

Intelligent Transportation Systems.

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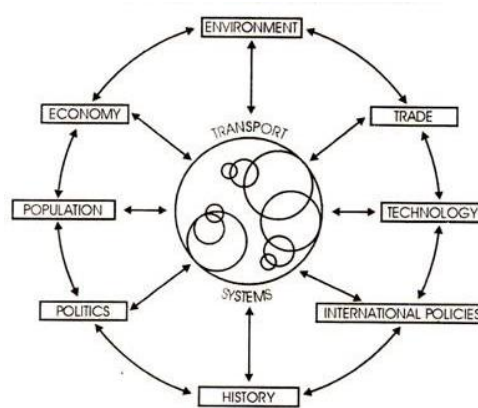
Abstract :

India consists of transport by land, water, and air. Public transport is the primary mode of transport for Indians, and India's public transport are among the most heavily used in the world. Due to the heavy use of this sector, there is a need for use of advanced techniques and methods to make its functionality more efficient and user friendly which are termed as Intelligent Transportation Systems (ITS). In this paper, we will see suggestions that can be implemented in India to the transport system.

1. Introduction :

In a rapidly developing country like India, there is a desperate need to develop the transportation system as well as this sector has direct impact on the growth of the country.

The movement of people and goods from place to place is known as transportation. Together with communication - the movement of ideas - transportation has been essential in bringing about the integration of regions and nations into a single world community. Transportation movements, combined into various systems and networks, are by way of land, water, and air and by such means as automobile, airplane, railroad, ship, and pipeline.



Transportation has always played a crucial role in industrialization of a country. Transporting raw materials to the factory, later transporting the finished goods to the market etc. are the essential processes of industry. Thus, adopting new techniques, advanced technology for transportation is necessary for any city or country to develop more rapidly.

Considering today's state of the industry, the following are new techniques and technology emerging in the field of transportation which can help India in building a more efficient transportation system :

- Computational technology.
- Sensing technologies.
- Dynamic traffic light sequence.
- Collision avoidance systems.
- Variable speed limits.

The above mentioned technologies are new in the industry and its application will certainly bring a positive change in the transportation system of India.

2. Intelligent Transportation Systems :

2.1 Computational Technology :

As we all know that vehicles are approaching towards more computerized approach and we can utilize this approach of the automobile industry for betterment of transportation systems.

Computational technology uses this vision and has leaped towards use of more capable computer processors in a vehicle which has proved a recent advances in vehicle electronics.

The present vehicular computers possess a more functional and effective computer and processor systems which have more software applications to be operated and also includes artificial intelligence.

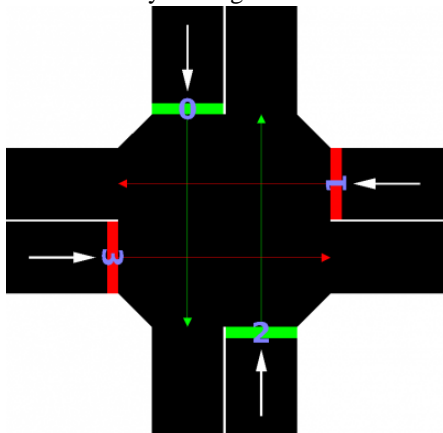
2.2 Sensing technologies :

The technological advances in the telecom industry and IT industry can also be fused with automobile industry to form a better transportation system. Introduction of Radio Frequency Identification (RFID) have enhanced the capabilities of the vehicular technology for safety benefits of the motorists to form an intelligent transportation system.

It uses sensors and processors to make the infrastructure and vehicles more intelligent artificially. It can help in reduction of accidents and can keep a check of vehicles on critical zones. Technologies such as number plate detection and vehicle magnetic signature detection can be linked using this sensing technology.

2.3 Dynamic Traffic Light Sequence :

RFID can also be used to develop dynamic traffic light sequence. This can solve the challenge of movement of large number of vehicles on the road which results in vehicular congestion on a large scale. It uses artificial neural networks algorithm to handle road traffic by intelligent traffic control system. Reduction of the density of vehicles is not



possible in cities but however management this traffic in a smarter way can be executed and this system is a perfect solution.

Floating car data is used to measure the volume of traffic on roads which is sent to central server through 3G network. Server calculates driver orders and sends the traffic light combination to traffic lights through 3G network. Thus, the circulation of vehicular traffic is made easier even in highly dense roads.

2.4 Collision avoidance system :

This system is already into existence in Japan. It has sensors fitted in the car that prohibits collision with another vehicle in its path. In a faster moving road or a slower moving traffic, the vehicle's radar detects the slower moving vehicle ahead. The system then provides audio and visual warnings to the driver. If not taken any action, the vehicle itself initiates braking to avoid or reduce the speed of collision.

2.5 Variable speed limits :

Considering the factors such as road congestions, some jurisdictions have been experimenting with the speed limits. Due to predefined speed limits, it is



Easier for the driver to forecast the road ahead and drive accordingly. It has certainly resulted in lesser journey timings, lesser accidents and smooth flowing traffic.

3. Conclusion :

Thus, we can conclude that in a rapidly developing country like India, adopting such new and advanced techniques for transportation will prove more beneficial in terms of functionality and safety. It will also solve the problem of dense traffic and slower flowing of traffic in city.

4. References :

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