged) junctions:23 junctions having drainage problems.
 - Contact with water sewage & GHMC Departments

Example: Kukatpally, chaithanyapuri.

- Special events informative VMS:
 - NH-44&65 (2, 3&4-legged) junctions:10 junctions.
 - Need To Contact With Local Police

Example: Ravindrabharathi, Indira Park

- Incident Management/Public Safety: need to implement in 4-way (legged) junction in Hyderabad.
- Congestion Management: need to implement in 3-legged junction in Hyderabad.
- Special Events: Its need to implement in 2-legged junctions.
- Law Enforcement Messages: It is need to use high speed junctions.
- Public Service Campaigns: It is needed to implement at every junction for showing, No Fuel at Service Plaza & safety Breaks.

Vehicle detection & Speed detection:

Total 122 junctions are there in NH-44, NH-65 & Major junctions in Hyderabad.

- In these Automatic signals are 36 junctions. We have to implement speed & vehicle detectors with Automatic signals.
- Mainly implement the major 4-way & 5-way junctions to reduce the accidents, easily identified vehicles.

- Red Light-Stop Line Violation & Detection System (RLSVDS) Snapshot with number plate details and three seconds video is provided as evidence from RLSVDS Server
- RLSVDS Software facilitates challan issuance and various report management

Public Transport Information Systems:

Total no of junctions in NH-44, NH-65 & Major junctions in Hyderabad: 122 junctions.

- In this only some places have BUS VMS boards. Those are “25 Junctions”.
- This system mainly include Bus arrival Information, to implement the GSM,GPS Technologies in Hyderabad by this way we will get the information about bus with numbers& bus time schedule .
- Bus rapid transit means to dramatically improve Hyderabad’s transportation system while simultaneously making the city a nicer place to live, work, and shop at a price 1/8 of the cost of the next cheapest alternative to meet this level of demand.

REFERENCES

- [1] Roger r. Stough and Guang Yang, “intelligent transportation systems”, school of public policy, George mason university, USA
- [2] Dinesh Mohan, “Intelligent Transportation Systems (ITS) And the Transportation System” Transportation research and injury prevention programme, Indian Institute of Technology Delhi, India.
- [3] Rijurekha Sen and Bhaskaran Raman “Intelligent Transport Systems For Indian Cities” Department of Computer Science and Engineering, Indian Institute of Technology, Bombay.
- [4] Praveen Kumar, Varun Singh, Student Member, IEEE, and Dhanunjaya Reddy, “Advanced Traveler Information System For Hyderabad City”, Department of Civil Engineering, Indian Institute of Technology, Roorkee, India .
- [5] Hyderabad Traffic Integrated Management System(HTRIMS),HYDERABAD
- [6] “Hyderabad Wikipedia”
- [7] “The Hindu news paper”
- [8] “Times of India News Paper”
- [9] “Traffic Engineering and Transport Planning” by Dr.L.R.Kadiyali, Khanna publishers (2012).
- [10] , “Fundamentals of Intelligent Transportation systems planning”. M A Chowdhary and A Sadek Artech House Inc., US, 2003.

	<p>PEDDABALA SOUNYA SRI Research Scholar (M.Tech), Transportation Engineering, Malla Reddy Engineering College (Autonomous) Secunderabad , Telangana, India- 500100</p>
--	--