

“STUDY AND DESIGN OF DIGITAL TRAFFIC MAP USING GOOGLE EARTH FOR SCHOOL BUSES NEAR NAVLE BRIDGE”

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Abstract - Over the years, Digital mapping Systems technology has been implemented for a variety of purposes within the transportation field. With this many new uses, benefits, and challenges have raised. This study tries to show the capacity of Google earth to support transportation analysis and planning. The goal of this study is to show to which extent Google earth application is used in transportation for School near navle bridge. This project provides examples of how Google earth is being useful in practice for transportation arrangement for school buses. This project could help colleges and schools to understand and applied Google earth for solving their traffic issues. This will reduce traffic problems of buses as well as time which these buses consumed to travel around the city. With the help of Google earth the slow moving or highly congested traffic areas are indicated and could determine the fastest way to your destination. Most departments use Google earth , Google maps and GIS for transportation .This project is going to cover many such important topics for the betterment of traffic conditions of school buses. The goal of this paper is to analyze traffic congestions in selected routes i.e. School to navale brigide, Navale bridge to Vadgoan brige and sinhgad road in the City of Pune. The study suggested several improvements that can be executed in order to have a more easy and computerized system which useful for organization.The last part of this study examined the development of spatial and attribute database to reduce the traffic congestion and to propose another route to avoid traffic congestions.

Key Words: Traffic study, Microsoft Excel, Digital map, Google Earth etc.

1. INTRODUCTION

Google earth is one of the most innovative advances in the study of geography. Google earth has a major impact on geographic analysis and on business practice in government and the private sector. Most transportation agencies now use Google maps and Google earth and Geospatial Information Systems for Transportation is one of the largest users of this technology's. These capabilities enable transit agencies to geo-reference their bus routes, stops, time points, and other features to a digital street centerline file, and keep all these data in synch. Google earth is a feature loaded tool but yet not so famous application. This study will try to enlighten one of the many ways by which google earth can be used to control traffic less travelling for buses. The results showing maps including route for buses, their stops and their details could be very helpful for a less time consuming traveling for buses. Google earth is a mostly used mapping platform all over the world but yet its most of the feature are still unknown to mankind. This study is particularly based on bus system of Sinhagad school situated in ambegaon campus.

Sinhagad School Ambegaon Campus is located in Pune on Latitude 18.4682° North and Longitude 73.8363° at the center of Pune City which is one of the well-known college in Pune, the college sits on an approximate land mass of 32 hectares, with an estimated student population of about 10,000+ Different maps describe the relationship of the study area. One of the first roads with most traffic in Pune is the NH4 bypass which links Katraj to Vadgaon- Navale brigde. Unfortunately, this road is a National Highway which links Pune to Bangalore. The bus route data was collected and imported into Google earth platform which shows road features within the area of study were digitized and grouped into layers.

2. PROBLEM STATEMENT

1. Traffic congestion is one of the worldwide urban problems, which can lengthen journey time, increase energy consumption, aggravate environment pollution and result in traffic related problems.
2. Due to uneven departure of School buses from the station (Starting point), the lot of traffic has been recorded near Navale Bridge, Vadgaon Bridge and Anand nagar which results in delay.
3. The system still keeps the record of every bus like its departure time, number of students travelling in the bus. Driver's details pick up stations, engine details, travelling details etc; in a hand written books which they would have computerized for further process.

3. AIM

- I) To make digital map for school buses.
- II) Find the locations and points where traffic congestion occurs.

4. STUDY AREA



Fig 1 :- Showing Study Area Near Navale Bridge

The many institutes have more than 500 buses working across Pune city. After discussing with our authority and guide we decided to choose this area for our research. These buses travel across Ambegaon, Dhayari, Katraj, and other nearby locations in Pune. Fig 1 shows the actual location on google map of area which is located in Vadgaon and Ambegaon Pune

5. METHODOLOGY

- A. Understand basics of this application and clear doubts for those who are looking forward to use this Digital application.
- B. Explore some published works about digital map applications in transportation analysis and planning.
- C. Reviewing technology such as using internet digital maps in transportation.
- D. Show the contribution and the practical application of Google maps and Google earth in transportation field using case studies.
- E. The final Step is to recommend suggestions for improvement of digital map application in transportation field.

