Intelligent Transportation System

Guided by:
Ms. Susan Rose
Lecturer
Civil engineering department

Submitted by:
Vineeth Raphael
S7 Civil
Roll no: 55
SNGCE
Introduction

- Traffic congestion-insufficient road development-growing number of vehicles.
- Low speed, increased accident rates, increased fuel consumption, and increased pollution.
- Impossible to build enough new roads or to meet the demand.
These explore the concepts that treat highway systems and the vehicles that use them as integrated system. Among them is the concept of Intelligent Transportation Systems.

The goal of I T S is to improve the transportation system to make it more efficient and safer by use of information, communications and control technologies.
NEED FOR ITS

India is going through a period of drastic change in the transportation area due to:

- Rapidly growing economy.
- Insufficient and inadequate public transportation system.
- Rising vehicle ownership levels.
Faster Vehicle Growth Rate

![Graph showing the growth rate of vehicles, household, persons, drivers, workers over years from 1969 to 2001.]
ITS

- ITS is comprised of a number of technologies, including information processing, communications, control, electronics.
- Joining these technologies to our transportation system will save lives, save time, and save money
Benefits of ITS applications
- Reduction in stops and delays at intersections
- Speed control & improvement
- Travel time improvement
- Capacity management
- Incident management
ITS PARTS

ITS ARCHITECTURE

- Framework for planning, defining, and integrating intelligent transportation systems.

Benefits of Architecture

- Reduces time and resources required to integrate the technologies to local needs
- Helps identify agencies and jurisdictions & seeks their participation
COMMUNICATION SYSTEMS

- Effective and efficient operation of transit systems relies on a communications infrastructure and vehicle-based communications technologies.
- Communications systems are used to transmit voice and data between transit vehicles and operation centers, and to transmit commands between operators and technologies.
- Transit communications systems are comprised mostly of wireless technologies and applications.
FLEET MANAGEMENT AND OPERATIONS

- These includes separate technologies often are combined in various software packages, which allow for the integration of many different transit functions.
- GIS allows transit agencies to accurately track where demand is located in their service area.
Fleet Management System
APPLICATIONS OF I T S

- ELECTRONIC TOLL COLLECTION (E T C)
- GLOBAL POSITIONING SYSTEM (G P S)
- ADVANCED TRAVELLER INFORMATION SYSTEM (ATIS)
- IN-VEHICLE TRANSIT INFORMATION SYSTEM
- AUTOMATIC PASSENGER COUNTER
ELECTRONIC TOLL COLLECTION

- Non-stop toll facilities and segregated traffic management.
- Electronic payment by means of contactless smart cards to promote fast passage through the toll lanes.
GLOBAL POSITIONING SYSTEM

- A system of satellites, computers, and receivers in which traffic data is incorporated in the map, the driver can get the fastest route, can know the position of the signals ahead, predict traffic jams, etc.
Merits And Demerits

Merits

- Travel to unknown destinations using best possible route
- Never get lost.
- Locate restaurants, highways, hospitals, etc.
- Use the traffic flow data to predict the traffic situations ahead

Demerits

- Additional cost of installation
- Lack of availability of detailed map of all regions
- Discrepancy b/w local names and indicated names
- Insufficient traffic data analysis to predict traffic conditions
ADVANCED TRAVELLER INFORMATION

- It helps to save the travel time, reduce cost reliability, more comfort to travelers, gives safety and security.
- The information which the travelers want are of both static and dynamic. Static information includes routes and schedules. Whereas dynamic information includes, traffic conditions, real-time transit schedules, incidents, weather, parking etc.
- Transportation Management Centers respond to real-time traffic conditions, control which lanes may be used, traffic signal timing.
IN-VEHICLE TRANSIT INFORMATION SYSTEM

- Announcing stops, transfer possibilities, based on the vehicle's location, route, and direction of travel.
- Information via variable message signs placed at one or more locations in the bus.
- Primarily motivated by support for the disabled, helpful for those unfamiliar with the route, when the bus is crowded, and when it is difficult to see outside the vehicle.
- Provides news and Weather, video clips, and other travel-related information on a flat-panel display.
AUTOMATIC PASSENGER COUNTER

- The APC automatically records the number of passengers, time and location of each stop as passengers get on and off the bus.
- The APC can collect data, with a reduction in time, cost, and effort by means of infrared beams at the doors or pressure sensitive mats on the steps.
- With the information provided by the APCs, transit planners can make changes to routes and schedules that better serve the transportation needs of their community.
ADVANTAGES AND DISADVANTAGES

ADVANTAGES OF I T S

- Improved safety
- Better traffic flow
- Lower travel cost
- Better environmental quality
- Increased business activity
- Greater user acceptance
- Better travel information
- Better planning information
DISADVANTAGES OF I T S

- Difficult to use in mixed traffic
- Preliminary difficulties in understanding
- ITS equipments costly
- The control system software could be hacked by hackers
CONCLUSION

- The use of I T S in some developed countries like America, Japan and England has given them high progress in the field of transportation. This helped them in their economic progress. Also the traffic congestions, rate of road accidents, wastage of fuels are decreased to a large extend. This gives the people of this country a more economic mean of transportation with advance information of transits. Now transportation has become a safer and efficient mode for these countries. Hence with much more interest and advanced research in the field of I T S, it can be implemented in our country and can prove to be the solution of the traffic problems including traffic congestion, air pollution and traffic accidents.
REFERENCE


THANK YOU