



“Problems with parking and traffic control on the highway are analysed”

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ABSTRACT: -

Road infrastructure has seen consistent improvement in the few years. Connectivity has become improved and road transportation has become a focus of rapid development. Roads are providing better access to services, ease of transportation and freedom of movement to people. But in metropolitan cities traffic congestion is increasing rapidly, it results in the chronic situations in dense downtown areas. Traffic signals play a significant role in the urban transportation system.

They control the movement of traffic on urban streets by determining the appropriate signal timing settings. Adaptive traffic signal controllers as the principal part of intelligent transportation system has a primary role to effectively reduce traffic congestion by making a real time adaptation in response to the changing traffic network dynamics. Many methods used for traffic signal timing optimization under different criteria's. In this paper different methods are proposed by reviewing different research papers for traffic signal control, which gives best adaptability and optimization ideas in traffic signal control.

The main reason of the traffic congestion comes from the unbalance between growing transportation demands and its insufficient infrastructure preparation. In this chapter, it introduces the current traffic condition based on four years monitoring of the traffic by the traffic monitoring cameras and comparison by the traffic flow theory at first. Then it introduces the new traffic analysis method especially for its traffic congestion analysis and its parameters. After the traffic congestion analysis, it summarizes conclusion and our next step from the experience.

INTRODUCTION

SELECTION OF STUDY AREA: -

Congestions in road traffic pose an increasing problem in today's in Haryana. The dynamic increase in the number of vehicles leads to an increased volume of traffic, resulting in obstructions in individual and public transport traffic ,reduced travel time as well as increased costs of vehicle use. The population of India which is growing at a tremendous rate coupled with the growing cities has resulted in the increased individual distance travelled for their commuting. Also, the lack of public transportation forces the increased in private mode for travel needs to result an increase in privately owned vehicles. Unfortunately, the road development has not kept in pace with the increased traffic.

Most of the Indian cities are unplanned and due to the catastrophic increased in the vehicle growth, it is very essential for transport planners to manage the traffic with the existing infrastructure with minimum cost.

The width variety of traffic unit with their great disparity in size and speed creates a number of problems viz., delay, accident and areas of conflicts. Due to the mixing up different classes of vehicles, the journey speed is reduced, and capacity of the roads is affected and movement in low gears increase operational costs and wear and tear of vehicles. The conflicts, confusion and irritation caused by mixed traffic result in accidents.

Transport system are a key element in meeting basic social needs related to population mobility and supplies. They facilitate the development of economic activity and contribute to upgrading the quality of life. Society expects a high level of reliability of transport while travelling to work, schools and for recreation. Today, however, it is already known that certain changes in transport management are necessary to tackle such urgent problems as traffic congestion, environmental pollution, traffic safety or social risks, at the same time ensuring sufficient mobility in the future.

Traffic management is the organisation, arrangement, guidance and control of both stationary and moving traffic, including pedestrians, bicyclists and all types of vehicles. Its aim is to provide for the safe, orderly and efficient movement of persons and goods, and to protect and, where possible, enhance the quality of the local environment on and adjacent to traffic facilities. This book is an introduction to traffic management, written in laypersons' language, and assuming no background knowledge of the subject. Various basic traffic characteristics relating to road users, vehicles and roads, and traffic regulation and control, are discussed, including some traffic volume and traffic flow considerations relevant to traffic management.

For effective traffic management, it is essential that the practitioner works from factual information. Road inventory and statistical methods, and the more common types of traffic studies, including traffic volume and composition, origin and destination, speed, travel time delay, accidents and parking are described. "Before and after" studies, and estimation of future traffic are also covered. As a basis for logically applying traffic management techniques it is necessary to develop a classification or hierarchy of all roads to ensure that the primary purpose of each of them is defined, agreed and understood.

