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Smart Cities and Intelligent Transport Systems

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***Abstract**: The integration of technology into cities and transportation networks has the potential to improve the quality of life for residents, reduce congestion and pollution, and increase the overall efficiency of urban cities and their transportation system.*
Smart cities use technology to improve the efficiency and sustainability of urban areas. This can include things like smart lighting, the internet of things (IoT), energy management, artificial intelligence and smart transportation systems. An intelligent transport system is a component of a smart city that uses technology, to improve the efficiency and safety of the transportation network. This can include things like traffic management systems, real-time passenger information, and intelligent traffic signals. Together all smart cities and ITS can help to reduce congestion, improve air quality, and make cities more liable to residents.
Intelligent transport systems (ITS) can revolutionise the way people commute in metro cities. ITS offer a wide range of approaches to providing multiple transportation types, advanced infrastructure, and traffic mobility management solutions. It uses several electronics, wireless and communication technologies to provide consumers with access to a smarter, safer, and fast way to travel around the city

Keywords: Smart City, ITS, IOT, AI.

1. INTRODUCTION

The application of artificial intelligence into the city transportation system to move fast and safely between any two points of the city. Smart cities use technologies like the Internet of things (IoT), big data, and artificial intelligence to improve the performance of the urban system.
The concept of smart cities and Intelligent Transport Systems (ITS) is rapidly gaining attention as urban populations continue to grow and the need for sustainable and efficient urban environments becomes more pressing. Smart cities use technology to improve the efficiency and sustainability of urban areas, while it uses technology to improve the efficiency and safety

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of the transportation network. Together, these systems have the potential to make cities more liveable for residents by reducing congestion, improving air quality, and increasing the overall efficiency of urban systems.

The implementation of smart cities and ITS involves the integration of a wide range of technologies, such as the Internet of Things (IoT), big data, and artificial intelligence. These technologies can be used to improve the performance of urban systems by collecting and analysing data to optimize the functioning of various components such as traffic management, energy management, and emergency services. Additionally, smart cities and ITS can also have a positive impact on the social, economic, and environmental aspects of urban areas.
However, the implementation of smart cities and ITS also poses challenges, such as the need for significant investment, coordination among various stakeholders, and ensuring data privacy and security. Despite these challenges, the potential benefits of smart cities and ITS make it a promising area for research and development.
In this introduction, we will discuss the concept of smart cities and ITS, their potential benefits and challenges, and the current state of research and development in this field.

1.1 Important features of intelligent transportation systems in smart cities

Public transportation management
The main and important for the development of ITS in urban cities is to maximize the use of public transportation by improving the speed, safety and maintenance of public transportation.

Route information
One of the main features of this ITS is that it gives the best route on which the driver can reach the location quickly and safely.

Safety and vehicle control
We can achieve high safety and also handle a large chunk of traffic smoothly without jams and disturbances.

Electronic timetable
This system gives the exact time of public transportation details, traffic strength, etc.

Electronic payment system and single fare card
By using an electronic payment system we can collect taxes easily and quickly, which became very simple. There is no need to pay any double charge. With the adoption of electronic payment, we can fix single taxation for the same vehicles such as cars, lorries, trucks etc.

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1.2 Important technologies involved in ITS

Advanced tracking system

We require a more advanced tracking system than present trackers which should not only allow us to sense the location and also to sense the number of nearby vehicles.

Advanced sensing technologies

Very advanced sensors both in vehicles and signals to regulate the traffic.

Advanced video vehicle detection

Vehicles should be combined with cameras to look at what Is on the sides and back the time of parking.

Advanced traffic light system

To regulate the large chunk of traffic we require an advanced traffic lighting system which can work both manually and automatically.

1.3 Benefits of ITS in smart city

Minimizing of pollution
Security and safety
Smart parking solutions
The market for mobile apps

2. CONCLUSIONS

It is still a challenge for many nations to adopt and implement the intelligent transportation system in smart and metro cities, this is mainly because of the lack of funding and lack of infrastructure, lack of formal transportation, unplanned cities, poor public infrastructure etc.

But we are expecting that we may develop and implement this system in all our major cities by the end of the next generation.

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