Traffic management system & mobile application

Introduction

The rapid speed at which urban growth is proceeding is the primary cause of the increasing traffic congestion on city roads. Because of this, vehicles can be standing for a long time. Long-term standing affects the environment in the form of vehicle pollution, which causes human health issues related to breathing and delays in emergency situations such as accidents that may cause death. Stopping development to reduce traffic congestion may not be the solution; there are many other factors, apart from development, that contribute to traffic congestion. One of the factors is the increased number of vehicles, which can be worked on. So, it is very important to develop an intelligent system that can be used to reduce traffic congestion by addressing the number of vehicles. Nowadays, various types of technologies for advancement are being developed.

Traffic Software Applications in ITMS:

1.The next component is traffic software applications in ITMS. There are different traffic software applications, such as Waze, Google Maps, Navigator, TomTom GO, TomTom GO, HERE WeGo, MapQuest, INRIX, Citymapper, Waze for Cities, TransNav, OptiMap, TransModeler, Vissim, Aimsun Next, PTV Visum, PTV Vistro, PTV Map&Guide, PTV xServer, TomTom Traffic, TomTom Maps, HERE HD Live Map, and so on, that employ the generated data in real time.

2.These applications provide navigation, real-time traffic information, route optimization, and other features to the intelligent traffic management system (ITMS) to help drivers make informed decisions on the road.

3.They are constantly updated to provide the latest information and new features to improve the driving experience. It is challenging to determine which traffic software application is “better” because it primarily relies on personal demands and preferences. Some of the previously mentioned traffic software applications, which will be covered in the next section, have received a lot of positive feedback for the precision of their data, the real-time traffic updates that they provide, and the user-friendly nature of their user interfaces.

4.The crowdsourced traffic information that is Waze is GPS navigation software that employs user-generated data to give drivers real-time traffic updates and navigational assistance. It can be used to give data on traffic flow and congestion as a part of an intelligent traffic management system (ITMS).

5. Waze data may be evaluated and utilized to optimize traffic signals, enhance road layouts, and provide information for other traffic management choices. Waze is a useful tool for ITMS to increase traffic efficiency and safety since it can inform users about road closures, accidents, and other occurrences.

ITMS Applications:

A wide range of ITMS applications that all serve to highlight the effects of video-based network vehicle monitoring systems, including environmental impact assessment, safety monitoring, and Traffic Signal Control Systems.

1.Anomaly detection: Traffic congestion and vehicle accidents are both made more likely by driving in a way that is against the law. The use of video surveillance allows for the detection and enforcement of a variety of driving offenses, including taking an incorrect turn and failing to stop at a red light.

2.Security: A network-based surveillance system can record a vehicle’s trajectory across the road network to track a specific vehicle of interest. In combination with online streaming of real-time video, this technology helps law enforcement agencies benefit from monitoring and preventing criminal activity. The security personnel who are responsible for keeping an eye on multiple screens at the same time will find this to be beneficial.

3.The collection of vehicle tolls: The planning, execution, and dissemination of information concerning the autonomous operation of the vehicle selection system are the primary focuses of the ITMS.

4.Road construction and transportation planning: A monitoring system can detect bottlenecks and other anomalies in traffic flow by tracking traffic patterns. Real-time traffic data, the existing road network, and the planned road network are the three components that are used to develop an intelligent transportation system for roads. There are many examples of intelligent planning and research on urban congestion in the transportation sector.

5.Environmental impact assessment: Since quite a few years ago, the development of environmentally friendly transportation systems has been seen as one of the most significant approaches to addressing environmental issues such as climate change and the impacts of greenhouse gases. On a worldwide basis, the transportation industry has emerged as one of the most significant contributors to the aforementioned environmental issue.

6.Traffic Signal Control Systems: Traffic information in real time should be made available to drivers as quickly as possible to manage congestion efficiently. Because of the significant progress that has been made in recent years in the fields of CV and ML, it is now technically possible to design intelligent traffic signaling systems that do not require human monitoring. These systems can function without human intervention. In order to program traffic lights, you need to know the factors that characterize the traffic, such as the number of cars, how frequently they enter and exit the area, and so on.