6. FLOW CHART

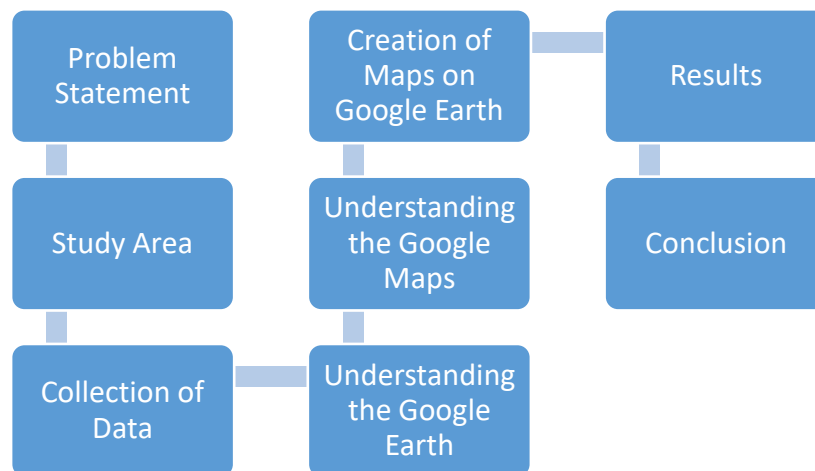


Chart -1: Project mythology flow chart

7. SAMPLE DATA

We collected data form Institute Transportation Facilities from transport office. It shows intermediate points on maps and the routes to which it facilitates its buses. In Table I Serial number which is given for every bus, Source, Intermediate points (P1, P2, P3, P4) and details of all buses are mentioned such as Sr. number, daily running kilometers, in and out time. For this study we are using random 22 buses data for research work.

	Sr. No	SOURCE	P1	P2	P3	P4	DESTINATION	OUT	IN	KM/T
1	V1	Sun planet	Sun satellite	Sun Empire	Dnyan sadhana school		SCHOOL	06:45	07:30	13
2	V2	Uday Aptment	Narayan complex	Nityanand hall	Dnyanganga school hingne		SCHOOL	07:00	07:30	10
3	V3	Samarth nagar	Dangat patil nagar	Venkatesh vrundavan	Sai ratan society		SCHOOL	06:55	07:30	14.5
4	V9	DSK Vishwa					SCHOOL	07:00	07:30	16.5
5	V10	Narhegaon	Paunjai mandir	Renuka nagari	Vadgaon bus stop		SCHOOL	06:50	07:30	9.5
6	V12	Jambhulwadi	Viva sarovar	Dattanagar chowk	Abhinav college		SCHOOL	06:45	07:30	16.5
7	V13	Hingne	Damodar vihar	Akhay paradise			SCHOOL	06:50	07:30	10.5
8	V14	Mohan Nagar	Rajmudra society	Dhankawdi bus stop	Gulab nagar	Khusbu hotel	SCHOOL	06:45	07:30	18
9	V15	Aditya Sanskriti	Green land country	Swami angan			SCHOOL	06:55	07:30	12.5
10	V24	Mataji super market	Madhukar hospital				SCHOOL	07:00	07:30	10
11	V28	Shivsagar city					SCHOOL	07:00	07:30	10.5
12	V29	Maruti mandir	Rajyog society	Mahesh society	Akshay hotel	Khusbu hotel	SCHOOL	06:40	07:30	26.5
13	V34	Rajas Society	Utkarsh society	Katraj PMT	Manik moti		SCHOOL	06:30	07:30	22.5
14	V38	Nanded city					SCHOOL	06:50	07:30	16.5
15	V47	Yeshwant Vihar	Abhiruchi mall				SCHOOL	06:50	07:30	11
16	V50	Spring meadows	Bloom field	Spring field			SCHOOL	06:15	07:30	13
17	V53	Upper Indiranagar	Khandoba mandir	Paramount garden	Utkarsh society		SCHOOL	06:40	07:30	20
18	V54	Ganga Bhagyoday	Amrut ganga	Shobha optima			SCHOOL	06:55	07:30	6
19	V49	DSK Vishwa	Sai samarth shilp				SCHOOL	06:55	07:30	16
20	V64	Paunjai mandir	Ghule nagar	Kirti nagar	Minakshi pooram		SCHOOL	07:05	07:30	9
21	V68	Nirman Viwa	Sai Mystique	NRI hotel			SCHOOL	07:00	07:30	8.5
22	V61	Raj hotel	Tarangan				SCHOOL	06:50	07:30	13

Table I :- Sample data which shown route points and all information related to school buses.

