

REVIEW ON TRAFFIC AND TRANSPORTATION PLANNING OF A TOWN

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Abstract— Transportation planning is important as it is the process of defining future policies, goals, investments and design to prepare for future needs, to move people and goods to destinations. In recent years with greater roadwork and construction demand along with increase in industrialization, urbanization, increase traffic congestion and rapidly increasing population the need of traffic management is heightened. For development and proper functioning of the town it is necessary that it should be planned effectively, so that the problems related to traffic can be minimized or controlled.

Index terms- traffic, road congestion, planning, smart parking,

I. INTRODUCTION

Transport on roads can be roughly grouped into the transportation of goods and transportation of people. In many countries licensing requirements and safety regulations ensure a separation of the two industries. The nature of road transportation of goods depends, apart from the degree of development of the local infrastructure, on the distance the goods are transported by road, the weight and volume of the individual shipment, and the type of goods transported. As we know that our nation is developing and with it the number of industries, companies, IT hubs, etc. has been increased a lot in urban areas. With increase in all these things a large number of rural population is attracted towards the urban areas or the metropolitan cities and as a result there is an increase in the population of the cities like Pune, Mumbai, Delhi, Bangalore, Hyderabad etc. As the population is increasing at a high rate there is an increase in the number of personal vehicles.

According to a survey made by government it was found that in a family of 4 people there are 3 number of vehicles, people do not use public transports like bus, railways, rickshaws, etc. And due to this many problems like traffic congestion, parking problems, in a town are increased. So to avoid or reduce the effects of traffic it is necessary to control it.

Movement of vehicles, persons, etc. in an area, along a street, through an air lane, over a water route is called traffic. Traffic on roads may consist of pedestrians, ridden or herded animals, vehicles, street cars, buses and other conveyances, either singly or together, while using the public way for purposes of travel. Traffic laws are the laws which govern traffic and regulate vehicles, while rules of the road are both the laws and informal rules that may have developed over

time to facilitate the orderly and timely flow of traffic. Organized traffic generally has well established priorities, lanes, right of way and traffic control at intersections. Traffic is formally organized in many jurisdictions, with marked lanes, junctions, intersections, inter-changes, traffic signals or signs. Traffic is often classified by types:

(a) heavy motor vehicles (eg. car, truck), (b) other vehicle (eg. bicycle, moped) and pedestrians. Nearly all roadways are built with devices meant to control traffic. Most notable to the motorist are those meant to communicate directly with the driver. Broadly, these fall into three categories: signs, signals or pavement markings. They help the driver navigate; they assign the right-of-way at intersections; they indicate laws such as speed limits and parking regulations; they advise of potential hazards; they indicate passing and no passing zones; and otherwise deliver information and to assure traffic is orderly and safe. Signals began to appear in the biggest cities at a few highly congested intersections.

The act or process of moving people or things from one place to another is called as transportation. A system for moving passengers or goods from one place to another is called transportation. Transportation engineering or transport engineering is the application of technology and scientific principles to the planning, functional design, operation and management of facilities for any mode of transportation in order to provide for the safe, efficient, rapid, comfortable, convenient, economical and environmentally compatible movement of people and goods. The planning aspects of transportation engineering relate to elements of urban planning and involve technical forecasting decisions. Transportation engineering, as practiced by civil engineers primarily involves planning, design, construction, maintenance and operation of transportation facilities.

II. LITERATURE REVIEW

There are many research papers published on traffic and transport planning. Following are the papers which have been used as reference for this paper.

1. Counter-Based Traffic Management Scheme for Vehicular Network, Tarun Prakkash, Ritu Tiwari, (June 2011)

This paper proposes an effective decentralized traffic management scheme so that small failures can be handled

The whole traffic management solution is a combination of "stochastic turn" and "path planning" that is ensured by suggested

path selection, stochastic turn mean vehicles choose a new direction at each intersection or any other way point and path planning mean origin and destination of the vehicle required in advance. Traffic management scheme is based on the following subsections where they have described counter based approach and path selection algorithm. The basic concept behind this approach is to inform the requested vehicle about the dense condition on the next road. The proposed path selection algorithm is employed by the base station in its decision making process and helps the driver to take the optimized route to his destination.

2. Empirical Analysis of Urban Traffic System of Lucknow using Data Modeling And Capturing Techniques, Darbari, Srivastav,(September 2008)

They proposed to develop a methodology of framing effective questionnaire useful for collecting data in urban traffic planning. Analysis of such questionnaire helps in the development of new planning model in urban transport requirements. They found that in Lucknow, the person who is exposed to 40 to 50 kms of daily commuting is likely to have health problems like asthma, blood pressure and severe depression.

3. Smart Parking System Based on Reservation, Mohit Patil, Rahul Sakore, (June 2014)

In this paper, design and implementation of smart parking system based on reservation (SPSR) that allows drivers to effectively to find and reserve the vacant parking spaces.

