

# **INTELLIGENT TRANSPORTATION SYSTEM:**

## **Review paper**

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### **ABSTRACT:-**

Transportation is the medium through which one can travel from one place to another place. In all form of transportation, road transportation is very common. Now these days road transportation is facing a lot of problem like signal rules break , high volume congestion, problem for pedestrian, hit and run case like conflicts etc. After keeping all these points in mind, I think Intelligent Transportation system (ITS) is the one and only solution for these problems. ITS has well established in developed countries from past two decades, but for under developing nation like India, China, South Africa, Brazil etc it is still an unknown concept. Motive behind this paper is just to give light on Intelligent Transportation System and its branches i.e. ATIS, ATMS, APTS, EMS etc. In this paper we will discuss about that how ITS will solve the above problems. Apart from that another point which will become the important part of ITS in future i.e. Sensor Based Road System. This paper is to compare analysis of different writers research papers on the concept of ITS. After analyzing other theories and some new concept regarding ITS this paper have been reviewed.

### **KEYWORDS:-**

ITS, ATIS, ATMS, APTS, EMS, SENSOR BASED ROAD SYSTEM

### **INTRODUCTION:-**

Intelligent Transportation System is the system which is based on advance technology. It uses advance information and telecommunication network, use of sensors in vehicle, electronic or digital technology for controlling the congestion and conflicts(accident).

It has been observed that from past two decades countries are developing a lot either in the field of infrastructure or in the field of transportation. Traffic problems are arising day by day, this is because of increase in the volume of running vehicles. This has increased the number of annual accidents too. This is the major problem faced by world. In that case ITS and its well designed feature will help to overcome this problem.

In this paper different concept of ITS have been studied and reviewed which have developed by the various researcher all over the world. Application of ITS for the traffic management and control has been categorized into four major parts i.e. ATMS, ATIS, APTS and EMS. They cover all the elements which are related to transportation and need to be improved.

Intelligent Transportation System works on the advance technology like communication (Bluetooth, internet, microwave etc), location detection (GPS) and geographical information system. Apart from that ITS is also based on data interpretation, camera system, artificial vision detection, digital mapping and classification in vehicle system.

In this paper we will explain how these major parts of ITS will efficiently solve all problems which are being faced by the current transportation system. The following are the major parts which will improve the transportation condition:-

**1. Advance Traveler Information System(ATIS):-** It is based on the advance communication and telecommunication such as internet, telephone, cellular phones, television, radio etc to inform the drivers and travelers in making the right decision regarding traveling, arrival, departure, possible routes, easy way or shortcuts and available sources of traveling. ATIS provides information to the driver about en-routes and pre-trip. En-routes informed about the all possible routes for reaching the destination. Pre-trip information provides the driver self confidence to use the freeway and to drive the safe journey. Global Positioning System play a vital role in ATIS.

ATIS is the topic of research since past 2-3 decades world-wide but in 1999 most of the work regarding ATIS has been done in U.S.A and European countries. Now in 21<sup>st</sup> century it has become the research topic for Asian and African countries.

**2. Advance Public Transportation System (APTS):-** APTS works on improving the public transportation and make it more comfortable and reliable for the public. In this way, it helps in increasing the ridership. APTS totally changes the old style of public transportation.

Because of APTS who wants to travel, already known with information of real time of any public transport and also know about the possible numbers of public transport towards his destination.

Hence we can say that APTS make the traveling in public transportation more easy and comfortable.

**3. Advance Transportation Management System (ATMS):-** ATMS is the most important part of ITS. This system is very helpful regarding knowing the volume of traffic on the particular route.

Suppose if someone have to go somewhere and there are two possible routes for reaching to the destination, then with the help of ATMS, he will be inform about the shortest as well as less traffic volume route. Hence it takes less time to reach the destination. So we can say that ATMS will help in controlling the traffic congestion by informing the travelers and drivers about the routes condition.

ATMS is mainly used by the traffic control department as a tool to control the traffic congestion

**4. Emergency Management System:-** Emergency management system is very important branch of ITS. It is the fresh topic of research in the field of ITS. EMS works on advance technology. The main motive behind it is to reduce the loss of life during any accident. As we know that in ITS all the routes are under the surveillance of camera system. Whenever in case of any type of conflict(incident) on any route, camera system with help of GPS and GIS catch that location and inform to the head office of operation of ITS,there they will call the ambulance and cop for that particular spot. In this way EMS help in saving several lives.

**Sensor Based Road System :-** Sensor Based Road System is the newest topic for the research in the field of ITS. It is the next level of the ITS. As it is not fully developed yet, it takes another decade to be developed.

The concept behind the sensor based road system is to make the vehicle driverless and make it run on automatic mode. The idea on which it is working is to provide the web of sensors on the surface of road which will be detected by the sensor provided on the vehicle and hence make it driverless driving. In this way with help of sensors strength and condition of materials which are used in road can also be detected. If this will going to be happen then ITS will reach at the next level of technology advancement.

**CONCLUSION:-** In the whole paper we discuss about the ITS and its feature. In developed nation it is fully developed but if we talk about the under developing nation still much more to be develop in the field of ITS. For under developing nation if ITS will fully develop then it will play a very vital role in developing that particular under developing nation. ITS is the step towards the Digitalization. We have also talk about the sensor based road system in the paper, if this will fully developed in coming time then trust me this will going to be the greatest achievement of the century in the field of transportation.

## **REFERENCE:-**

1. The journal of transport literature- Bhupendra Singh, Ankit Gupta
2. Intelligent transportation system-Summit Mallik
3. Balaji P.G. and shrinivasn D.(2011) type-2 Fuzzy logic based urban traffic management engineering application of artificial intelligence.
4. ITS for developing countries accessed from [siteresources.worldbank.org](http://siteresources.worldbank.org)
5. its handbook-world road association.

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