

Understanding the need of better Intelligent traffic Management System

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Abstract—Traffic blockage is a basic issue found in urban and rural communities. All together traffic management and control is a major issues that need to kept in control for better movement of vehicles It is a voyager, blockage implies passing upon of chances, time wastage or loss of time and getting dissatisfaction. Lots of research is going in the similar areas to identify and resolve the traffic related problems. It likewise unfavorably affects the ventures because of profitability loss of the workers, loss of exchange openings, postponed conveyance. The basics in traffic management can be resolved by various ways one of which includes spatial data analysis. Thus the fundamental basic techniques for regulating activity includes light controls, season of day control, settle time control, zone dynamic control which can be used along with the spatial data for better management of the traffic.

Keywords—GPS , GPRS , ITS, RFID, VANET

I. INTRODUCTION

Transport is crucial for the regular working of economy and the general public [1]. In the course of the most recent couple of decades there is seen the inception, advancement, arrangement and colossal development in transport framework and critical impact of these improvements in our general public and life. Henceforth we can rethink transport framework as Intelligent transport System (ITS) [1]. Based on verity, research is going on in the area of traffic management using neural network and which can be one of the solution to do so [2]. Presently multi day's not just thoughtful and mechanical designing zones manage innovative work of transportation. Or maybe the software engineering building ideas, for example, Artificial Intelligence (AI), machine learning, correspondence, web and numerous other developing designing and data sciences territories turn into the center of ITS. Along these lines, ITS is characterized as the arrangement of utilizations which are advance and intend to apply savvy data and correspondence innovations with the end goal to give administrations to transport and activity the board. Vehicular cloud are also one of the key technology in the similar domain [4]

To pick up knowledge into displaying of a complex structure of street transport lots of research is going on. Social angles display apparently keen aggregate conduct, from the extensive number of parallel connections in the populace and

impart through taking off. Furthermore, identifying pheromones in their condition, and can arrange complex conduct without unified control. This examination will endeavor to build up a magnificent model dependent on spatial model AI methods for concentrate complex structure of street transport demonstrate when all is said in done and with exceptional reference to a proposed issue characterized..

II. INTELLIGENT TRANSPORT SYSTEM

Data accumulation advancements: The prime necessity of ITS is exact and far reaching information [3]. As of late unmistakable systems have been proposed and actualized for the enhancement of information gathering techniques.

Communication advances: There are various correspondence advances that are accessible to be utilized in ITS. The strategies contrast as for limit, cost and working technique. These advances change from phone lines to propel innovation, for example, General Packet Radio Service (GPRS) lastly different Adhoc remote correspondence and remote broadband advances.

Database the executives: ITS [1] additionally makes utilization of databases for dealing with the data identified with activity and also to get a diagram of the system dependent on data got.

III. LITERATURE SURVEY

Traffic System is a challenging problem and here are some of the literature study in the similar domain. GIS is one of the fastest growing technologies for road transport. It has emerged as powerful and sophisticated means to manage vast amounts of geographic data. It provides a mechanism by which information on location, spatial interaction and geographic relationship of various facilities can be assessed and viewed in moments. It provides an opportunity to effectively view and access geographic data and thus to improve decision making process.

The negative effects of a poorly designed transportation system affect everyone. Time wasted in traffic affects our health, our economy, and our environment. People stuck in traffic are not working, shopping or enjoying leisure time and can suffer emotional distress. Furthermore, fuel consumed by

idling cars produces additional greenhouse gases that may contribute to global warming. In 1995, 26% of all emissions were found to come from transportation, and those emissions are rising.

The challenge of reducing congestion lies in the design of an efficient and adequate transportation infrastructure. As cities grow, old solutions to transportation problems fail, and new solutions must be proposed to deal with the more complex problems.

To gain insight into modeling of complex structure of road transport. Social aspects exhibit seemingly intelligent collective behavior, emergent from the large number of parallel interactions in the population and communicate through leaving. and detecting pheromones in their environment, and can orchestrate complex behavior without centralized control.

Transportation is one of the primary needs of most that need to look for better traffic management. It is one such supports that help the basic economic development of the various countries, it is also responsible to manage the political activities of most various communities. Transport is also a key for various government organizations. The importance of the transport is done through various activities. The higher the size of public the demand will be higher for the general transport need, and it will higher for other activities, the higher are the transport need. The need of transport, in many cases to moving faster than the ability of providing transport service. Society are developing very fast for the rapid growth in can be subject to many urban regions around the world are facing traffic congestion in their everyday life. On the other hand, the need for transport service cannot easily be fulfilled by introducing new facilities since land and resources are limited. There is then a need of a tool to be able to produce solutions regarding transport need that can as far as possible meet the need of affected parties. As in any other field the tool is commonly called planning and in transport field it is then called transport planning. Transport planning is applied widely in many countries, although the applications may vary between countries. In general there is a common theme regarding the transport planning practice. This chapter reviews the characteristics of transport planning and factors considered in the development of transport planning.

