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A Review on Traffic Management and Road Analysis of Porwal Road

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Abstract: ***Traffic congestion is a major problem in many cities of India along with other countries. Failure of signals, poor law enforcement, and bad traffic management has to lead to traffic congestion. One of the major problems with Indian cities is that the existing infrastructure cannot be expanded more, and thus the only option available is better management of the traffic. Traffic congestion has a negative impact on the economy, the environment, and the overall quality of life. Hence it is high time to effectively manage the traffic congestion problem. In cities, where the number of vehicles continuously increases faster than the available traffic infrastructure to support them, congestion is a difficult issue to deal with and it becomes even worse in case of car accidents. There are various methods available for traffic management such as video data analysis, infrared sensors, inductive loop detection, wireless sensor network, etc. Traffic congestion is a major problem in many cities of India along with other countries. Failure of signals, poor law enforcement, and bad traffic management have led to traffic congestion. This problem affects many aspects of modern society, including economic development, traffic accidents, increase in greenhouse emissions, time spent, and health damages.***

Keywords: Traffic Congestion, Car accidents, Traffic Management, Health Damages.

I. INTRODUCTION

Traffic management is the organization, arrangement, guidance, and control of both stationary and moving traffic, including pedestrians, bicyclists, and all types of vehicles. Its aim is to provide for the safe, orderly, and efficient movement of persons and goods, and to protect and, where possible, enhance the quality of the local environment on and adjacent to traffic facilities. This book is an introduction to traffic management, written in laypersons' language, assuming no background knowledge of the subject. Various basic traffic characteristics relating to road users, vehicles and roads, and traffic regulation and control, are discussed, including some traffic volume and traffic flow considerations relevant to traffic management.

For effective traffic management, it is essential that the practitioner works from factual information. Road inventory and statistical methods, and the more common types of traffic studies, including traffic volume and composition, origin and destination, speed, travel time and delay, accidents, and parking are described.

"Before and after" studies, & estimation of future traffic are also covered. As a basis for logically applying traffic management techniques, it is necessary to develop a classification or hierarchy of all roads to ensure that the primary purpose of each of them is defined, agreed and understood.

Traffic congestion plays a vital role in day-to-day life. It is a situation where a huge crowd of vehicles takes place due to improper traffic rules and also by the accidents on the road. It is mainly caused due to increased population. It has been a serious problem in many cities that people have to face daily.

Wastage of fuel and time occurs regularly due to traffic congestion. Traffic control, and supervision of the movement of people, goods, or vehicles to ensure the efficiency and safety of Porwal Road.

II. PROBLEM IDENTIFICATION

Traffic management in the cities requires proper plans and management of traffic because there is a huge traffic problem there. The roads are lesser and vehicles are more. The stream of traffic is to be maintained because it directly affects the country's personnel. There are many accidents and other types of fatal incidents that are caused by the improper management of traffic. To minimize road incidents and to save the lives of people, traffic management plans are designed to ensure the safety of the drivers and the personnel.

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III. OBJECTIVES

1) To reduce the number of accidents.
2) To minimize the clash between vehicles and pedestrians.
3) To control and manage the vehicles and parking.
4) It helps in regulating the movement of vehicles by reducing traffic density.
5) The main objective of this project is to reduce traffic congestion by increasing the traffic flow. This can be done by controlling the traffic.

IV. LITERATURE REVIEW

The movement of traffic on urban streets by determining the appropriate signal timing settings. The proposed algorithm was based on the so-called memetic algorithm that combines the strengths of the genetic algorithm and local search in an adaptive manner. In that used two important techniques for improving the performance of traditional memetic algorithms. First, a systematic neighborhood-based simple descent algorithm was employed as a local search to effectively exploit the search space. Second, an indicator scheme was proposed to control the local search application based on the quality and diversity of the search process. The proposed algorithm was coded in the commercial microscopic traffic simulator, AIMSUN, and tested on two different real-world case studies in Brisbane, Australia, and Plock, Poland. The results demonstrated that the proposed algorithm was better than genetic algorithms and fixed-time settings, indicating that the proposed algorithm was an effective solution method for traffic signal optimization problems.[1]

Giacomo Como focused on a class of dynamic feedback traffic signal control policies that are based on a generalized proportional allocation rule. These results in a differential inclusion for which there prove the existence and, in the special case of orthogonal phases, uniqueness of continuous solutions via a generalization of the reflection principle. Stability is then proved by interpreting the generalized proportional allocation controllers as minimizes of a certain entropy-like

