

A REVIEW OF IMPACTS OF PEDESTRIAN DENSITY FLOW WITH EMPHASIS CHARACTERISTICS OF ACCIDENT AROUND INTERSECTIONS ON NH-10

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Abstract

The aim of this research is to investigate the influence that pedestrian density flow has on NH-10, with a particular emphasis placed on the aspects of collisions that take place at crossings. The writers analyse the link between the number of pedestrians, the flow of traffic, and the accident rates. They also investigate the characteristics that contribute to pedestrian accidents, such as age, gender, and conduct while crossing the street. The research analyses the elements that impact pedestrian safety on NH-10 by using data from accident reports and pedestrian counts. The study also makes suggestions for enhancing pedestrian safety at crossings based on the findings of the analysis. The results of this research may be helpful to transportation planners and legislators who are working to enhance pedestrian safety and minimise the number of incidents that occur on busy roadways. The research was based on a field survey that was carried out on National Route 10, which is located in India and is a very busy highway with a lot of pedestrian and vehicle traffic. The study examines a total of ten crossroads along the route and compiles information about pedestrian movement, traffic volume, and accident rates at each intersection. According to the findings of the research, there is a statistically significant association between the density of pedestrians and the number of accidents that occur at crossings, with intersections that see greater pedestrian traffic having higher accident rates. The majority of pedestrian collisions take place during the day, according to the findings of the research, and male pedestrians have a higher risk of being engaged in collisions than their female counterparts do. The authors recommend a number of different approaches, such as the construction of pedestrian crossings, the implementation of traffic slowing measures, and the enhancement of street lighting, in order to improve the safety of pedestrians at crossroads. They also urge a more stringent enforcement of traffic rules and regulations, as well as public education initiatives to promote awareness about the importance of pedestrian safety.

Keywords: pedestrian safety, pedestrian density, traffic flow, accident rates, intersections, NH-10

Introduction

Particularly in emerging nations, where the road infrastructure may not be ready to manage the expanding amount of automotive and pedestrian traffic, pedestrian safety is a crucial problem for transportation planners and politicians. In developed nations, pedestrian safety is a major concern. Accidents involving pedestrians may have serious repercussions, ranging from minor injuries to deaths, and can be brought about by a range of variables, including pedestrian conduct, driving behaviour, and the design of the road. Pedestrian accidents can be caused by

a variety of circumstances. The National Highway 10 (NH-10) is a major thoroughfare in India that sees a significant amount of foot and vehicle traffic on a daily basis. As a result of this, the safety of pedestrians is a primary priority for the decision-makers who are in charge of the traffic planning along this route. Previous research has investigated many facets of pedestrian safety on NH-10, including pedestrian behaviour as well as driving behaviour, among other things. Nevertheless, there is a need for more study that is more in-depth and that investigates the influence of pedestrian density flow on accident rates, especially at crossings. This research attempts to fill in this vacuum in the existing body of knowledge by investigating the effects of pedestrian density flow on NH-10. More specifically, the study will concentrate on the factors that are associated with collisions that take place near crossings. The research analyses the elements that impact pedestrian safety on NH-10 by using data from accident reports and pedestrian counts. The study also makes suggestions for enhancing pedestrian safety at crossings based on the findings of the analysis. It is anticipated that the results of this research would be beneficial for transportation planners and policymakers who are working to enhance pedestrian safety and minimise the number of accidents that occur on busy roadways. This study can help inform the development of effective policies and strategies for pedestrian safety on NH-10 and other similar highways by identifying the contributing factors to pedestrian accidents and providing recommendations for improving pedestrian safety. In addition, this study can help identify the contributing factors to pedestrian accidents. The method of quantitative analysis is used in the research project to investigate the connection that exists between pedestrian density flow, traffic flow, and accident rates. The research was based on a field survey that was carried out on New Hampshire Route 10, which included a total of ten different junctions along the route. The study gathers information on pedestrian traffic, vehicle volumes, and accident rates, all of which are subjected to statistical analysis in order to establish connections and establish patterns. The features of pedestrian accidents on NH-10, such as the ages and genders of pedestrians who were involved, as well as the many kinds of accidents that might occur, are also investigated as part of this research. This research takes into account a number of elements that might contribute to pedestrian accidents, such as pedestrian conduct, motorist behaviour, and road design. Based on these considerations, it offers suggestions for how these issues should be addressed to enhance pedestrian safety. The significance of this research lies in the fact that it presents an all-encompassing review of pedestrian safety along NH-10, with a particular emphasis on crossings. It is anticipated that the results of the research will help to the creation of evidence-based policies and strategies for increasing pedestrian safety on NH-10 and other roads with features that are comparable to those of NH-10. The study contributes to the current body of research on pedestrian safety and has the potential to direct further investigation into this topic.