TABLE I. LITERATURE SURVEY

Sr. No	Literature		
	Name of the Author	Authors	References
1	Vehicular cloud computing	Gerla M, Lee EK, Pau G, Lee U	[4]
2	VANET	Khekare GS, Sakhare AV	[5]
3	Smart traffic lights	Wen W.	[6]
4	RFID	Attar A, Chaudhary P, Dhuri P, Vaidya K, Venkatesan N.	[7]

Sr. No	Literature		
	Name of the Author	Authors	References
5	Agent based computing	Wang FY.	[8]
6	Genetic Algorithm	Shandiz HT, Khosravi M, Doae M.	[9]
7	GPS	Binjammaz T, Al-Bayatti A, Al-Hargan A.	[10]

The following methods were identified as a solution for better road traffic management

1. Vehicular cloud which is better way of collecting huge volume of cloud data and process it accordingly
2. VANET stands for vehicular Adhoc network used which was developed by applying the principle for road transport system
3. Smart Traffic is a term used for intelligent transport management using smart computing technology
4. RFID stand for radio frequency tags used for managing the traffic though the RFID tangs for smart traffic management
5. Agent Based Computing in which smart agents are used for management of traffic system
6. Genetic Algorithm is one of the best algorithm to solve traffic based problem , it help to identify various patterns to give appropriate solutions on the same
7. GPS one of the old methods for smart traffic management and lots of geographical data can be easily collected by the same for smart traffic management.

IV. APPLICATION OF INTELLIGENT TRANSPORT SYSTEM

The various ITS applications are described as follows: Traffic Control: It focuses mainly on prioritizing the modes of transport such as buses, cyclist, pedestrians and other emergency vehicles in order to evaluate the performance and study the reasons for traffic emissions and congestion.

Disaster management systems: Various technologies are used for this purpose in order to smooth the traffic flow and to provide medical and other related help in such cases.

Vehicle information and navigation systems: In-vehicle information system warns drivers about adverse climate conditions, road surface conditions, traffic jams and hazards including accidents. Navigation systems provide vehicle location information in real time and route guidance for driver to take optimum route.

Driver assistance systems: In order to save the driver from accidents these systems have replaced some human driver decisions with machine decisions which also help to achieve smoother vehicle control.

Air pollution control: Road transport is the major source of air pollution which has caused impact on human health and

environment quality. Various models and protocols are used in ITS to control air pollution.

V. PROPOSED SYSTEM

A Transportation problem often involve both quantitative along with qualitative data hence the use of expert and Fuzzy System is a better choice. Transportation deals with systems whose behavior is v hard to model with traditional approach, for such complex system, building empirical models based on observed data, may be the only option remaining. NNs given their universal function approximation capabilities are perfect tools for building such models. Transportation problem often lead to challenging optimization problems that are difficult to be solved by traditional mathematical programming techniques, as their relationships are difficult to specify analytically, due to the size of the problem and its computer intractability. For those GA can provide an alternative solution approach. The complex nature of the transportation system and the fact that their behavior emerges as a result of interactions among the different components of road transport system. The first aim is to develop a multicriteria analysis model for road network planning, which is suitable for situations found in developing countries such as lack of resources; three important keys in the model development are criteria determination, valuation of alternatives with respect to criteria and valuation of criteria weights. Second is to develop transport demand models that can meet several requirements, found in developing countries such as: can be applied using minimum data and resources (costs and technical expertise), can take into account the effects of road network.

Conditions on transport demand and are compatible with local situations; the transport demand models developed can be applied in situations where origin destination matrix is both available and unavailable.

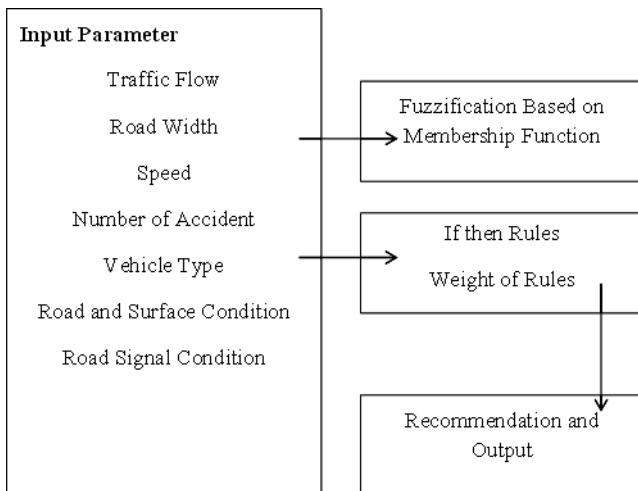


Figure 1: Proposed System

The proposed system is shown in the above diagram, which takes data as an input from input block, which includes data in a various parameters. After that the fuzzy method is used to

identify a pattern in the same for analysis of spatial data after that output is generator though spatial data analysis.

The two main aims for the study includes to develop a multicriteria analysis model for road network planning, which is suitable for situations found in developing countries such as lack of resources; three important keys in the model development are criteria determination, valuation of alternatives with respect to criteria and valuation of criteria weights. Second is to develop transport demand models that can meet several requirements found in developing countries such as: can be applied using minimum data and resources (costs and technical expertise), can take into account the effects of road network conditions on transport demand.

There are compatible with local situations; the transport demand models developed can be applied in situations where origin destination matrix is both available and unavailable.

VI. CONCLUSION

Traffic and transportation problems in medium sized cities of many developing countries have become grave matters of concern to the governments. Moog with the growing population concentration, the rapid increase in the heterogeneous motor traffic and provision of limited transport infrastructure facilities have become the prime reasons for these problems. While the problems of larger metropolitan cities are at least taken note of, those of medium sized are not even recorded. A strategic planning of transport systems will alleviate these problems to a greater extent. Transportation planning process consists of analysis of interaction between supply in the form of existing facilities and the demand in the form of traffic load.

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