A function that is then used as a Lyapunov function for the closed-loop system. [2]

For the right functioning of the roadway system controlling driving speed is taken into account to be an efficient approach to improving driving safety, driving velocity of the vehicle plays a vital role in accident incidence, and higher velocity of the vehicle can cause accident chances (8). Road safety is one of the foremost necessary problems concerning the loss of life. For the reduction of the velocity of vehicles as well as severe accidents, numerous traffic engineering measures are used (20). One of the foremost common strategies used is the placement of traffic calming devices are speed humps‟ and „speed bumps‟. These speed humps and speed bumps are the barriers that are placed across numerous roads to lessen the velocity of incoming motors. “There are dynamic speed bumps which are different from conventional speed bumps”. Dynamic speed bumps are called advanced speed breakers or automatic speed breakers; this is a totally new idea to save you the accidents and control the velocity of vehicles across the bumps. They possibly activate if a vehicle is traveling higher than the limit. Vehicles traveling at this speed won’t encounter the discomfort caused by conventional speed bumps. Advanced speed breakers are of time demand as per necessities; at the point when there is no need for a speed breaker at the street, it vanishes from the street and the street turns out to be level and at the point where there is a need then the speed breaker goes ahead the street by pivoting itself from its level position and it begins its operating of slowing the velocity of vehicles (International Transport Forum). [3]

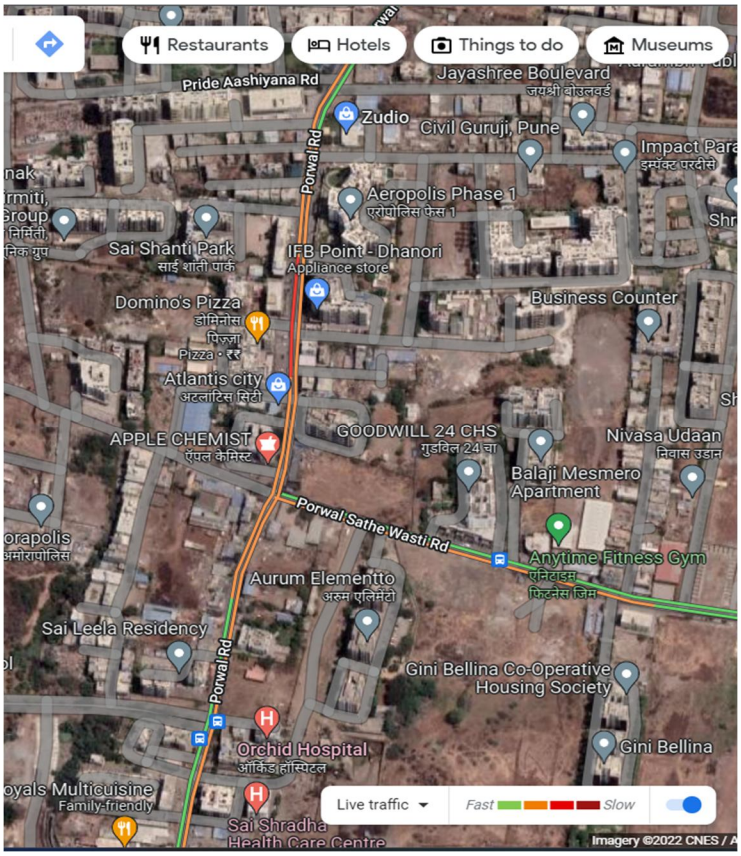
In As part of the traffic control plan, road markings form the traffic surface and provide visual guidance for road users. Since their first application to the present day, road markings have become a common element of road infrastructure and one of the basic low-cost safety measures. *e aim of this paper is to provide a systematic review of the most significant academic activities to date regarding the influence of longitudinal and transverse road markings as well as road markings for hazard locations (curves, intersections, and rural-urban transitions) on driver’s behavior and overall road safety. *e review includes a total of 71 studies from which are 52 peer-reviewed journal studies, 4 conference proceedings, and 15 professional reports. *e studies are, based on their aim, divided into two categories: (1) studies on the impact of road markings on driver behavior (36 studies) and (2) studies on the impact of road markings on road safety. [4] Freeway traffic incidents are an important factor to estimate the performance measurement of the freeway. It disrupts the normal traffic flow pattern of the freeways. The most common form of traffic incidents are accidents, debris on the freeway, mechanical breakdown of vehicles, and roadside fires. Moreover, a more comprehensive definition is “incident is any non-recurring event that reduces the capacity of the roadway or increases the demand. Such events include traffic crashes, disabled vehicles, spilled cargo, highway maintenance, and reconstruction projects, and special non-emergency events.” The effect of traffic incidents may vary from time to time. Congestion can be caused by routine traffic volume at a bottleneck known as recurrent congestion or traffic incidents such as traffic accidents.[5]