A functional classification of roads suitable for traffic management purposes, and a process for developing such a system is described. Several chapters go on to discuss various aspects of traffic management, including signing and delineation, pedestrian facilities, bicycle facilities, intersections, traffic signals, road capacity, parking, roadside safety and roadway lighting. The objectives of local area traffic management schemes, and a systematic process for developing them are described, and the various techniques that may be used and the principles of design of traffic management devices are summarised. The application of traffic management techniques to rural and urban arterial roads respectively is discussed, emphasising the desirability of treating

routes or networks as a whole rather than simply focussing on isolated problem spots. Past and likely future trends in road travel, and various techniques for travel demand management are described. While these sorts of techniques are well known, and their use should be encouraged, they are unlikely to have much effect on travel in Australia at least for the foreseeable future. The important area of traffic enforcement and the associated aspects of education and encouragement are considered. Unless traffic management is logically applied and consistently enforced, it will not be effective. Enforcement must be considered an integral part of traffic management. (TRRL)

A traffic signal system at its core has two major tasks: move as many users through the intersection as possible doing this with as little conflict between these users as possible. The first task relates to efficiency and capacity while the second relates to safety. Both tasks are performed by first clearly defining which group of users has the right of way at a given time and second by determining how long the group has the right of way. Despite the importance of traffic signal systems, a recent national report card gave the nation's traffic signal systems poor grades. [add information from Tarnoff report] While there are a number of reasons for this poor assessment, we believe that there are three major contributing factors. First, there is a lack of high quality and comprehensive references defining good practice. While many states and local jurisdictions do have standards that guide their signal timing design practices, these standards are often not based on good science or sound theory that allow the standards to be transferrable to new situations or conditions. Second, university textbooks do not cover traffic signal systems in a comprehensive and realistic manner. Too often, the systems are assumed to be fixed time (rarely the case in the field) while the traffic controller itself is not covered at all.

Third, traffic engineers often have little direct experience with traffic controllers since their university experience is often limited to using models that often poorly emulate the operation of a traffic controller. This results in a problematic dichotomy. Signal engineers design the signal system and timing plan but the implementation of the timing plan (and the important timing details) is left to the technician. The former understands how the system should work while the latter understands how the traffic controller actually works but without the same broad perspective that the engineer brings to the problem.

So, how do we overcome these problems and provide systems of learning that will produce transportation engineers who understand how traffic control systems work and have the ability to design the components of these systems? Happily, there are signs that things are changing in the right direction. The Federal Highway Administration has produced a new traffic signal timing manual that brings together a broad array of information that can be used by traffic engineers to design traffic signal systems. FHWA has also produced a new guidebook on intersections, both signalized and unsignalized, that provides basic guidance on intersection design and operation. We offer this textbook to fill another gap: the provision of an environment in which both students and professionals can follow a logical process to learn how traffic signal systems operate and how to design the components of these systems.

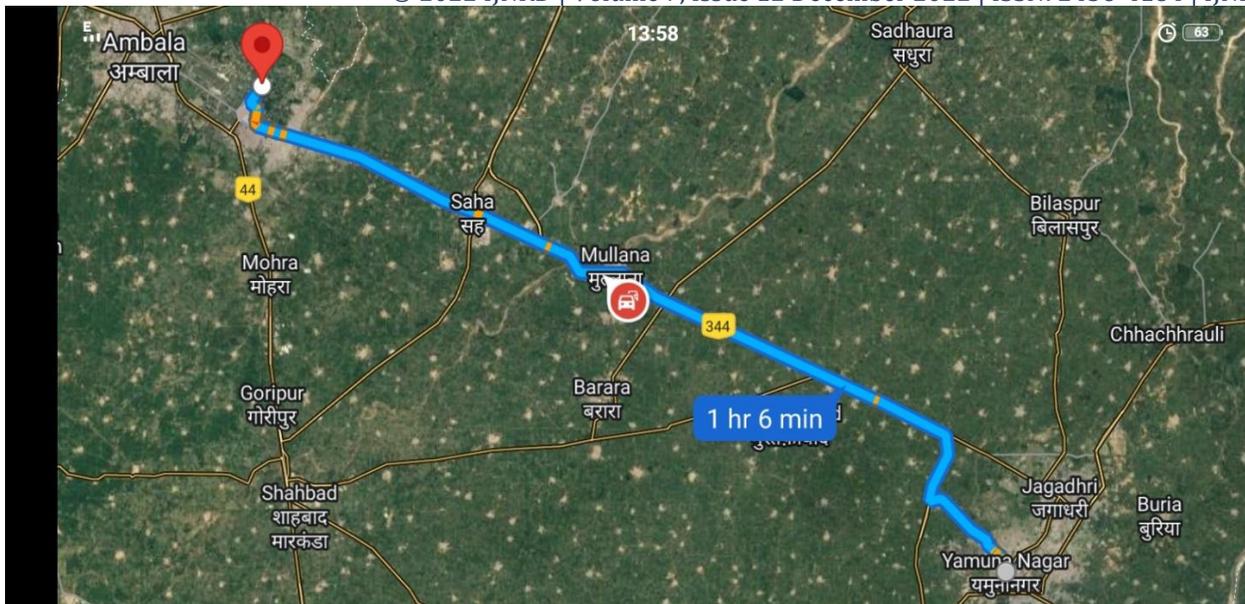


Fig no.1

Problems at intersection:-

- The intersection faces traffic congestions during peak hours.
- Accidents take place due to no safety improvements at the intersection.
- Due to traffic congestions the intersections gets polluted and leads to irritations, waste of time, mental stress etc.

