

AUTOMATED TRAFFIC MANAGEMENT SYSTEM

BY SAMYAK SAMADHAN

SHAMS KHAN

B.TECH(CSE)- Pursuing
Gautam Buddha University

ANKUR KUMAR

B.TECH(CSE)- Pursuing
Gautam Buddha University

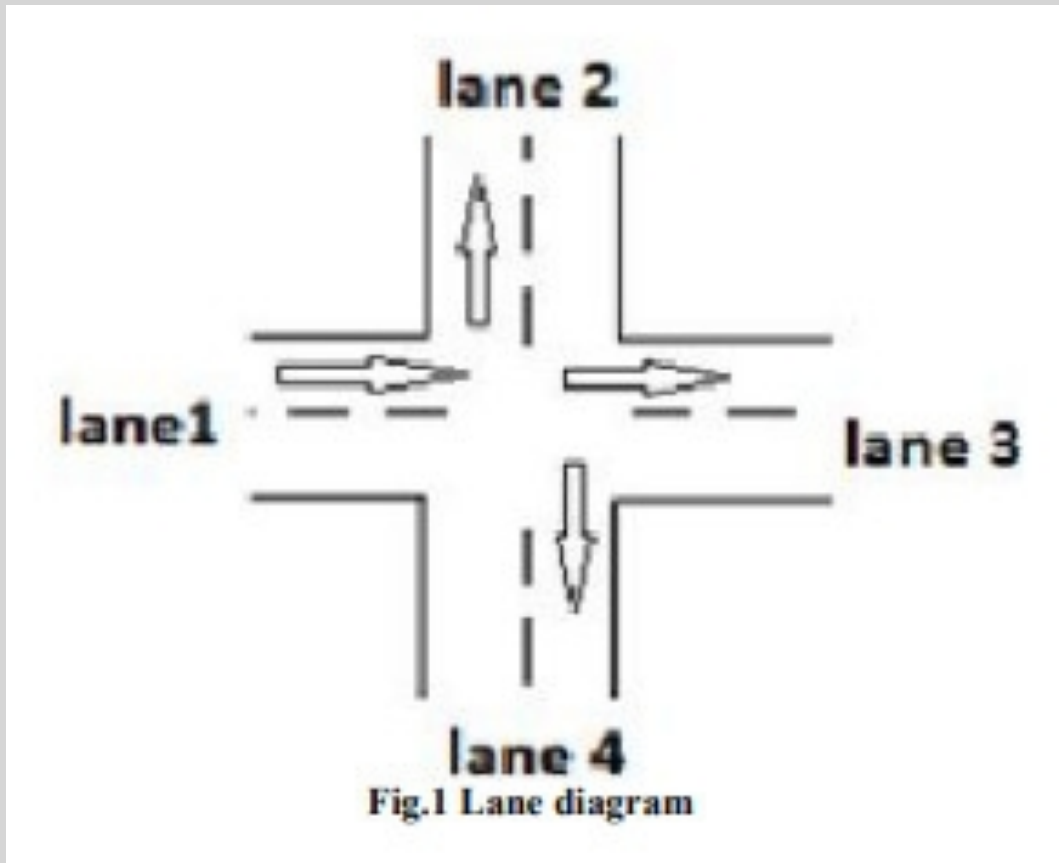
AYUSH PANDEY

B.TECH(CSE)- Pursuing
Gautam Buddha University

○ Theories :-

India's road networks have grown by almost 30% over the past decade, whereas vehicle registration have almost risen by three times. In January 2019, alone at least a million and half vehicles were bought and registered across the country. An average of 51,000 new vehicles a day. According to the India arm of the US-based Institute for Transportation and Development Policy(ITDP), growth in private vehicle ownership has surpassed the population growth rate in most cities. After so much development in the road infrastructure, India is still using ages old traffic signal cycle system. During peak hours, it is observed at any traffic signal, two sides have more traffic load in comparison to the other two. The current traffic signal cycle system allots equal time duration (30s) to all sides

and our model's main objective is the alteration and effective computation of this signal cycle length according to traffic data input.