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V. PORWAL ROAD ANALYSIS

Porwal road starts from the old Octroi chowk on the Dhanori Lohegaon road and ends, connecting to D Y Patil Road. On this entire stretch of Porwal Road, many new housing societies are coming up, while there are two major high schools as well. So, working people, students, and women have to travel through this road on a daily basis. The only other option is to take a 6 km long route going from Lohegaon village.





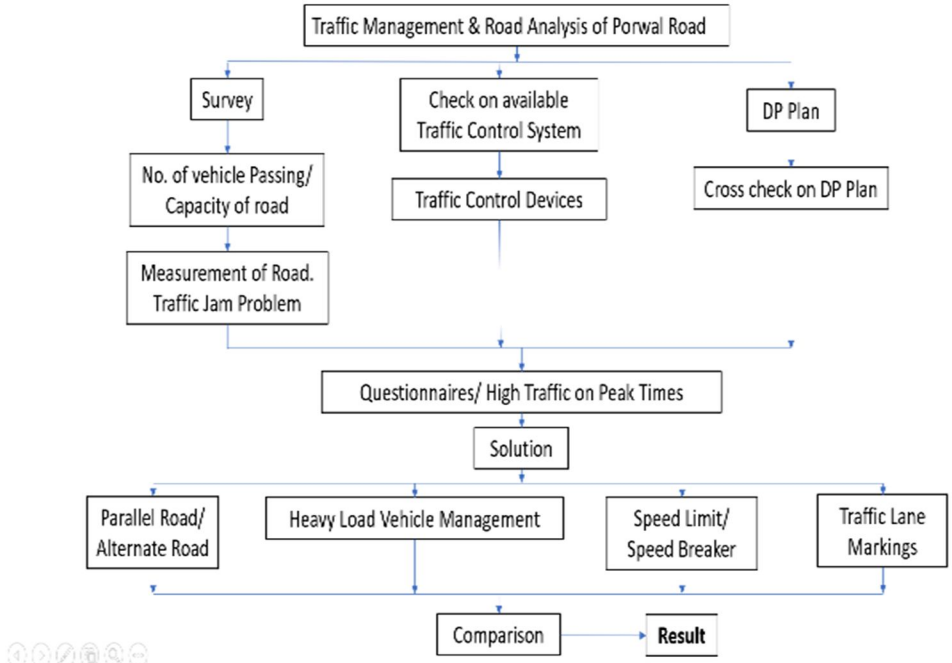
From Jakat Naka, only 200m of the road was constructed. Then 300m patch was ignored and the remaining 900m is constructed till Nyati Evita.

That 300m patch is incomplete because Martheopolis School has not handed over the land required and neither PMC nor any political leader has shown interest in the acquisition process. In fact, even when the tender was given to a contractor, the work at that 300m patches was stopped citing the bridge requirement at nullah near BU Bhandari. But this was only an excuse. So, just 300m of incomplete part is forcing the citizens to use the narrow Porwal Road. That 300m of small part is incomplete because of land acquisition issues. Also, the 200m portion at Jakat Naka has become a den for anti-social elements & a scrapyard. Illegal activities happen there.

Porwal road is a 10 to 20 feet road used by more than 50,000 residents daily. From 7 am to 9 pm, the traffic situation remains grim. D P road continues to be a work in progress. The LRWA has already suggested a short-term solution in the form of a diversion from the Kamlai dairy square, which is a bottleneck towards Orchid hospital. The situation is getting worse. We see that even after paying taxes for the highly underdeveloped Lohegaon area, the people there are feeling cheated by the civic body. There are so many accidents occurring daily and, in some cases, ambulances are not able to reach the hospital in time.

VI. METHODOLOGY

The aim towards Traffic management & road analysis of Porwal Road. The aspects of Traffic management & road analysis monitoring network such as, which has major problems should be monitored. The legal requirements in Pune for carrying out Traffic management & Road analysis of Porwal Road are also discussed.