STAGES OF TRAFFIC SAFETY:-

Real accident is one of the most critical problem, for human life. Despite widespread measures being used to control and minimize this problem, road accident is facing a growing trend, day by day. To control accidents, many countries have developed and implemented various traffic safety programs. It is important to note that developed countries have succeeded in controlling road accidents. These attainments are the product of making infrastructure safer, improving the safety of vehicles and executing a number of other interventions recognized to be effective at reducing the traffic injury rate. A clear correlation between activities in the field of traffic safety and the government policy can be established. Three phases of traffic safety development can be distinguished: creation, growth and consolidation.

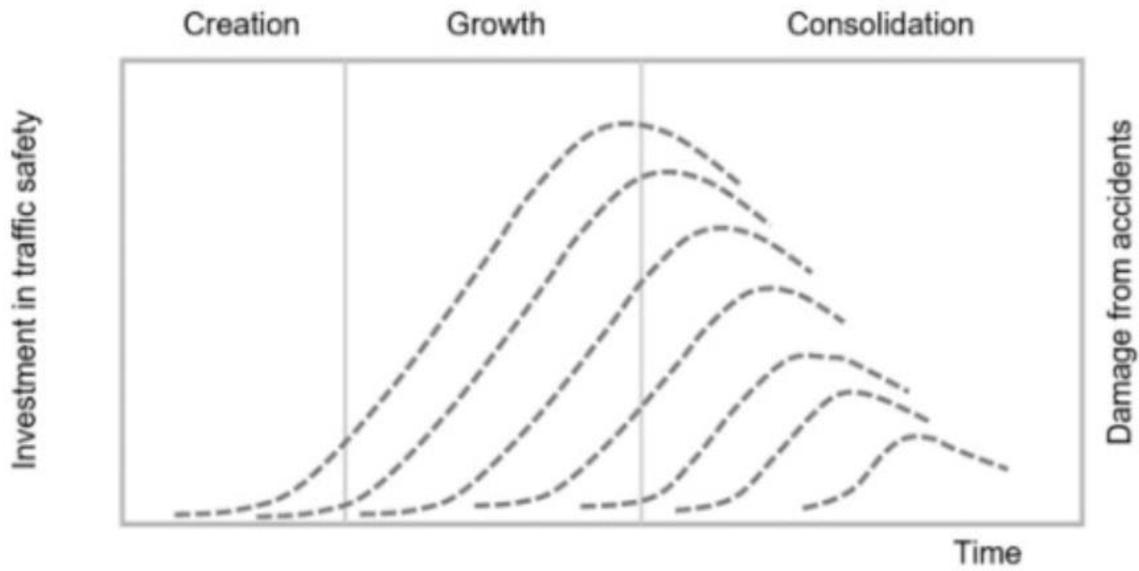


Fig.2

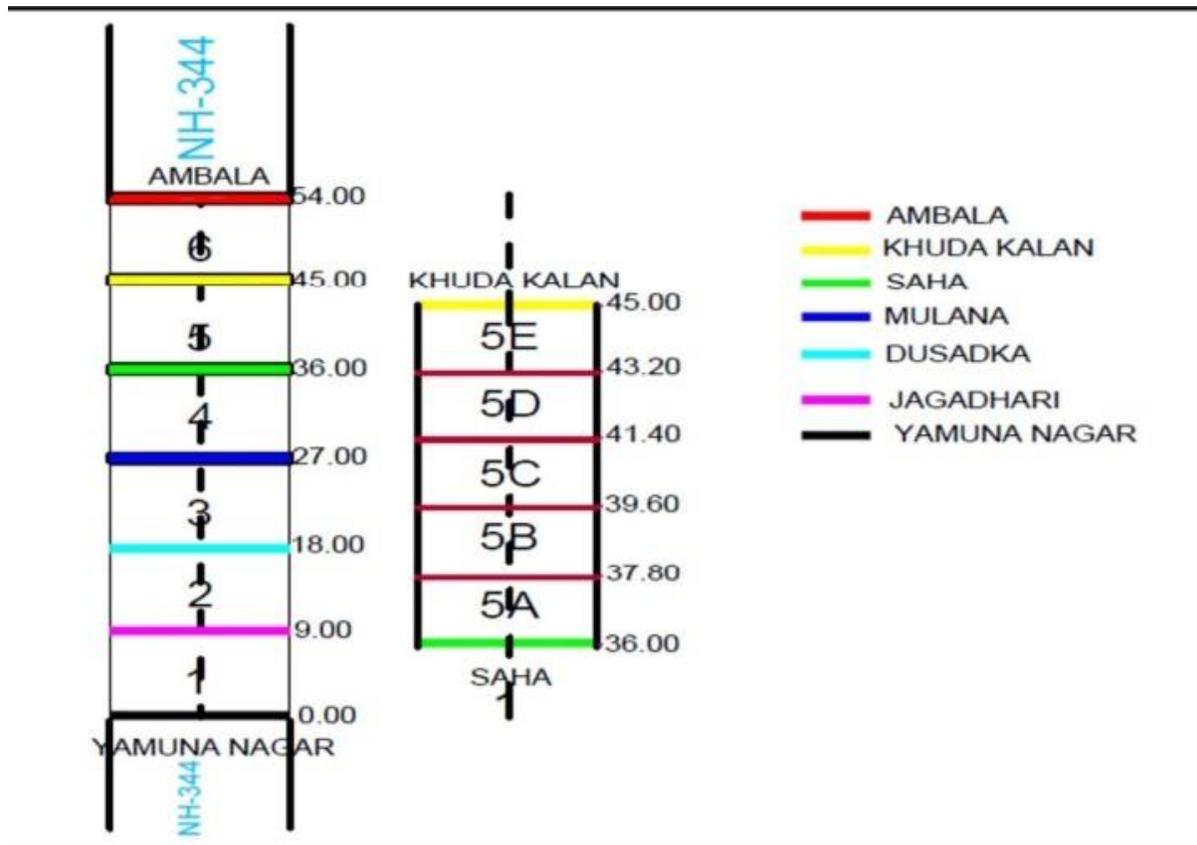


Fig. 1 Plan of study area

Problems in parking -:

Users should approach each intersection with an attitude of courtesy and the knowledge and skill to take the crossing in proper turns without incident.



Fig .3 Road Condition During Traffic

. LITERATURE REVIEW

S No.	Year	Author	Title	Conclusion
1.	2018	Vaishali Mahavir and Dr-Jayesh Juvenalian	Analysis of traffic management	Traffic signals play a significant role in the urban transportation system. They control the movement of traffic on urban streets by determining the appropriate signal timing setting.
2.	2019	Bubal Dagmar And Antonina Kalinite	Analysis of traffic management	Intelligent Transport Systems (ITS) Is a method of improving the condition of communications, making it independent from the development of communication infrastructure.
3.	2017	Allan Mariano de Souza and Leandro A Villas	Analysis of traffic management	In this, modern societies can rely On traffic management system to minimize traffic congestion and its negative effects.
4.	2021	Tsutomu Tsuboi	Analysis of traffic management	The current traffic condition in India is some chaotic because of them different driving behaviour compared with the advanced countries
5.	2022	Ghassan M. Suleiman and Ahmad Dahamsheh and Murat Ergun	Analysis of traffic management	The strategies include Temporary Access Control (TAC), Limitation of Heavy Vehicles (LHV) and Lanes Management (LM).