They have proposed that this policy has the potential to simplify the operations of parking system. System architecture consist parking zones, users and the database smart parking system. The management system determines the parking prices and broadcast liveparking availability information to users. Upon receiving parking information the users select desired parking lots and reserve a space. As soon as users reserve a parking space SPSR generate a unique QR code and sends it to the users .Once the reservation order is confirmed the reservation authority updates reservation information to hold the related space for the users.

4. Vision of Congestion-Free Road Traffic and Cooperation Objects,Ricardo Morla, (November 2005)

This paper describes the vision of congestion-free road traffic using cooperating objects. Ricardo Morla has given the idea of traffic space corridor, cooperating vehicles, self-regulating flow control. Cooperating vehicles are able to negotiate virtual vehicle slots needed for the whole of their passengers journey, i.e. from departure to arrival. These slots have guaranteed speed and safety distances to other slots and as such will not be overturn by other vehicles. Vehicles in these slots will not experience traffic congestion.

5. Quantitative Problem of Road Traffic Congestion Simulation and Extension Information Analysis,Shulin He,(February 2012)

The objectives of this paper is to define extension traffic simulation system, define analysis method and data required for traffic congestion analysis. This paper is mainly concerned

with problem of road traffic congestion. Two things are important in the above analysis are standardization and systematization. An attractive remedial measures for reducing congestion is Intelligent Transport System which is based on application of digital information system to control, manage and to improve transport.

6. Development of effective urban road traffic management using workow techniques for upcoming metrocities like Lucknow,Manuj Dardari , Sanjay Medhavi ,Abhay Kumar Shrivastava , (July , 2008)

In this paper they have tried to demonstrate the compositional method for modeling and performance evaluation of complex traffic situations. By using the orthogonal approach we have increased the permutation of various test cases in state space dimensions. To make the model more real life we have introduced the concept of Multi Agent System, by the help of continuous pertinent system they have derived a more collaborative model of multi agent system.

7. On the Effectiveness of an Opportunistic Traffic Management System for Vehicular Networks, Llias Leon-tiadis

During the last few years a wealth of research has studied how to optimize the internet working of vehicles utilizing short range radios in order to support wide range services. This information can then be used by other vehicles to efficiently select their routs in order o avoid congested areas. In essence, an intelligent transport system can use the vehicles themselves to crowd source traffic information. The 1st work is to consider a real city topology and realistic traffic flows in evaluating IT system the data obtained from its system allow to study a realistic case study where traffic pattern are matching real observation. The goal of this work is to show the impact of traffic information on a vehicular network, as a penetration ratio increases the work describes in detail the architecture of a distributed traffic information system.

A key in this area is played by traffic measurement methodologies and by technologies employed to gather the measurement .video cameras are used for survey. The advantage in using video cameras is of recording end to end time rather than a punctual speed samples.

8. Alternative Solution for Urban Traffic, William Zhang,(October2011)

In this paper they have identified the congestion and mobility problem in urban traffic system. Also they have identified and assessed advanced technologies and system that can improve urban highway traffic operations by achieving significant increase in capacity and traffic flow. Intelligent transport system can produce major benefits in reducing congestion accident and environmental imports and can make significant improvement to the efficiency or commercial and public transport fleets and to inter-modal integration. It can also reduce the need for expensive new transport infrastructure by maximizing the efficiency of our existing facilities.

III. CONCLUSION

From this review paper we urged that with proper traffic and transportation planning many problems like accidents, unexpected delays, journey time can be reduced, fuel efficiency can be achieved. This paper also reviewed some of the published worked. Following are the conclusion of this literature-

1) The results of this scheme are in shorter journey time and fuel efficiency of the vehicles meaning that more free time for the commuters and includes the route suggestion based on pattern evaluation of certain area.

2) This system implements the parking reservation policy to balance the benefit of service providers and requirements from the users.

3) Smart distribution techniques of traffic information could avoid the build up of secondary congestion generated by dissemination of identical information.

REFERENCES

[1] Mohit Patil , Rahul Sakore, (6 June 2014) Smart Parking System Based On Reservation.
[2] Ricardo Morla , (November 2005) Vision of Congestion Free Road Traffic and Co-

operation Objects.

[3] Mr William Zhang , Dr Wen Long Yug ,(October ,2011) Alternative Solutions for Urban Traffic Congestion.

[4] Azeem Uddin , (23 March 2009),Traffic Congestion in India cities : Challenges of a rising power.

[5] Ilias Leontiadis , Gustavo Marfia , David Mack ,On the Effectiveness of an Opportunistic Traffic Management System for Vehicular Networks.

[6] Shulin He ,(February 2012) Quantitative Problem of Road Traffic Congestion Simulation and Extension Information Analysis.

[7] M. Darbari , A. k. Srivastava , S. Medhavi , (September 2008) Empirical Analysis of Urban Tra_c System of Lucknow using Data Modelling And Capturing Techniques.

[8] Tarun Prakkash , Ritu Tiwari , (June , 2011) Counter Based Traffic Management Scheme for Vehicular Network .

[9] Manuj Dardari , Sanjay Medhavi , Abhay Kumar Shrivastava , (July , 2008) Development of effective Urban Road Traffic Management using workflow technique for upcoming metro cities like Lucknow.