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Traffic Analysis using Uninterrupted Flow using BIM

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ABSTRACT: There are primarily two kinds of traffic flows. Understanding a sort of flow occurring within a particular circumstance would allow you to choose a most relevant analytic techniques & descriptions. A first form of traffic flow was known as continuous flow & was governed through vehicle-vehicle & vehicle-roadway interactions. By examples, the path of traffic along an inter - state highway is unbroken. The second form of flow was known as interrupted flowing. Interrupted flowing was flow that is controlled externally, for as via a traffic light. Under situations of interrupted flows, vehicle-vehicle & vehicle-roadway interaction plays a secondary role on determining traffic flows. For this project, numerous case studies were studied utilizing traffic density data, & BIM software are used to provide viable solution.

KEYWORDS: Traffic, roadway, vehicles traveling, BIM software.

I. INTRODUCTION

On metropolitan roadways, traffic congestion was a sombre experience for those who utilise the road. Because of traffic congestion, commuters waste time, fuel, and money. Congestion on urban highways may be alleviated by constructing extra infrastructure; however, it is not always practicable or viable to construct additional infrastructure for a variety of reasons, such as a lack of funds, an indestructible permanent construction, etc. However, the current infrastructure might be modestly adjusted to reduce urban traffic congestion. As an example, the development of a bypass around a city may reduce the amount of cars entering the city, hence reducing traffic volumes for urban highways. Technology of information & communication (ICT) has been utilised to evaluate vehicle density of roadways & may be utilized to reduce road traffic congestion. Wireless sensor, Mobile phone network, Vehicle adhoc network, GPS & GIS system were just some example of technologies that were combined using ICT to regulate urban roadway traffic. The Urban Traffic Networks (UTN) is a directional graph having a limited number of vertices & edges. When a UTN was represented into a graphs, multiple pathways to a graph & a UTN may be determined. Randomized distribution for urban traffic along various routes may lead to gridlock during peak hours.

A. Fundamenta lRelation

A basic relationship of traffic flows applies to both intermittent & continuous traffic flows. It is a first case in which we address models for traffic flows, hence it was discussed here. Considering a following flow of traffic;

Assuming that for time $t = 0$ the vehicle V_1 are contacting section A-A & the vehicles V_n was touching section B Likewise suppose that a stream's average speed was u kilometres per hour. Assuming for simplification that each car within a stream are travelling about u kilometres per hour.

B. Types of Traffic Flow

There are primarily two kinds of traffic flows. Understanding a sort of flows occurring within a particular circumstance would allow you to choose a most relevant analytic techniques & descriptions. A first form of traffic flow was known as continuous flow & is governed via vehicle-vehicle & vehicle-roadway interactions. As examples, the flow of traffic upon an interstate highway is unbroken. A second form for flow was known as interrupted flowing. Interrupted flow was indeed flow that is controlled externally, for as via a traffic light. For situations of interrupted flows, vehicle-vehicle & vehicle-roadway interaction play a second role on determining flow of traffic.

II. AIMAND OBJECTIVES

The aim of this effort is to develop interrupted flows requires Road safety fast transportation would help economy lesser pollution.

- ✓ To define the two categories of flow.
- ✓ To understand the uninterrupted traffic flow model and analyse the relationships between speed, flow and density.
- ✓ To make computations with the Greenshield's and Greenberg's models of traffic stream study.
- ✓ To use linear regression analysis for modelling observed field data

III.METHODOLOGY

In the ancient times, there was no transportation system. With the passage of time human beings tamed animals and used them as mode of transportation. Invention of wheel marked the turning point in human civilization. Carriages that could carry three-four passengers, driven by animals, came into usage. In the sixteenth century invention of automatic mechanized vehicles helped people travel from one place to another faster. The world's first car was invented in 1769 by Nicholas Joseph Cugnot. After that there was no turning back, vehicles of different shapes and sizes began to be developed and introduced. All this brought with them a new threat to human life i.e. roadside accident. Ways and means were introduced for safety and smoothness of traffic on roads. Several rules were introduced to make the road safe and reduce the number of accidents. Even Manuscript and Kautilya's Arthashastra contain road rules and regulations in great detail.