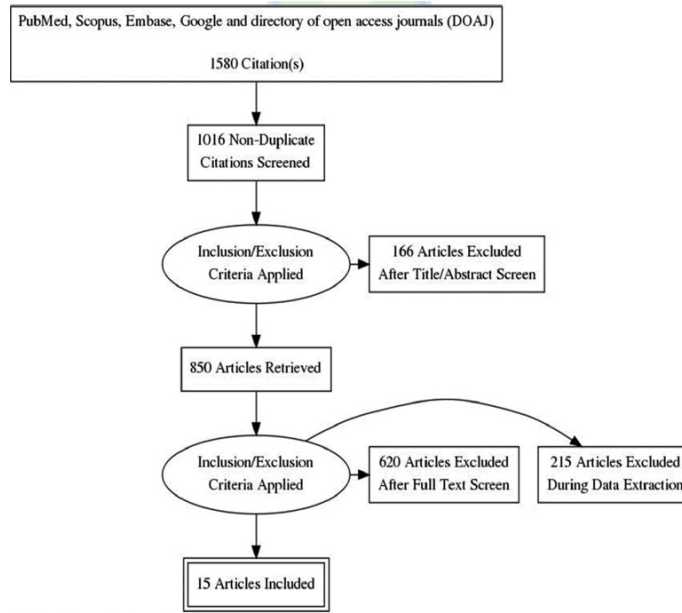


Figure 1: Flowchart of article selection process

Traffic and Pedestrians in Growing Cities

When cities expand, one of the most major challenges they might face is managing the increasing number of traffic and people. This problem is caused by a combination of a growing population, an increase in the number of people living in metropolitan areas, and an increased reliance on private automobiles as the major form of transportation. The protection of pedestrians is one of the most serious problems at the moment. The number of people walking on sidewalks and crossing roadways is expected to rise as a result of the growing population in metropolitan areas. This may result in a greater number of accidents and injuries, particularly in locations with high volumes of vehicles or pedestrian infrastructure that is deficient in some way. Cities have the ability to solve this problem by introducing traffic calming measures, such as lowering speed limits, increasing the number of crosswalks and pedestrian bridges, and increasing the number of police officers on duty. Managing the flow of traffic is still another difficulty. Congestion has the potential to become a big issue if the number of automobiles on the road continues to rise. This may result in longer commute times, worse air quality, and a decline in the citizens' overall quality of life. Cities may adopt intelligent traffic management systems for the purpose of managing traffic flow. These systems make use of real-time data to make adjustments to traffic signals and improve traffic flow. In addition, municipalities have the ability to promote the use of various alternative means of transportation in an effort to reduce the number of automobiles on the road. This involves encouraging the use of public transportation, such as buses and trains, as well as providing assistance for programmes that encourage walking and cycling. It is possible to promote the use of other modes of transportation and lessen dependency on automobiles by constructing infrastructure that is both secure and easily accessible for these modes, such as bike lanes and pedestrian routes.

In order to effectively manage traffic and pedestrians in cities that are expanding, a holistic strategy that places an emphasis on safety, sustainability, and accessibility is required. Cities have the ability to build urban settings that are more livable and sustainable for all of its citizens

by employing a mix of infrastructure upgrades, traffic management systems, and alternate forms of transportation.



