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Usage of Technology in Road Traffic Management with Special Reference to Chennai

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Abstract:
Road website traffic management is a subject of logistics that issues the making plans and manipulate of site visitors from one area to some other. One of the present worrying conditions of street traffic control is accommodating site visitors in a cozy and green manner to lessen or get rid of accidents. This paper talks about, road traffic management, how to control traffic and suggests methods to overcome traffic challenges. I have also reviewed the research papers of about twenty authors in this paper. The sample size collected for the purpose of the survey is 1480 respondents. And it has been found out that people think there is a need for improvement in road traffic management strategies. Also, the method used was descriptive - non doctrinal empirical research. It was found that most of the people think that roads must be widened in Chennai and also people think that the traffic is always heavy in Chennai. It is also suggested that the technology can be used more effectively to control the traffic and roads can be widened or else the encroachment by the shops illegally can be cleared to make flow of traffic easier.

Keywords: *traffic, logistics, manipulate, accidents, strategies.*

I. INTRODUCTION

Most roadways encompass devices supposed for site visitors manage, most of them regarding direct communique with the road-person, together with signs and symptoms, indicators and pavement markings. These help with navigation, assign right-of-way, regions of cozy passage, imply velocity limits, provide commands, endors of risks, and so on. Other types of site visitors manipulate include kerbs, rumble strips, median boundaries, velocity humps, and so forth.

Intelligent transportation structures (ITS) are advanced applications that offer services relating to one among a kind modes of traffic control and the 'smarter' use of delivery networks. They are based absolutely on the transfer of information amongst delivery structures to stepped forward protection and average overall performance, which incorporates site visitors management systems, information structures, warning systems, vehicle-to-infrastructure communication and automobile-to-vehicle communication. Traffic sign controllers are electronic gadgets positioned at intersections that control the sequence of the lighting fixtures. Along with computers, communications gadget, and detectors to matter quantity and degree traffic, the ones controllers are often grouped into one device permitting the control of large numbers of visitors signals at intersections strategies to expressways and motorways and so on.

Traffic restraint, or calming makes use of visitors control devices to create impediments for website visitors in vicinity of increasing performance of movement. The aim of the study is to understand about the road traffic management in Chennai.

II. OBJECTIVES

- To know about the opinion whether the roads must be widened
- To identify the level of satisfaction towards roadways
- To find the opinion about traffic levels in Chennai
- To know the people's views regarding the action of police towards traffic management

III. LITERATURE REVIEW

Shriniwas (2018) The author has found out that rapid grown in population, and social status improvement have contributed to increase in traffic urbanisation has increased from 17 percent in 1951 to 31 percent in 2011. The urban population is said to grow 600 million by 2030 which at present is at 377 million. So, as a result the no. In bicycles, two wheelers, three wheelers four wheelers, transport vehicles have tremendously increased and contributed for traffic issues. **AmanjotKaur (2017)** The author says that with new advancements in technology new vehicles which provide more luxury are brought, so, people prefer these than public transport and thus leads to traffic. S the author suggests IRIS as a solution. Also he is discussions about some more ways of traffic management. **Sanjay Kumar Singh (2017)** The author has found out that accidental deaths and injuries in India. Aries according to gender, nth, time and age. Also he has found that 30 to 59 age group is he most prone to accidents. Also males are more prone than females. H also found that 16 out of 35 states contribute more than 50 percent of accidents in India. As a result, it is likely that the death toll will cross 250,000by 2025 has been predicted. The author is stating that even though the number of vehicles have increased exponentially, the bedrock capacities of roads and management systems has not developed and leads to traffic. So the author is suggesting the use of WSN wireless sensor network to avoid traffic congestion. Also he discusses about RFIDs Zigbee, VANETS and so on. **MadhuErrampalli, RavindarKayastha (2016)**The author has found out that population of Port Blair has steadily grown at about 6.5 percent per Annu, and population of vehicles has increased to 12 percent. But road infrastructure is not enough KY developed and leads to congestion, so he discusses about ways to optimise the usage of existing road infrastructure and has used VISSIM540 software. **Neema Davis, Harry Raymond and two others. (2015)** The author has found out that the estimated costs of traffic congestion for New Delhi due to air pollution and productivity loss will come around 14658 million USD for the year 2030. He considers productivity loss and accident damages as key factors. He uses GPS traces for this survey. **Bhupendra Singh, Ankit Gupta. (2015)** The author suggests the use of ITS technology for the traffic management. He also discusses about ATIS advanced traveller information system, APTS Advanced Public transport system and EMS emergency Management System which constitute the ITS. He also suggests conclusions from various models on making this ITS practical. **DK Choudhary, Siddharth Gupta, (2015)**The author says that even though the roads are wide and good in all parts of Delhi, traffic congestion happens due to some Misplanning. He also discusses about the strat gym of Delhi traffic Police. So, the author has suggested better soliputions for these problems and also found out different safety measures and suggests them through this study. **Gurjit Singh, DivyaBhansali, Sanjeev Sofat. (2014)**The author has found out that India is the second most populous country and in 2011-12 alone, 20.4million motor vehicles were sold. The author has studied the Indian road conditions, traffic and behaviour of drivers and arrives at a conclusion that ITS system will not be practical in India for traffic management. **Parleen Singh Bali, Gautam Parjapati.snd three others (2014)** This research paper is focused on introduction of Aadhar card, it's merits and demerits, linking it with bank account is necessary or not and public opinion on Aadhar and its linkage with bank account. The public opinion was collected in the form of survey analysis and it

has been found that people think it is necessary to link bank account with Aadhar card. **Directorate of Urban Land Transport (2013)** The author has set Bangalore as his research area and has found out the reasons for traffic congestion in sadashivnagar and Bellary roads. He has conducted surveys using various types of data's and has suggested certain migration measures.