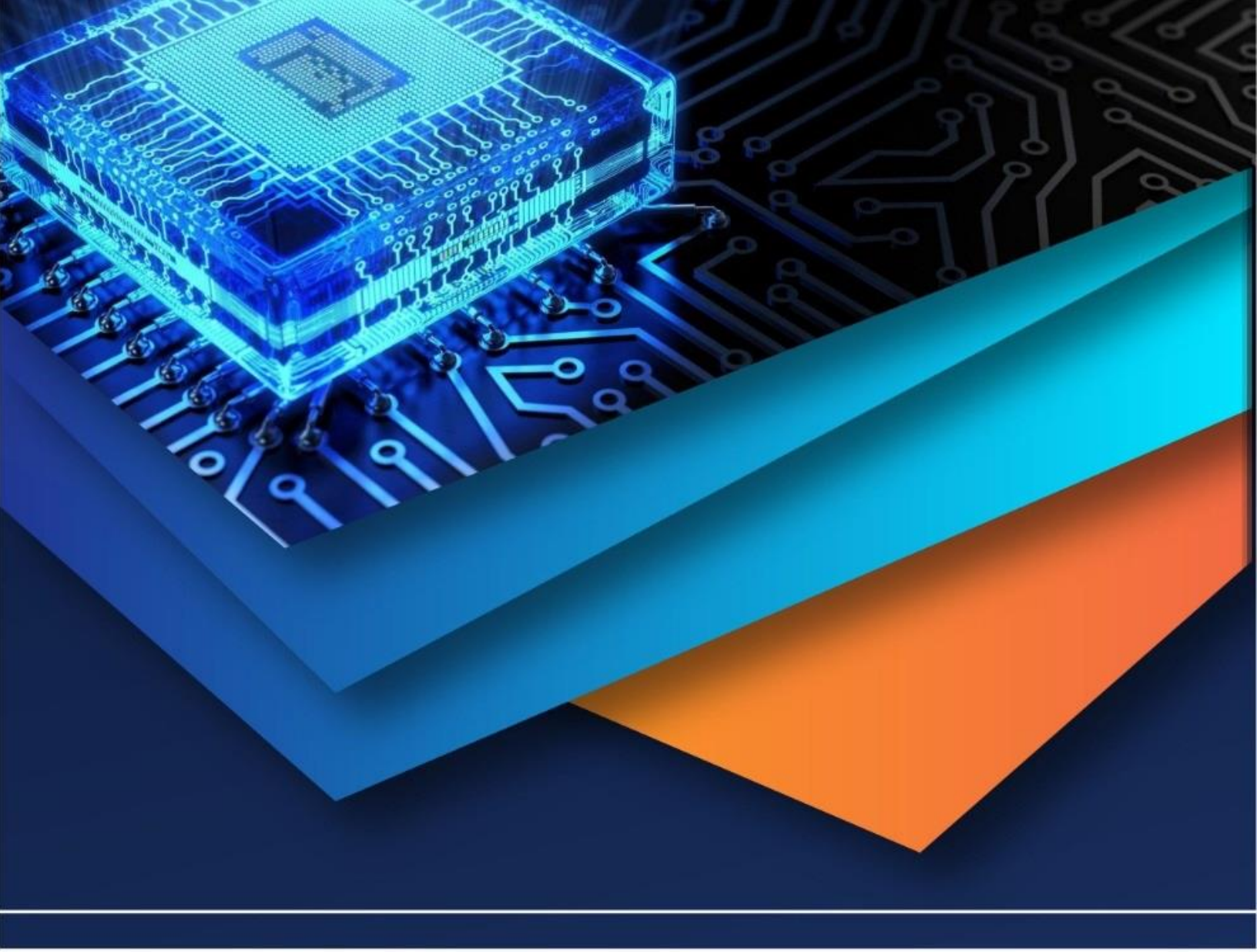


VII. CONCLUSION

The 200-meter stretch on Porwal Road in the Dhanori area from Kamlai dairy chowk towards Jakat Naka chowk will be one-way. “As per information shared by the traffic police department, from now on, vehicular traffic coming from the D Y Patil university side will take a left turn towards Kamlai dairy chowk and go towards Sathe vasti. Going forward, the vehicles will take a right turn towards Aurum Elementto society on D P road and go towards Orchid hospital and then go ahead towards Porwal Road. Whereas vehicles coming from the 7th Heaven society road will also go by a similar road.

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