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Review on Advanced Traffic Management at Square (Chowk) in India

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Abstract: *Today population growth in India is growing day by day. As per World population Review India's 2018 population is estimated to be 1.35 billion based on the most recent UN data. But at this stage the population of India is around 130 crores. And for this population the present traffic management system or network is very poor or is not adequate to handle the traffic. This results in heavy traffic jam at the "chowk" (Square). In this paper we are trying to modify the present traffic management system by making use of present technologies. We will be providing a new and simple method by which the traffic at square can be controlled effectively.*

Keywords: *India's Traffic Management, Advancement in traffic management, Technology, Surveillance cameras, Cause of traffic at square.*

I. INTRODUCTION

The goal of an Advanced Traffic Management System (ATMS) is to efficiently manage existing transportation resources in response to dynamic traffic condition. An advanced traffic management system must incorporate all modes of transportation if it is to provide an effective management solution. In India big cities like Mumbai, Kolkata, Delhi, etc. the problem of traffic jams at the chowk (square) is very common. Due to this the whole road network stops working for long times. There are various reasons for the traffic jams which will be mentioned further. These traffic jams directly indicate towards the lack of proper management system at the chowk. To overcome this problem we need to improve the management effort at such places. Since human alone cannot solve all the complicated traffic jams problems it is necessary for us to make use of present technologies for solving and preventing the occurrence of such problems.

A. Causes Of Traffic Jams At Chowk (Square)

Following are some of the causes which are responsible for the traffic jams at the chowk especially in India;

- 1) Traffic Signals are not working properly or are not working at all.
- 2) Absence of traffic police at the chowk (square).
- 3) Improper parking on the roads.
- 4) Peoples avoiding the traffic signals and traffic police and crossing the signal even when during the red light is on.
- 5) Lack of driving knowledge to the driver.
- 6) Unawareness of the traffic rules and regulations.

B. Images Showing Traffic Jams On The Chowk (Square)



Image 1: Traffic jam at the Chowk (square)



Image 2: People standing on the Zebra Crossing



Image 3: People disobeying traffic rules

C. Advanced Traffic Management Techniques

- 1) *Traffic Police*: If the number of traffic police at the busiest chowk's (squares) are increased the traffic can be controlled effectively.
- 2) *Use of Surveillance Cameras*: Today this the most advanced and trending method to control traffic and manage the traffic at the chowks. In this technique or method surveillance cameras are setup on the signals so as to monitor the traffic. One of the traffic police sits in the cabin and watches over the live recording in the cabin. If he/she finds someone disobeying the traffic rules fine is charged directly on the vehicle owner. This fine needs to be paid by the owner within 15 days otherwise the owners license will be temporarily terminated until the fine is paid.



Image 4: Working of surveillance cameras

This method is proving to be good to control the traffic effectively. But the disadvantage of this method is that when the surveillance camera operator is not attentive the traffic jam may occur. Hence there must be slight modification in the system. To overcome this we think the following technique or system might prove to be the best system to yet to control the traffic jams at the chowk (square).

D. Advanced AI Assisted Surveillance System

In this system we will introduce an AI in the existing surveillance system which will work even when there is no one to monitor the surveillance cameras. We can provide laser barrier just before the zebra crossing such that whenever the vehicle driver crosses the laser during the stop signal the surveillance cameras will find out that vehicle and fine will be charged on the vehicle owner.

Due to provision of automated surveillance system, people who break traffic rules and are not captured by the traffic police in surveillance room will be easily captured by the AI. The AI program could be designed in such a way that it will get activated whenever a person crosses the laser during red light. As soon as he cuts the laser shield the camera will capture the image and it will read the vehicle number plate. Using that number plate the proper fine of breaking traffic rules will be added on the users account.

Further the owner could be warned or given a notification of this fine by means of mail along with the photograph proof.

If such a surveillance system is used in India especially the traffic jams could be easily be avoided also the corruption at signals could be stopped up to some extent.