Factors contributing to pedestrian density flow around intersections on NH-10

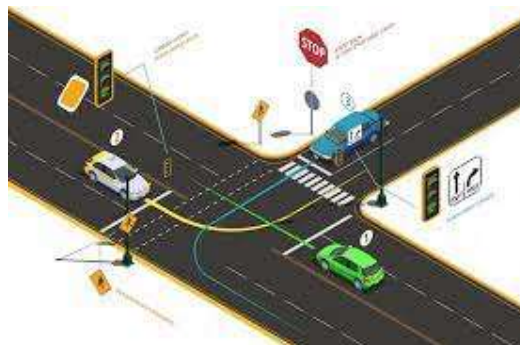
The NH-10, or National Highway 10, is an important highway in India that links the nation's capital city of Delhi to the state of Punjab. Its other name is the National Highway 10. A number of variables, including the following, may have an effect on the flow of pedestrian density near crossings on NH-10:

- **Population Density:** In general, there are more people walking about in neighbourhoods that have a greater population density. It stands to reason that the volume of foot traffic in the vicinity of a junction will be greater if that crossroads is situated inside a highly populated region.
- **Land Use:** A given junction's pedestrian density and flow may be affected by the kind of land use that surrounds the intersection. For instance, during business hours, there may be a greater number of pedestrians in the neighbourhood if there are commercial or retail facilities in the immediate vicinity. In a similar vein, at particular times of the day there may be a greater number of pedestrians in the area if there are schools or hospitals located nearby.
- **Infrastructure:** The quantity and quality of pedestrian infrastructure, which includes things like sidewalks, crosswalks, pedestrian signals, and foot overbridges, may also have an effect on the flow of pedestrian traffic. Infrastructure that is inadequate or that is not well maintained might deter pedestrians from utilising the area, which in turn can raise the risk of accidents.
- **Transportation Modes:** The availability and accessibility of different modes of transportation, such as public transit, private vehicles, bicycles, and rickshaws, can also affect pedestrian density flow. Areas with better access to public transit and alternative modes of transportation tend to have fewer pedestrians, while areas with more private vehicles tend to have more pedestrians.
- **Cultural Factors:** Cultural factors, such as the importance of walking in daily life, can also play a role in pedestrian density flow. In some areas, walking is the primary mode of transportation, and as a result, there may be a higher density of pedestrians in those areas.

Strategies for improving traffic safety around intersections on NH-10

Improving traffic safety around intersections on NH-10 requires a comprehensive approach that addresses multiple factors. Here are some strategies that could be implemented:

- **Improve Infrastructure:** Ensuring that intersections have well-designed and well-maintained infrastructure is crucial for improving traffic safety. This includes installing appropriate traffic signals, pedestrian crossings, and pedestrian bridges. In addition, well-marked crosswalks, road markings, and signs can help prevent accidents.
- **Traffic Calming Measures:** Implementing traffic calming measures such as speed humps, roundabouts, and chicanes can help reduce vehicle speeds around intersections, improving safety for pedestrians and drivers alike. These measures also help to slow down traffic flow and improve the overall efficiency of the intersection.
- **Improve Lighting:** Adequate lighting can help improve visibility and reduce accidents around intersections. Improved lighting can include additional streetlights, improved lighting at crosswalks, and better lighting at intersections.
- **Enforcement of Traffic Laws:** Strict enforcement of traffic laws such as speed limits, use of seatbelts, and helmet use can help reduce accidents around intersections. Police can also focus on monitoring intersections to catch drivers who run red lights or stop signs.
- **Education and Awareness:** Educating drivers, pedestrians, and cyclists on safe behavior around intersections can help reduce accidents. This could include campaigns on safe driving practices, pedestrian safety tips, and targeted outreach to schools or other high-risk areas.
- **Promote Alternative Transportation:** Encouraging the use of public transportation, bicycles, or walking can help reduce traffic congestion and improve safety around intersections. Providing bike lanes and pedestrian paths can also make it safer for people to use alternative modes of transportation.