The rules have been modified from time to time, keeping in view the local/topical needs and requirements. New regulations have been laid down for different categories of road users.

- As wheel got invented in the Mesopotamian Civilization, our own civilization was set to motion, for it wheeled our imaginations. In 1645 a sort of cycle was invented by Jean The son but it had no Brakes, Peddle or Steering and needed feet motion. Lau machine cycle was then created by Karl Von (1817). Soon this was made into the regal Dandy Horse by Dennis Johnson. In 1839 the proper cycle was shaped by K. Macmillan. It had iron wheels and a wooden frame. The manifestation of automobile horse-power was taught in 1769 by Nicolas Joseph Cugnot, who invented the first 'Steam Truck' which the French army thought was useful.
- Then after, automobiles enveloped our life and culture. But the notion called 'accident' endangered our future. The first accident of the Steam Truck in 1771 was the eye opener. During 1899 the first fatal accident took place with the death of a driver. Then onward, the world coined several road safety measures. Still, today 12 lakh people are killed and 50 millions get seriously injured all over the world every year.
- This accident menace makes our citizens an endangered species of the future. So let us follow the Road Safety Culture and be cautious about traffic rules today's informed child can only ensure a safe future.

IV.EXPERIMENTAL RESULTS

We have to do traffic analysis of the selected area and compared the traffic situations on Sundays and other days also at four different times at morning 8:00 AM, 12 PM, 4 PM, 8 PM. Then found that there are different locations where there is big traffic congestion occurring. And find solutions to resolve the issues related to traffic in that particular area.

Traffic at morning 8:00 AM on Sunday:

At morning 8 AM, Sunday we have observed that there was no traffic at any place

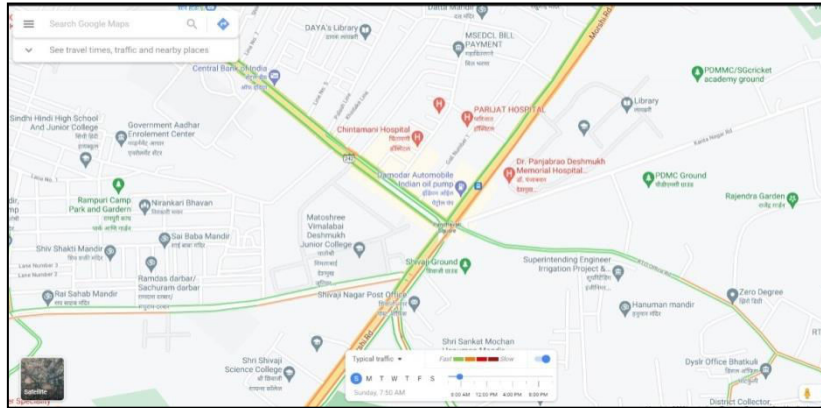


Fig 4.1: Traffic at morning 8:00 AM on Sunday

Traffic at morning 8:00 AM on other days:

At morning 8 AM, Sunday, we have observed that there is slight traffic at Panchavati Amravati

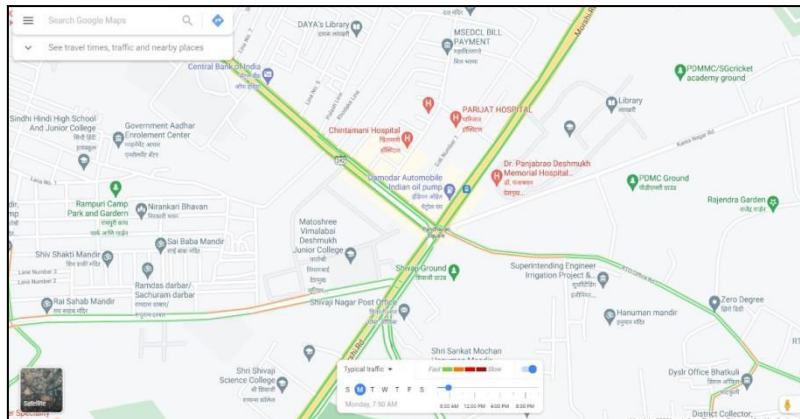


Fig 4.2: Traffic at morning 8:00 AM on other days

Traffic at morning 12 PM on Sunday:

At morning 12 PM on Sunday, the traffic is slightly more at Panchavati Amravati.