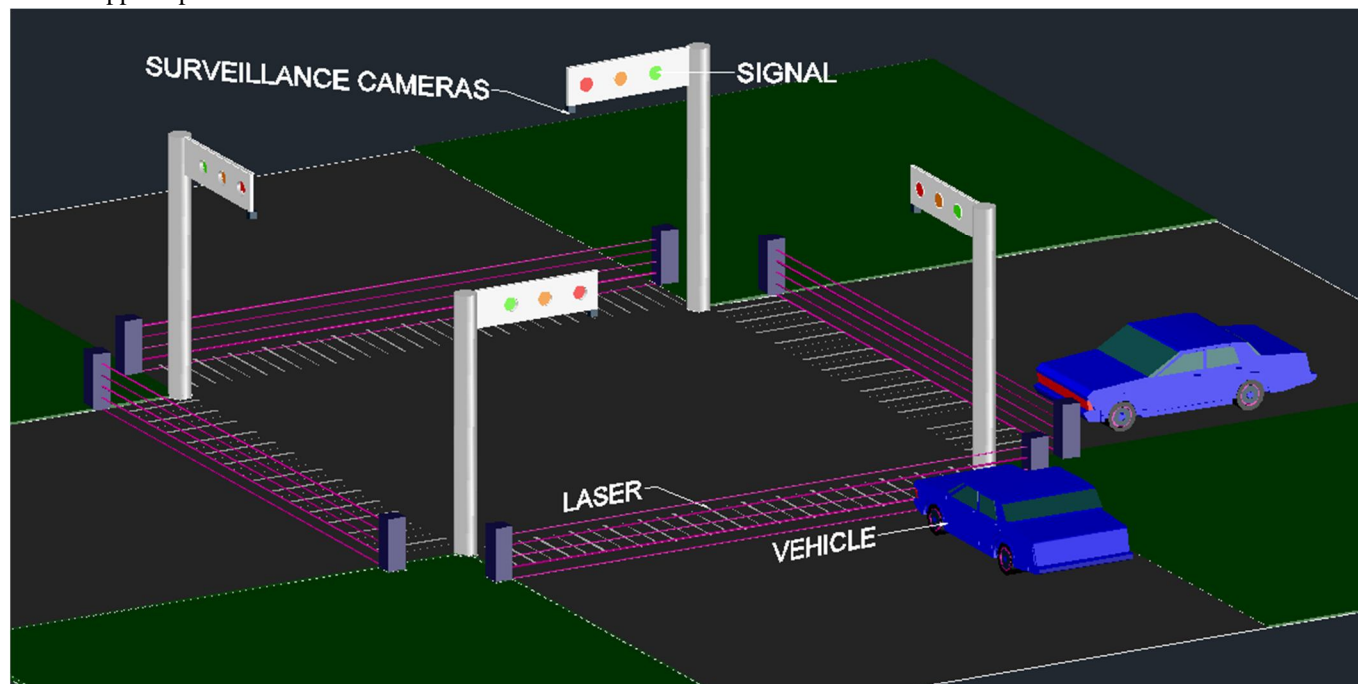


Image 5: AI assisted surveillance system

II. CONCLUSION

After studying the various causes of traffic and the available solutions to control and manage this traffic at the Chowk (square) following points can be concluded;

- 1) Since the vehicle production and using of vehicles is going to increase day by day traffic jams could not be avoided.
- 2) The present traffic management systems are not capable to manage such a huge traffic especially at the chowk (square).
- 3) The surveillance cameras is a good solution but if there is no person in the surveillance room this system will not capture the main cause of traffic jams.
- 4) The mentality of people in India at chowk is that they don't like to wait hence they move on even when the timer is still on, causing disturbance in the traffic management.
- 5) Hence the AI assisted surveillance system can solve this problem since it can work even in the absence of the person the surveillance room.
- 6) This system will directly fine the person who will break the signals and try to go earlier. Due to fear of fine the people will try not to break the traffic signals and hence the traffic jams at the chowks could be easily avoided at a great extent.

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