Review of literature

(Fattah et al., 2021) Studied “*The impact of urban street median in pedestrian behavior and traffic flow: Experience from a growing city Khulna, Bangladesh* and concluded that careful development of public transportation systems is the hallmark of a long-term sustainable city. Urban traffic flow and the efficiency of transportation are crucial to this ecosystem. Barricades positioned in the median help regulate the flow of pedestrians and other road users crossing the roadway and prevent automobiles from crossing into oncoming traffic lanes. This study aimed to compare the effects of a flexible median with those of a stiff median on traffic and pedestrian behaviour in the city of Khulna. Seven of the city's major highway intersections were physically surveyed to calculate traffic volume, travel time, and speed, and to tally the number of people using each crossing. A variety of metrics were studied: passenger car units, low-speed percentage, road segment congestion index, and volume-capacity ratio in addition to road use

efficiency and traffic efficiency. The results show that the flexible median is not preferable to the rigid median when it comes to controlling pedestrian road crossing behaviour. The study found that around 85% of pedestrians randomly cross streets via flexible road medians. It's a well-known fact that traffic congestion is a major problem in major urban areas, causing delays and frustration for drivers and pedestrians alike. The R2 value of 0.9661 indicates that there is a statistically significant relationship between the number of pedestrians on the road and the average speed of passing automobiles. Complete data on designing and modifying stiff medians on major urban freeways is provided by this study for use by transportation planners. This improves the effectiveness and safety of road use, which aids in maintaining a resilient urban transportation network.

(Mukherjee & Mitra, 2022) Studied *What affects pedestrian crossing difficulty at urban intersections in a developing country?* and found that accidents involving pedestrians on the road have become a major cause for concern in developing countries. Conventional approaches, which rely on analyses of past crash data, are now virtually the only option for conducting road safety assessments and choosing appropriate measures. However, there are major problems with the availability, consistency, and accuracy of accident data in developing countries like India. Proactive methods, in contrast, have emerged as an alternate way for evaluating future risk factors. The study of drivers' perceptions of danger is one example. The likelihood of an accident as perceived by a person is crucial data that may be used to pinpoint high-threat areas and identify leading causes of accidents. It's logical to assume that pedestrians' perceptions of risk, measured in terms of the difficulty of crossing, would also differ from location to location. This is because there is substantial variation in the risk of pedestrian fatality throughout the level of urban road networks. In this regard, the present research provides quantitative evidence linking pedestrians' perceptions of the difficulty of a crossing with the frequency of actual accidents. According to the model's predictions, the frequency of fatal pedestrian accidents at junctions in Kolkata City, India is strongly correlated with pedestrians' estimates of how difficult it is to cross the street. Next, we build an ensemble of Ordered Logit models to examine the factors that determine how challenging it is for pedestrians to cross the street. Exposures to traffic, road infrastructure, land use, spatial considerations, and pedestrian-level characteristics are all examples of these issues. According to the model's findings, factors such as high pedestrian and vehicle volume, high vehicular speed, the absence of a designated bus stop, the presence of an inaccessible pedestrian crosswalk, on-street parking, the absence of signalised control (for both vehicles and pedestrians), inadequate sight distance, land use pattern, slum population, pedestrian-vehicular post encroachment time, waiting time before crossing, road width, and the absence of police enforcement at an intersegmental crossing all contribute to Finally, the model's findings are put to good use in the process of creating a suite of countermeasures for the three E's of road safety. (Ma et al., 2020) Studied *Analysis on Illegal Crossing Behavior of Pedestrians at Signalized Intersections Based on Bayesian Network* and found that pedestrians don't always cross the roadway at signalised intersections when and where the regulations say they should. The efficacy of safety measures in these contexts is often greatly diminished by this potentially harmful behaviour. Knowing the nature of criminal behaviour is crucial for developing focused and efficient responses to crime. The goal of this essay was to look at the characteristics of

illegal crossings and how those characteristics affect the decisions individuals make about their behaviour. The initial stage was to classify illegal crossing behaviours at signalised intersections into two groups: crossing against the light and crossing in an undesignated area. Second, we acquired two sets of data to obtain a fuller picture of the behaviours. Three signalised intersections in Guangzhou, China were the subject of video-based monitoring, yielding a total of 3,334, all-legitimate incidents of unauthorised crossing. One data set was gathered as a result of this observation. The results of an online survey questionnaire provided yet another piece of information, with 275 valid responses. Finally, presentational characteristics of illegal crossings at signalised intersections were analysed, and two Bayesian network-based behaviour models were developed to examine characteristics and their impacts on the two types of illegal crossing behaviours: crossing at a red light and crossing outside of a crosswalk.