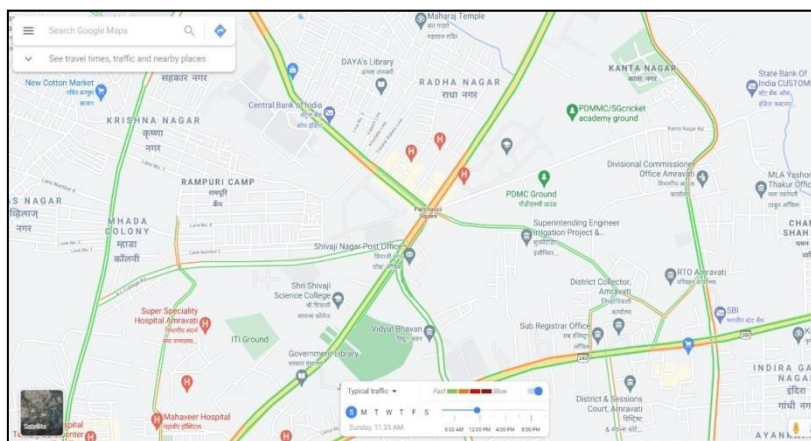


Fig 4.3: Traffic at morning 12 PM on Sunday

Traffic at morning 12 PM on Other days

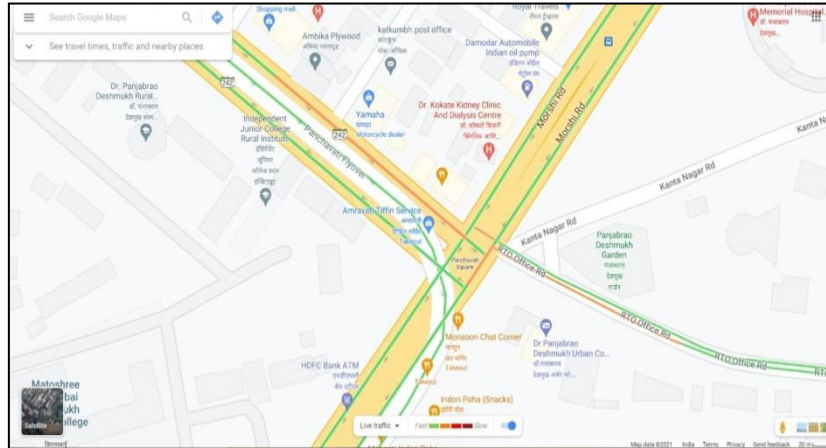
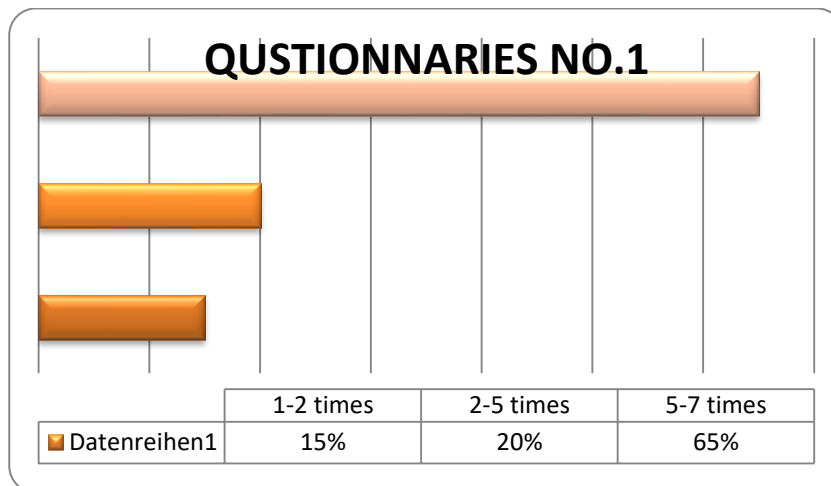
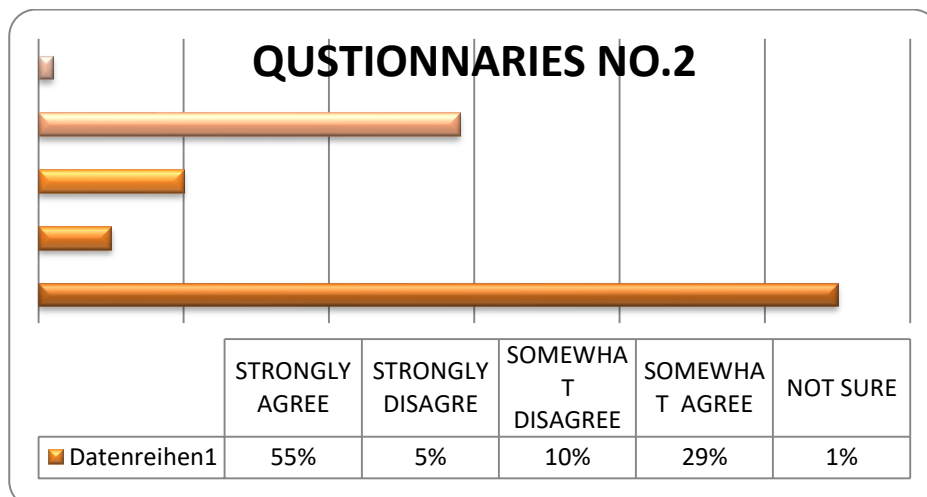