○ Need of Idea:-

The target audience of our model is the day-to-day commuters, students and working professional who spend almost 25% of their total commute time while standing at

total commute time while standing at traffic signals struck due to traffic. Moreover in metro cities, vehicle idling at traffic signals are considered as a greater addition to the pollution levels thus creating several health and hazards issues for the commuters as well inhabitants of the town.

○ Our Interest in the Idea:-

This is a day-to-day problem faced by most of us which has unattributed a lot in adding up our interest in solving this problem. Moreover this project will generate a lot of data and statics pertaining to daily traffic and it can be further be used in a lot of development and research purposes.

○ How the Idea Developed :-

In October 2020, Delhi government started an initiative, "Red Light On, Gaadi Off", that urged commuters to turn off their vehicles engines at red signals instead of idling to ensure minimum emission of pollutants. This is an every-year situation in month of Oct-Dec in the NCT of

Delhi, When we researched about this topic, we found some researcher claiming that turning off vehicles was not an effective solution for durations less than 155 while some claimed that idling for any duration was not effective. Here we discouraged a researched gap to be exploited and we are trying to find a midway solution to this problem.

○ Why this is being proposed?

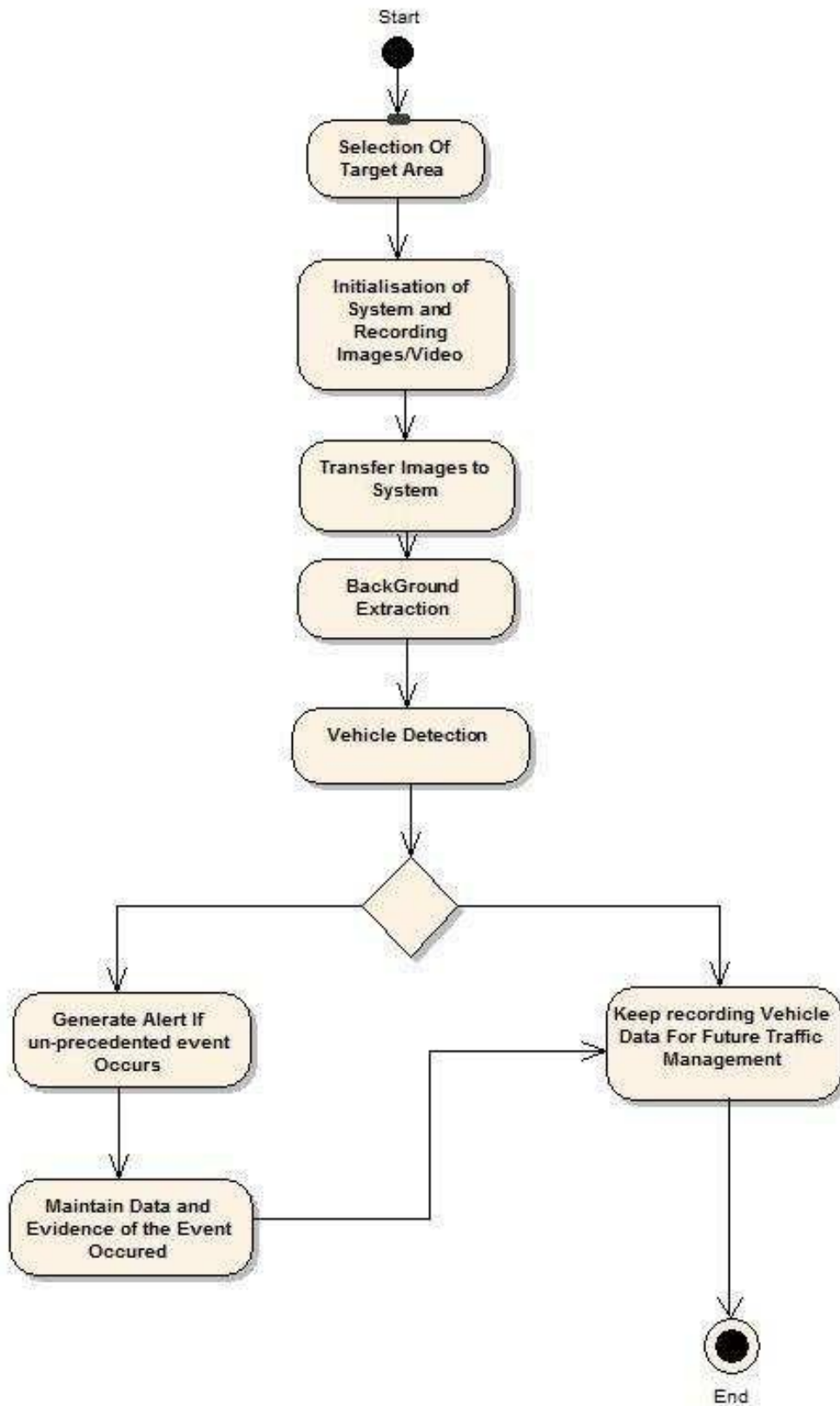
As India is the fastest growing countries, we have to develop our infrastructure accordingly. This proposal, firstly is an updation in the ongoing traffic signal cycle system, and secondly gathering data for yet further infrastructure development in the nation.