(Mansfield et al., 2018) Studied *The Effects of Roadway and Built Environment Characteristics on Pedestrian Fatality Risk: a National Assessment at the Neighborhood Scale* It was shown that the risks of pedestrian deaths are exacerbated by certain features of the built environment and the transportation system. Some aspects of automotive traffic and land use are listed below that are linked to a higher volume of pedestrian activity. We used regression modelling to examine connections between transportation system and built environment characteristics and the number of pedestrian deaths in the United States between 2012 and 2016, down to the level of the Census tract. Data sources included the Federal Highway Administration, the National Highway Traffic Safety Administration, the Environmental Protection Agency, and the Census Bureau. The fatalities were reported between 2012 and 2016, and the inquiry was performed at a high level in the United States. Specifically, we observed that there were 0.91 and 0.68 more yearly pedestrian deaths per 100,000 people for every 10,000 vehicle miles travelled per square metre (VMT/m²), respectively, on non-access-controlled primary arterial and minor arterial highways in metropolitan areas. In regards to pedestrian fatalities, some correlations were discovered. The findings may also be applied to larger urban areas. The availability of retail employment was also significantly correlated with lower rates of pedestrian deaths in both urban and rural areas. Accidents resulted in these fatalities. When everything was said and done, we compared our approach to that of the High Injury Network in Los Angeles, California. Some deaths, however, could be identified using just one of the two methods. Forty-three percent of observed fatalities were correctly identified by the combined approaches (19 percent by our model and 23 percent by the High Injury Network).

(et al., 2016) Studied *Effect of Pedestrian Characteristics at Signalized Intersection* He learned that signalised intersections are included in traffic networks to improve the security and efficiency of pedestrian and vehicular traffic. Because of the wide range of traffic and the absence of discipline in India, it is hard to use methods developed in other nations. Traffic engineers have a hard time gauging pedestrian crossing behaviour because it varies greatly from person to person and because pedestrians often break the green phase (when automobiles are moving) to shorten their wait at the expense of their safety. This study attempts to evaluate pedestrian behaviour at a signalised intersection at Pattom Junction, Trivandrum, Kerala in relation to sociodemographic variables including age, gender, and crossing frequency. Several interesting discoveries on how pedestrians adjust their crossing speed in response to the timing

of the signal and the length of the crosswalk were discovered via the study of field data. The average speed of pedestrians crossing the street was found to be lower than the 1.2 m/s recommended by the Indian Road Congress (1985). The average walking speeds of male pedestrians are greater than those of female walkers, and those of adults are higher than those of the elderly, according to an analysis of pedestrian walking speeds by gender and age. In light of the increasing interest in pedestrian safety throughout the world, this study also examines the need of implementing traffic management strategies to ensure the safety of pedestrians.

(Y. Wang et al., 2017) Studied *Indicators for traffic safety assessment and prediction and their application in micro-simulation modelling: A study of urban and suburban intersections* It found that the colossal number of severe injuries and fatalities caused by traffic accidents is now widely recognised as a major public health concern on a global scale. As a direct result, international and national courses of action have been agreed upon to address these difficulties. Sweden's long-term political goals for traffic safety include the development of a sustainable and effective road transportation system with the ultimate goal of achieving zero serious injuries or fatalities (also known as the zero-vision). In transportation planning and traffic engineering, evaluating and predicting the effects of new and alternative safety improvement measures requires approaches that are rapid, reliable, and effective. This action is essential for accomplishing the planned outcomes. These methods must provide a specified degree of traffic system safety while simultaneously catering to a wide range of other important objectives, such as improved traffic flow, increased capacity, and reduced environmental impact. When taken as a whole, these factors are essential building blocks for a long-term viable transportation system. Proximal safety indicators are explored as a potential replacement for accident statistics in this thesis, along with the many other concepts, theories, and approaches related to effective short-term traffic safety evaluation. This issue was picked because it has some bearing on the main argument of the thesis. Due to their potential use in quantifying the proximity of safety-critical events in space and/or time, indicators of safety are often linked to accidents.