Fig 4.4: Traffic at morning 12 PM on other days

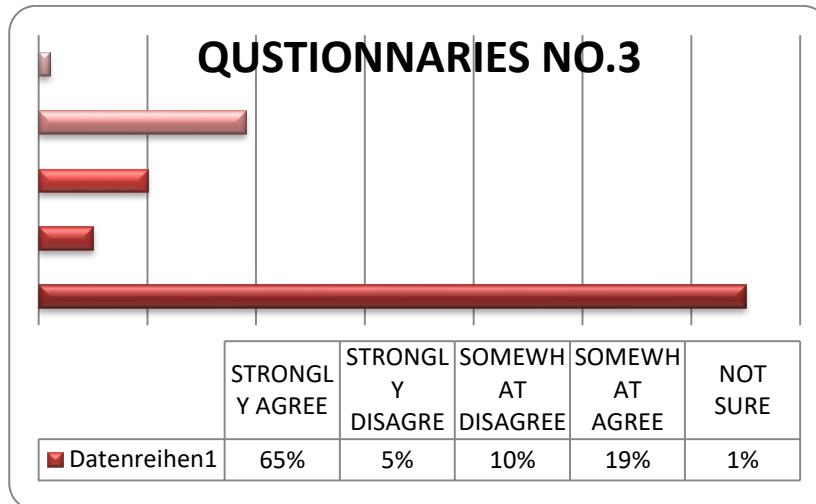
How many times you face traffic congestion in a week



Do you think different planning should be done region wise for uninterrupted traffic flow?



Do you think our planning technique is effective?



V. CONCLUSION

In our project we have study traffic pattern and also carry out traffic analysis of area **Panchavati Square** at different period of time to provide best traffic solution to that areas. We also used infrawork 360 and naviswork for our project. Infrawork 360 use existing data to create the model of project by using infrawork 360 we can design the model and also make the visualized videos of structure.

- The traffic studies shows most traffic occurs due to insufficient space and heavy traffic at peak time the solutions are given for different cases, for **Panchavati Square** model ring road is proposed.
- The work is justified by questionnaires survey conducted in particular area
- Roundabouts can be used as alternatives to signalized intersections and stop sign controlled intersection. The safety advantages of roundabouts over signalized and stop sign controlled intersections are significant. Some of the most common types of crashes, associated with signalized or stop sign controlled intersections, are nearly eliminated when using a roundabout.

According to ongoing studies from FHWA and the National Cooperative Highway Research Program, roundabout injury crashes are reduced about 75 percent and fatalities by 90 percent or more compared with those at conventional intersections. In addition, because roundabouts reduce vehicle delays and the incidence of having to stop and accelerate, there are reductions in fuel usage. According to the Insurance Institute of Highway Safety, “constructing roundabouts in place of traffic signals can reduce fuel consumption by about 30 percent,”

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