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The Traffic Study of Unsignalised Junction: A Case Study of Nashik City

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ABSTRACT: Unsignalized intersections are the key elements in urban streets and in urban road networks. The methodology for the analysis of unsignalized intersections has been established in present study, capacity of unsignalized intersection is calculated from video graphic survey. Surveys were conducted in Nashik, city at study location study RD circle and ved mandir to identified traffic flow. For this we have choose this location for study from accident data. We proposed signal system for the junction. And design signal cycle.

KEYWORDS: IOT, Dos, Machine learning, Attack

I. INTRODUCTION

The term "traffic management" refers to the set of policies and procedures used to maintain traffic flow while enhancing the general road transportation system's dependability, security, and safety. The performance of the road network is impacted by the systems, services, and projects that are used in daily operations.

Encouraging efficient, safe, and orderly flow of people and goods is the aim of traffic management. This is applicable to all users of the roadways, including cyclists and pedestrians in addition to drivers of motor vehicles. Redirecting traffic from main routes during peak hours, for instance, may contribute to a safer and more efficient flow overall. The term "traffic management" refers to more than just using the roadways and their users. The management of traffic incidents, accidents, and other unforeseen occurrences that happen on the road network—often in hazardous circumstances—is known as traffic incident management. The goal is to manage emergencies in a safe and timely manner, avoid more collisions, and return traffic to normal as soon as feasible. It necessitates the use of an organized, methodical, and synchronized collection of resources and response actions.

In order to alert drivers and prevent accidents, Traffic Incident Management begins with immediate notice of potential threats or problems ahead, as soon as an incident happens. Planning, an appropriate reaction, safety at the incident site, and recovery are all necessary for incident management. Three key areas need to be addressed in order of importance: damage control and repair, traffic flow mobility, and safety.

It is crucial to comprehend the timeline and many stages of events, as illustrated in the diagram below, in order to comprehend how control tactics and network operations might lessen the detrimental effects of incidents. Planning, an appropriate reaction, safety at the incident site, and recovery are all necessary for incident management. Three key areas need to be addressed in order of importance: damage control and repair, traffic flow mobility, and safety.

It is crucial to comprehend the timeline and many stages of events, as illustrated in the diagram below, in order to comprehend how control tactics and network operations might lessen the detrimental effects of incidents. Numerous traffic management methods have been created over time to control traffic in urban areas. The display box below shows a few of the more popular techniques. Extra consideration must be given to the needs of bicycles, pedestrians, and the elderly. These days, traffic jams and crowding are common problems worldwide.

The range of vehicles makes the disorganized, non-lane traffic unusual. The metropolitan area's roads are seeing a mix of traffic. Additionally contributing to traffic jams and delays are the physiological behaviors of drivers. These days, traffic jams and crowding are common problems worldwide. This is largely because the growth of transportation is slower than the increase of automobiles due to a gap and financial constraints. The range of vehicles contribute.

II. RELATED WORK

- 1.Nasik city is located on the banks of Godavari, which is one of the most prominent rivers in India.
- 2.The latitude of Nasik, Maharashtra, India is 19.997454, and the longitude is 37.789803. Nasik, Maharashtra, India is located at India country in the Cities place category with the gap's coordinates of 19° 59' 50.8344" N and 73° 47' 23.2908" E.
- 3.It was declared the sixteenth fastest growing city in the world by a report of the City Mayors Foundation. Total city area is 264.2 Square Kilo Meter.
- 4.For the project analysis we have choose ved mandir junction and RD circle junction we calculate the traffic volume.
- 5.Nashik City's sent status: India's urban population was 27.8% in 2001, but it is projected to rise to 38% and 47.5% in the for a population this size, providing transportation infrastructure will be difficult in the years 2031 and 2051, respectively. According to a City Mayor Foundation survey, Nashik is the sixteenth-fastest-growing city globally.

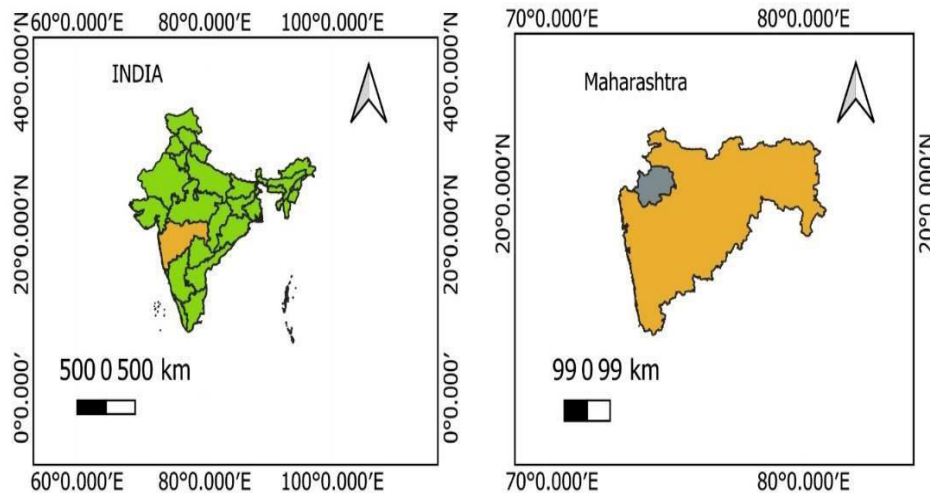


Fig.1 Ved mandir (source Google map)