(Lord et al., 1998) studied *pedestrian accidents with left-turning traffic at signalized intersections: characteristics, human factors and unconsidered issues* It discovered that accidents involving automobiles and pedestrians constitute a significant threat to the public's health and safety in every nation on the planet. According to the National Safety Council, pedestrians account for close to 20 percent of all deaths that occur as a result of automobile accidents in the United States (1). In terms of these deaths, rural regions account for 26% of all cases, whereas metropolitan areas account for 74% of all cases. In a similar vein, around 17 percent of pedestrian incidents that do not result in fatalities take place in rural locations, whereas 83 percent take place in metropolitan settings. It should not come as a surprise that metropolitan regions have a particularly severe issue with pedestrian accidents given the much greater rates of pedestrian activity in urban settings. In conclusion, it is believed that junctions are the sites of forty percent of all accidents involving pedestrians. Within the scope of this study are accidents involving pedestrians and vehicles turning left at signalised junctions. To be more precise, this study summarises the research that has been done on drivers and pedestrians, with a focus on the role that human factors play. To begin, we will have a conversation about the many factors that might lead to incidents involving pedestrians and left-turning autos. Next, we will discuss the many different human elements that are associated

with driving. Both the left-turn manoeuvre and the optical search for pedestrians are connected to these.

(Adler & Ahrend, 2017) Studied *Traffic Safety in South Korea: Understanding the Vulnerability of Elderly Pedestrians* and came to the conclusion that the traffic is hazardous. An estimated 1.25 million people are killed on the world's roadways every year, and over half of these fatalities are sustained by those who are the most defenceless: walkers and (motor)cyclists (WHO, 2015). 4 At the moment, the benefits and dangers of being in vehicle traffic may not be evenly distributed across persons. The most urgent dangers, such as death and injury from roadside accidents, have a strong relationship with the socio-economic characteristics of the people who were engaged in the accident. Along the same lines as other policy-relevant concerns, it would seem that the most defenceless members of society, such as the elderly and the economically disadvantaged, are in danger. Our goal is to demonstrate the vulnerability of senior pedestrians and vehicle passengers in South Korea as well as the socio-economic factors that contribute to that vulnerability. Over the course of the last several decades, South Korea has seen fast economic growth, which has been followed by rapid road extension, motorization, and rise in traffic. As a direct result of this, the number of people injured and killed by the side of the road is quite high in comparison to other nations. South Korea has one of the highest rates of fatalities caused by road accidents per person when compared to other OECD member nations (OECD, 2016). Particularly, pedestrians and people of advanced age are thought to be at a greater danger than they would be in other nations. 5 The fact that South Korea has just very recently joined the ranks of the industrialised world, in addition to having a death toll from traffic accidents that is far higher than average, makes the country an especially intriguing topic for academic inquiry. Over the course of the last decade, as a result of advancements in automobile safety and legislation, the number of traffic accidents in Korea has consistently decreased by around one-quarter. In 2014, there were about 220,000 incidents, with nearly 5,000 people losing their lives as a result (KoROAD, 2015)

(Romer, 2018) Studied *An integrated systems methodology for pedestrian traffic flow analysis* They discovered that walking is the mode of transportation used the most often all around the globe. The safe and effective movement of motorised vehicles has been given a higher priority in the United States than the accommodation of pedestrians, who have been relegated to a secondary position. For instance, pedestrians were not allowed on the right-of-way during the design and building of the federal interstate or national defence freeway system, which was the greatest national roadway project in the history of the United States. The following section offers a historical continuity, despite the fact that it may seem as if the status of pedestrian travel in the United States is relatively low when compared to that of other modes of transportation in the country. (21) It is important to remember that pedestrians were the ones who came up with the idea for the vehicle; nevertheless, motorists seem to have swiftly forgotten this fact. Meek and savvy pedestrians started to be squished. Automobilists have taken over the streets that were originally designed for foot traffic. The width of the roads was increased to double what it had been, the width of the sidewalks was reduced to the width of tape, and people started cowering against the walls of the buildings out of dread.