IV. METHODOLOGY

Descriptive research helps to ensure portray accurately the characteristics of particular individual, situation, or a group. So, this method is followed for the study. Convenience sampling method is used in this study to collect the samples. When population elements are selected for inclusion in the sample based on the case of access is called convenient sampling. The sample size is 1480. The dependent variables include necessity of technology for traffic management in Chennai, need of widened roads, and government personnel's responsibilities. The statistics used for this research are ANOVA, Chi-square, and Independent sample T test

V. ANALYSIS AND DISCUSSION& RESULTS

H1: Necessity for Improvement in Usage of Technology in Traffic Management is based on the Area

Table 1: Cross tabulation – Usage of Technology in Traffic Management and Area

		Usage of Technology in Traffic Management		
		Yes	No	Total
Area	North Chennai	133	69	202
		65.8%	34.2%	100.0%
		9.0%	4.7%	13.6%
	South Chennai	363	175	538
		67.5%	32.5%	100.0%
		24.5%	11.8%	36.4%
	Central Chennai	249	127	376
		66.2%	33.8%	100.0%
		16.8%	8.6%	25.4%
	Others	228	136	364
		62.6%	37.4%	100.0%
		15.4%	9.2%	24.6%
Total		973	507	1480
		65.7%	34.3%	100.0%

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Table 2: Chi Square test: Usage of Technology in Traffic Management and Area

	Value	df	Sig.
Chi-Square	2.312	3	0.510

Using Chi square test, it was found that sig. value is greater than 0.05, which shows that null hypothesis is accepted. Therefore, there is no association between usage of technology in traffic management and area of the respondent. It also shows that majority of the respondents responded that they are part of today's traffic in Chennai.

H2: Level of satisfaction regarding roadways depends on the age groups

Table 3: ANOVA – Roadways

		Sum of Squares	df	Mean Square	F	Sig.
Traffic policemen's duty	Between Groups	3.997	3	1.332	1.111	.343
	Within Groups	1770.101	1476	1.199		
	Total	1774.097	1479			
Condition of roads in Chennai	Between Groups	7.107	3	2.369	2.794	.039
	Within Groups	1251.261	1476	.848		
	Total	1258.368	1479			
Municipalities' action towards road management	Between Groups	2.116	3	.705	.728	.535
	Within Groups	1431.002	1476	.970		
	Total	1433.118	1479			
Effectiveness of police in resolving traffic problems	Between Groups	2.255	3	.752	.851	.466
	Within Groups	1303.948	1476	.883		
	Total	1306.203	1479			
Enforcement of law and order in traffic problems	Between Groups	4.787	3	1.596	1.510	.210
	Within Groups	1560.186	1476	1.057		
	Total	1564.973	1479			

Source: Primary data

Since the p value is greater than 0.05 except conditions of roads in Chennai, null hypothesis is accepted, therefore there is no significant difference in the other mean scores of level of satisfaction regarding roadways among the age groups. It shows that opinion regarding conditions of roads in Chennai varies with age of the respondent.

H3: Opinion about Widening the Road differs based on the Gender

Table 4: Road Widening and Gender

Gender	N	Mean	Std. Deviation	Std. Error Mean
Male	883	1.40	0.489	.016
Female	597	1.41	0.492	.020

Table 5: Independent Sample t test: Road Widening and Gender

	Value	df	p-value
Independent Sample t test	.877	1478	0.349

Using Independent sample t test, it was found that p value is greater than 0.05, which shows that null hypothesis is accepted. Therefore, there is no significant difference between the opinion about widening the road and the gender. Both male and female agree that there is need of widening of roads in Chennai.

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H4: Opinion on Time of heavy traffic is based on their Occupation

Table 6: Cross tabulation – Time of Heavy Traffic and Occupation

		Heavy Traffic				
		Morning	Afternoon	Evening	All the Time	Total
Occupation	Business	89	116	115	68	388
		22.9%	29.9%	29.6%	17.5%	100.0%
		6.0%	7.8%	7.8%	4.6%	26.2%
	Private	162	230	277	170	839
		19.3%	27.4%	33.0%	20.3%	100.0%
		10.9%	15.5%	18.7%	11.5%	56.7%
	Government	67	68	72	46	253
		26.5%	26.9%	28.5%	18.2%	100.0%
		4.5%	4.6%	4.9%	3.1%	17.1%
Total		318	414	464	284	1480
		21.5%	28.0%	31.4%	19.2%	100.0%

Table 7: Chi Square test: Time of Heavy Traffic and Occupation

	Value	df	p-value
Pearson Chi-Square	8.863	6	0.008

Using Chi square test, it was found that p value <0.05, therefore, there the opinion on time of heavy traffic is based on the occupation. The results also show that majority of the respondents responded that the traffic is heavy in evening time.

VI. CONCLUSION

Road website traffic management is a subject of logistics that issues the making plans and manipulate of site visitors from one area to some other. One of the precepts worrying conditions of street traffic control is accommodating site visitors in a cozy and green manner to lessen or get rid of accidents. Also, it has been found out that most of the people think that the present action of municipalities in traffic management in to be improved and roads must be widened in Chennai. If further research is to be done on traffic management, it can be done in Effectiveness of police, or methods of road engineering and so on. So therefore, it can be concluded that traffic management is an integral part of any city and if done properly any city can prosper. In this case Chennai needs more reformative measures to be done in management of its road traffic.

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