○ Framework and Plan:-

Following are the activities that are will compromise the implementation of the project

- Sensors/Camera :- It is required at cross roads to monitor. It will count the number of vehicles, road density which will be further processed. The total number of devices required for this project are 4.
- Software:- A software will be developed to process the data. It will take the number of vehicle passed through the road in a distinct time, which will allocate the green lights to particular side on the basis of results that is on the basis of density of roads accordingly. Minimum limit of green lights for a particular side will be 20 seconds and the maximum will be the 120 seconds.
- Database:- It will collect the data of traffic stats at a particular crossroads and which will be uploaded and stored in cloud storage, which will be used in future for better monitoring and improvement.

act Activity Diagram



The project is further categorised in 3 phases that are as briefed

1st Phase

Use of real time data, Manipulation of traffic light

In this phase we will place camera on every traffic signal and with the help of real time data we will assign the signal accordingly

2nd Phase

Implementation of sensors:-

In this phase we will implement road sensors to collect data to sync the range of roads and cover curved roads. Sensors like induction loop (These are coil wires that have been embedded in the surface of the road to detect changes in inductance)

Microwave Radar detector:-

It is above ground detector, which are designed to detect vehicle movement within a pre-determined field of vision providing a vehicle's speed is greater than 3 miles per hour.

3rd Phase

Here we will collect all the data (live data of total number of vehicle, type of vehicle, traffic volume and road density at different timeframes) which will be further used in for many purposes like construction of better road, flyovers and for better traffic signals). It will be also used for commercial purposes.

We are the team of 3 passionate and enthusiastic persons sharing a common field of study and interest along with having different knowledge which will be applied to the fullest in this project. Each member of this team is assigned different objectives and tasks under this project. In this project *SHAMS KHAN* will deal with the databases acceptance and will process the data as per the purpose to be used further. *ANKUR KUMAR* will

implement software that will take the input of data and will provide timings. *AYUSH PANDEY* will connect the data to create a proper working signal, that will be implemented on the crossroads.

The 1st Phase will be implemented within 45 days by using real time data. It will be a proper working model of automated traffic signal that will take real time data and will provide the time accordingly.

Outcomes of the data will be monitored by using our database and a scheduled visit to the traffic signal for the maintenance of the system.

○ SCHEDULE :-

Our target places for the implementation of this project will be the metro cities and on the places that often faces most traffic related issues. The infrastructure of the current working traffic signal will be needed to modify one by one there.

This project will take approximately 6 months or more for the better insights and to work it in its full potential. Upto that time we can expect atleast 25% of decrease in traffic jams.

○ REFERENCES:-

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