(Thompson et al., 2013) Studied *Impact of social and technological distraction on pedestrian crossing behaviour: an observational study* It was found that accidents between motor vehicles

and pedestrians continue to be a significant source of serious injuries. Each year in the United States, an estimated 60,000 pedestrians are injured and 4,000 are killed as a result of these crashes. 1 Pedestrians and other vulnerable road users are responsible for about half of all deaths that occur as a result of road traffic accidents across the globe. 2 It is necessary under traffic regulations in the state of Washington, as well as in the majority of states in the United States, that motorists give pedestrians the right-of-way in crosswalks and at crossings. This rule is similar to the one that applies in most of the other states. 3 4 The fact that pedestrians have the legal right of way does not free them of the need to look out for their own safety, regardless of whether or not vehicles must yield to them. A few examples of cautious behaviours include making use of sidewalks and crosswalks when they are available, obeying traffic signals, and looking in both ways before entering the street. According to the findings of a recent study, the actions of pedestrians might be responsible for as much as 15 percent of all deaths. In addition to this, the poor design of certain intersections and risky driving practises are also to blame for the fatalities of some pedestrians. 5 According to a research, twenty-one percent of pedestrians that were observed in the city of Vancouver (British Columbia, Canada) were found to have committed one or more crossing offences at some point during their observation. As is the case with driving while distracted, it is likely that individuals will walk while distracted becoming increasingly commonplace as an increasing number of people carry electronic devices around with them everywhere they go. As of the year 2011, there were more phones than people in the United States of America, and it is expected that the number of mobile phone users globally would reach 5.9 billion.

(Bagloee et al., 2016) Studied *Autonomous vehicles: challenges, opportunities, and future implications for transportation policies* and came to the conclusion that This study examines the possible challenges and opportunities that may arise in connection to transportation policy as a result of the development of autonomous vehicle (AV) technology. These potential challenges and opportunities are analysed in this study. AV technology have the potential to lower the cost of transportation while simultaneously boosting accessibility for families with low means and those who struggle with mobility. This would be beneficial for both groups of people. The applications of this new technology will have implications that will have an even greater impact than anybody could have ever imagined at this moment in time. This research includes a comprehensive review of the relevant literature and analyses a broad variety of themes, ranging from the moral implications of using machines to worries about the safety of such devices. It is vital for any prospective development of autonomous cars to have the capacity for communication between vehicles as well as between vehicles and infrastructure (connected vehicles). Regarding the behaviours of routing, there is a considerable knowledge gap in the area of audiovisual technology. This gap in information is enormous. The development of technology that makes it possible for cars to communicate with one another gives a tremendous possibility for the creation of a navigational system that is both efficient and informative. The provision of a conceptual navigation model that is based on a fleet of autonomous cars that are centralizedly dispersed across a network in an attempt to optimise the system is one of the means by which we plan to accomplish this objective. This model was developed by our team. This study makes a contribution to the existing body of research in two distinct ways: I it makes an effort to shed light on future opportunities as well as possible

hurdles associated with AV technology; and (ii) it conceptualises a navigation model for the AV that leads to highly efficient traffic circulations”. Both of these aspects of the study are important to the advancement of the field. Both of these facets are essential in their own way for the overall picture.

Conclusion

Safety issues for both pedestrians and motorists have arisen due to the increased foot traffic at crossings on NH-10. When there are plenty of people crossing at once, it might make accidents more likely and slow down traffic. For successful methods to enhance traffic safety, it is essential to understand the characteristics of accidents at junctions along NH-10. The nature of the junction is a significant factor in NH-10 collisions. More accidents occur at intersections with more lanes of traffic and more complicated signals. The actions of pedestrians are also major contributors to collisions in these areas. When pedestrians ignore traffic signs and cross the street against the flow of traffic, they put themselves and motorists at danger. When it comes to collisions at NH-10 crossings, vehicle speed is a major influence. In regions with a large concentration of pedestrians, the danger posed by fast-moving vehicles is amplified. Accident severity may also be affected by the vehicle type. Larger vehicles, such trucks and buses, pose a greater threat to pedestrians in the event of an accident. Significant consequences on traffic safety may result from high pedestrian volumes at NH-10 junctions. For effective policies to be developed to enhance traffic safety, it is crucial to understand the characteristics of incidents that occur at crossings. Safer and more efficient conditions for all NH-10 users may be achieved by the implementation of a comprehensive strategy that takes into account infrastructure, traffic legislation, education, and alternative transportation choices.

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