

**DEPARTMENT OF COMPUTER SCIENCE AND
ENGINEERING**

CS64: MINI PROJECT WORK
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MINI PROJECT SYNOPSIS

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SYNOPSIS

- 1. Title of the Project**
- 2. Introduction (Introduction to the Area of Problem Statement)**
- 3. Problem Statement**
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Signature of the Guide

SMART INTELLIGENT TRAFFIC MONITORING SYSTEM

INTRODUCTION:

Traffic on roads consists of road users including pedestrians, animals, vehicles, streetcars, buses and other conveyances, either singly or together, while using the public way for purposes of travel.

Organized traffic generally has well-established priorities, traffic signals at intersections, lanes.

For an average Indian youth owning a two-wheeler, driving on any of the major Indian cities, is equivalent to waging a daily war. The everyday struggle and effort of dodging traffic, pollution and rash drivers is the biggest cause of chronic stress and many physiological problems. On an average, a person spends anywhere between 30 minutes to two hours of their day driving. Which means, in a year, it is almost 360 hours. Imagine the kind of stress and unnecessary burden the person is putting on their body. In a country already full of numerous lifestyle-related diseases, the driving and traffic problems is an unnecessary addition.

Traffic congestion is a condition on transport that is characterized by slower speeds, longer trip times, and increased vehicular queueing. When traffic demand is great enough that the interaction between vehicles slows the speed of the traffic stream, this results in some congestion.

Traffic congestion can lead to drivers becoming frustrated and engaging in road rage.

Mathematically, congestion is usually looked at as the number of vehicles that pass through a point in a window of time, or a flow.

The severe traffic congestion in modern large cities puts huge pressure on the decision makers to invest in planning and deploying solutions to this problem.

Hence smartly and intelligently monitoring the traffic and Using a proper traffic management methodology could alleviate the traffic congestion problem and contribute to the reduction in traffic jams.

PROBLEM STATEMENT

To reduce the overall wait time at traffic signals and controlling road nuisance like driving without helmet and rash driving by identifying vehicles and taking necessary actions.

OBJECTIVES

- To reduce traffic signal wait times by giving weights to incoming roads.
- To make roads safer to drive.
- To create a system that takes ambulances into consideration at a traffic signal.

MOTIVATION

One of the most serious problems that are due to the vast increase in the number of vehicles, is the traffic congestion. The severe traffic congestion in modern large cities puts huge pressure on the decision makers to invest in planning and deploying solutions to this problem. Using a proper traffic management methodology could alleviate the traffic congestion problem and contribute to the reduction in traffic jams.

For the standard number plates the automatic number plate recognition becomes very easy to read and recognizes the character. In India the vehicle number plates have no standard size and font so it become very difficult to read and recognize the characters of the number plate. So flexible algorithm required solve this problem.

With an increase in population, there is an increase in the number of accidents that happen every minute. These road accidents are unpredictable. There are situations where most of the accidents could not be reported properly to nearby ambulances on time. In most of the cases, there is the unavailability of emergency services which lack in providing the first aid and timely service which can lead to loss of life by some minutes. Hence, there is a need to develop a system that caters to all these problems and can effectively function to overcome the delay time caused by the medical vehicles.

To make an average person's life on road safer by identifying road nuisance like not wearing helmet, rash driving, using mobile while driving, etc.

EXISTING SYSTEMs

Constant time traffic signals without any consideration for broader road versus a narrower road , or for ambulance which can save lives .

PROPOSED SYSTEMs

The proposed system can have a major impact in big cities, especially in high population urban area such as Bengaluru, Delhi, Mumbai, etc.

Generally, most of the traffic is made up of people going to offices. It is observed that the roads going towards these office areas are congested during the morning hours and in evening the roads coming out of these areas are crowded. Using our system, we aim to increase the traffic fluency by decreasing the waiting time of vehicles passing through the traffic signalized road. The aim is to increase the number of vehicles crossing the road intersection per minute.

We also aim to monitor real time traffic and scan the number plates and time of passing a signal of all the cars going through an intersection. This can be helpful for catching rulebreakers and for tracking stolen vehicles. Along with this, the system can be used to track and report traffic accidents and also verify the information given by multiple users so as to avoid traffic jams.

Using this system, people can save several hours of their time every week and it also provides a very efficient way for police to track vehicles.

HARDWAREs & SOFTWAREs USED

For a simple demonstration and data generation we can use these hardware's and software's:

HARDWARE:

- Microcontroller
- Cameras with IR for night time working

SOFTWARE:

- PTV vissim – Traffic Flow Simulator
- OpenCV

SOCIAL/ENVIRONMENTAL IMPACTS OF THE PROJECT

This system will help the government to better manage police resources allocate more personnel to areas where there are more violations as vehicles can be easily tracked from the central data hub. This can help them to track people who are speeding, driving dangerously, driving without helmet and those break the signal. People will be safer on the roads this way.

The daily routines of the people could also change as it would take less time for their morning travel to their offices and they would also reach home early. People could save many hours every week with it.

Also due to less waiting time at traffic signals there will be less emissions from vehicles which may result in a significant reduction in air pollution thereby improving the air quality.