VED MANDIR

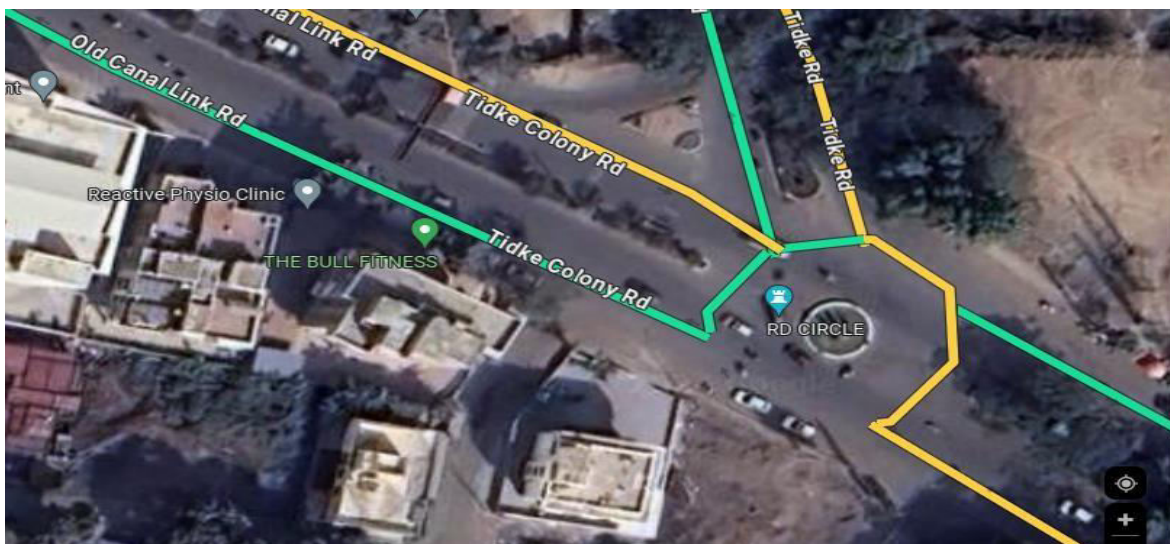
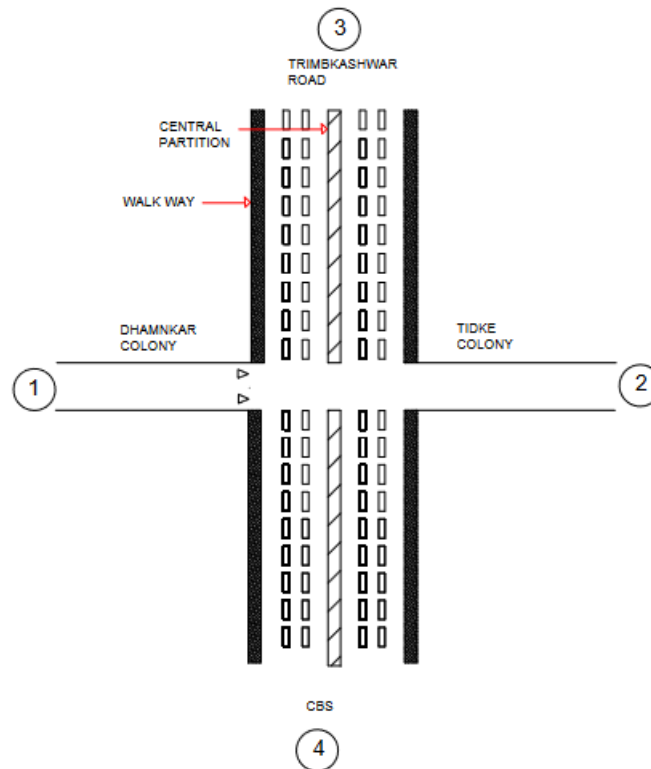


Fig.2 RD CIRCLE (source Google map)

III. PROPOSED WORK

In order to collect data efficiently and analyze traffic patterns, a systematic approach is needed when designing a methodology for a traffic study of unsignalized crossings in Nashik City. Here is a methodical approach: Clearly state



the study's objectives. For instance, recognizing areas of congestion, evaluating safety concerns, and comprehending patterns of traffic flow. Examine all available research, traffic laws, and urban planning papers about traffic control and unsignalized intersections in Nashik City.