8. RESULTS



Fig 3:- Digital map showing layers of buses route

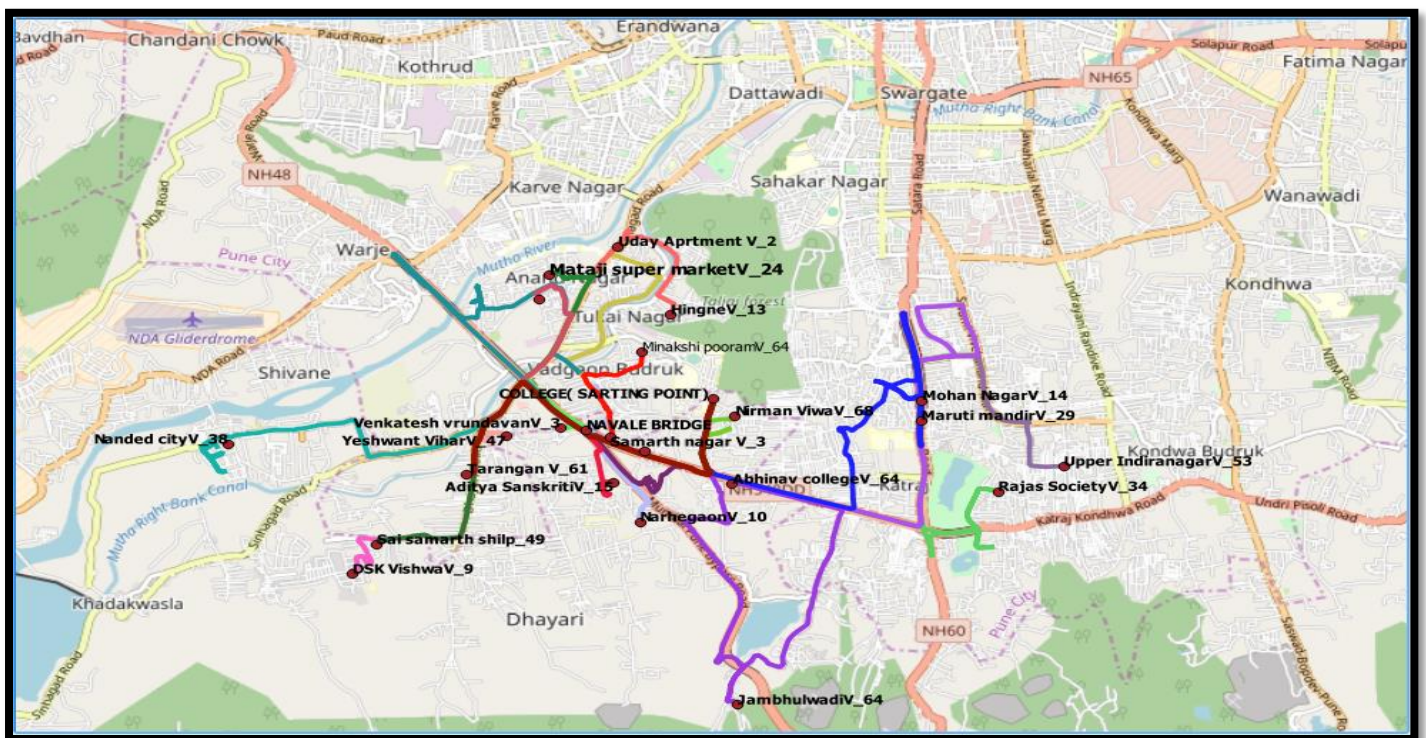


Fig 4:- Digital map showing all buses route on Google map



Fig 5:- Digital map showing traffic congestion at navale bridge.

The route of each bus is plotted and sources point, intermediate points and destinations are linked on Google earth respectively as one of the data source. These are the routes travelled by various school buses everyday all over and outside the Pune city. According to our map we analyze that most of the students comes from Dhayari, Vadgaon and Anandnagar. Some places where buses get repeatedly stuck are at Navle Bridge, Vadgaon bridge, Dhayari main chowk, Balaji Nagar and many more. After analyzing the data we came to know that this Buses are running 34391 km per month and diesel consumed by them is approximately 7583 liter per month (all buses).

This study led to the conclusion that the major highway of Navale bridge area recorded the heaviest traffic. This was based on the observed data, which was linked to a database that enabled us to manipulate it. The region of Ambegaon has recorded the Moderate traffic.

9. CONCLUSION

We conclude that the traffic congestion is the main problem due to School buses and which also led to air pollution that is shown our results which we get after study. On the basis of collected data, we traced some specific location and points where traffic congestion is high due to School buses. Every single bus travelling throughout the Pune city can be located and on the same time we can also get information about the number of students travelling, upcoming stops, bus details and the approximate time of reaching the next stop according to traffic condition in a single click.

10. FUTURE SCOPE

We have the data related to different aspects and our research is being carried out about environment or pollution related, traffic study analysis, schedule and fixing the route too. This could also contribute to better facilitation of roads, routes and discovering new ideas for decreasing traffic jams and fast moving vehicles. We created 22 buses map for this study work.

Our aim in future is to make map for all buses. We are also thinking about how to achieve the economy and reduce the daily running cost because huge amount is spend on the transportation facility for schools.

Since no one is paying attention to this problem, it would affect the environment and traffic management very badly, so our project is based on the problem towards finding better solution for institute.

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