Collect primary data by conducting field surveys and secondary data by consulting pertinent databases and authorities. Field investigations could consist of Traffic volume measurements: Count the number of cars that cross the intersection during peak and off-peak hours. Types of vehicles: Sort vehicles (such as cars, trucks, and bicycles) in order to comprehend the traffic composition. Travel speeds Calculate the average speed at which cars enter and exit the intersection. Turning motions Examine the distribution of cars that make left, right, or straight turns. Pedestrian Movements: Evaluate the amount and manner of pedestrian activity near the intersection. Environmental factors: Take note of anything that could have an impact on traffic flow, such as visibility, signage, and road conditions. Utilize statistical methods to examine the information gathered. Determine possible safety enhancements, such as improved road markings, pedestrian crossings, or signage. Ascertain the junction's capacity in the given circumstances. Determine whether the intersection Make suggestions for enhancing traffic flow, safety, and efficiency at the unsignalized intersections based on the data. Modifications to lane markings, traffic calming techniques, pedestrian amenities, signal construction, and road design are a few examples of suggestions. Compare the anticipated benefits of the suggested interventions to their cost-effectiveness.

Take into account elements such as the cost of construction, ongoing maintenance, and anticipated increases in safety and traffic flow.

Write up the analysis, conclusions, and suggestions in a thorough report. Deliver the report to the appropriate parties, including the local government, the transportation department, and the urban planners. Take the suggested actions and work with the appropriate authorities.

Throughout time, evaluate the success of the interventions and make any required modifications. By using this methodology, you may carry out an exhaustive traffic assessment of Nashik City's unsignalized intersections and offer insightful recommendations for enhancing safety and traffic control.

IV. CONCLUSION

After detailed study of Nashik city. Then we have selected two junction one is ved mandir and RD circle. The data collected form video graphic survey the traffic flow at peak hour morning 9.00 to 11.00 am at evening 5.00 to 7.00 pm. From the survey we get maximum traffic survey at CBS to Mico circle direction. For second junction is RD circle we also get same time at morning 9.00 to 11.00am and at evening 5.00 to 7.00pm junction from survey same peak hour the direction old canal (G.nagar) to old canal (ccm) is maximum traffic flow. The traffic signal is innovative idea to control traffic management. It helps overcome the accidents in highly traffic area. In Signal phasing our junction Ved mandir we have chosen 3 phase signal cycle and RD circle we choose 3 phase signal cycle.

1st junction is Ved mandar which 4 arm junction for which we have proposed 3 phase cycle of 120sec. 2st junction is RD circle which 4 arm junction for that we have proposed 3 phase cycle of 155sec. After the proposal it may help to reduce future accidents and traffic congestion.

REFERENCES

1. Abramowski, M. (2018). Application of Data Video Recorder in Reconstruction of Road Accidents. Proceedings of the XI International Science-Technical Conference on Automotive Safety, Casta, pp. 1-6. doi: 10.1109/AUTOSAFE.2018.8373327.
2. Gothane, S. & Sarode, M. V. (2016). Analyzing Factors, Construction of Dataset, Estimating Importance of Factor, and Generation of Association Rules for Indian Road Accident. Proceedings of the IEEE 6th International Conference on Advanced
3. Ganiyu, R. A., Arulogun, O. T. and Okediran, O. O (2014). "Development of a Microcontroller Based Traffic Light System for Road Intersection Control", International Journal of Scientific and Technology Research, 3(5), pp. 209-212.
4. Kavya, P. W. and Joythi, S (2014). "Traffic Light Control System Using Image Processing", International Journal of Innovative Research in Computer and Communication Engineering, 2(5), pp. 288- 292.
5. Ashish, J., Manisha, M., Harish, V. and Amrita R. (2013) "Traffic Density Measurement based On-road Traffic



- Control using Ultrasonic Sensors and GSM Technology”, in proc. AEEE 4th International Conference on Emerging Trends in Engineering and Technology,
6. Hashim, N. M., Jaafar, A. S., Ali, N.A., Salahuddin, L., Mohamad, N. R. and Ibrahim, M. A (2013) “Traffic Light Control System for Emergency Vehicles Using Radio Frequency”, Journal of Engineering, 3(7), pp. 43-52.
 7. Mohit, D. S., Prema, Shubhendu, S., Sumedha, S. and Utkarsh, T (2012). “Smart Traffic Control System Using PLC and SCADA”, International Journal of Innovative Research in Science, Engineering and Technology, 1(2), pp. 169-172.
 8. Khaled M., Khonica G., Syed M. and Syed C (2012) “Possible Causes & Solutions of Traffic Jam and Their Impact on the Economy of Dhaka City “Journal of Management and Sustainability; Vol. 2, No. 2; 2012 ISSN 1925-4725 E-ISSN 1925- 4733
 9. A. Y. Abd-Fatah, R. M. Yusuff, F. A. Aziz and N. Zulkifli, "Simulation of "time-based" versus "sensor-based" traffic light system," Communication Software and Networks (ICCSN), 2011 IEEE 3rd International Conference on, Xi'an, 2011, pp. 789-792.
 10. KHALIL M. YOUSEF, JAMAL N. ALKARAKI AND ALI M. SHATNAWI (2010).
 11. “Intelligent Traffic Light Flow Control System Using Wireless Sensors Networks” Journal of Information Science and Engineering 26, 753-768.



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