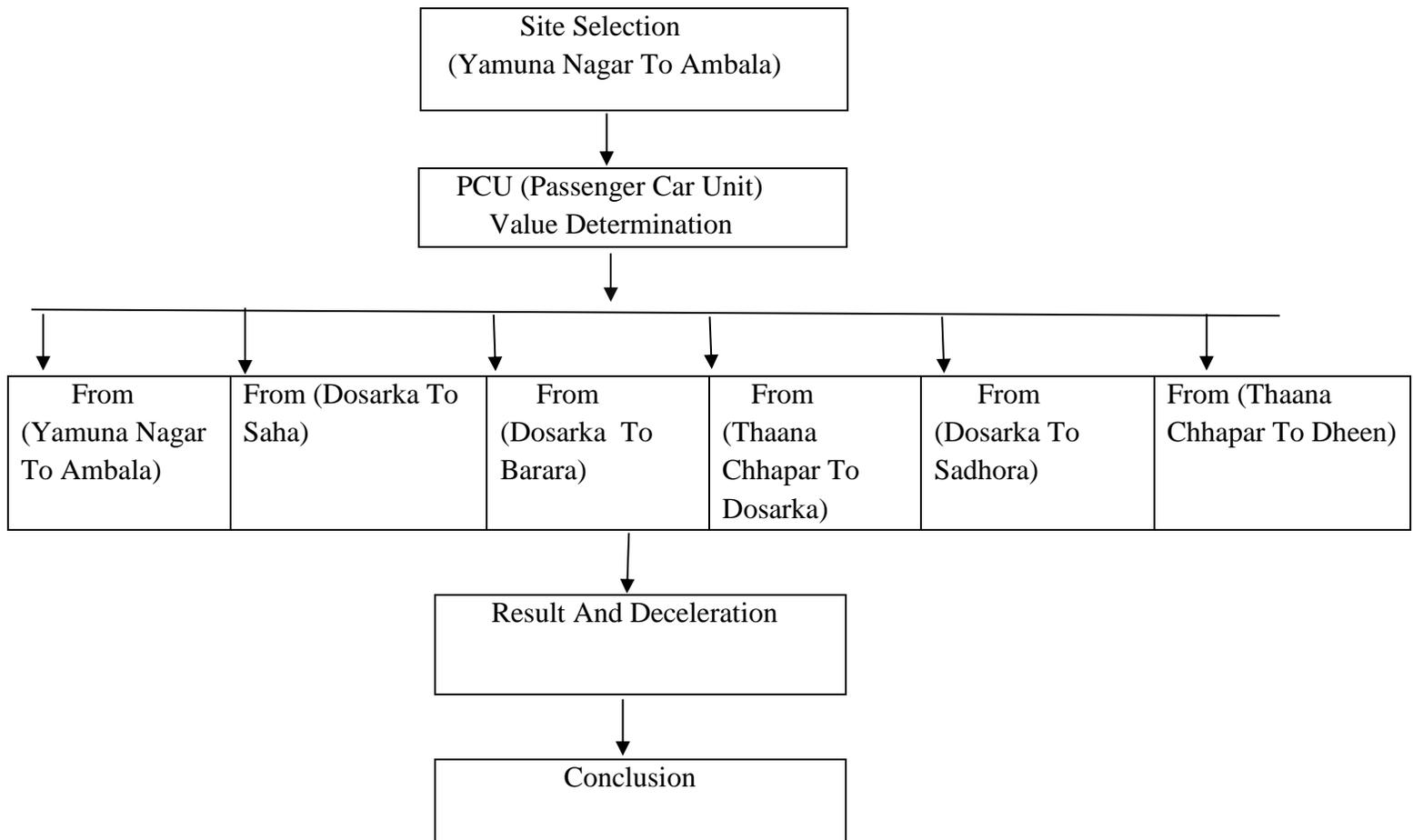
6.	2009	Devraj Hanumappa, Raviraj H. Mulangi and Nityanand S. Kudachimath	Analysis of traffic management	The population of India which is growing at a tremendous rate coupled with the growing cities has resulted in the increased individual distance travelled for their daily commuting
7.	2016	Kapileswar Nellore and Gerhard P Hancke	Analysis of traffic management	The bedrock capacities of roads and Transportation system have not developed In an equivalent way to efficiently cope with The number of vehicles traveling on them.
8.	2015	Dinesh Mohan, Geetam Tiwari and Kavi Bhalla	Analysis of traffic management	The situation in India is worsening and road traffic injuries (RTI) have been increasing over the past twenty years.
9.	2018	Rustem Sakhapov and Regina Nikolaeva	Analysis of traffic management	Road transport development has positive And negative consequences.
10.	2016	Jacek Oskarbski	Analysis of traffic management	Traffic incidents and accidents contribute To decreasing levels of transport system reliability and safety.

OBJECTIVES/PURPOSES OF TRAFFIC MANAGEMENT

- 1) To reduce the number of accidents
- 2) To ensure the smoothness of traffic movement
- 3) To Improve the movement of goods and humans

- 4) To balance the modal split
- 5) To minimize the clash between vehicles and the pedestrian
- 6) To control and manage the car park

METHODOLOGY: -



RESULT:-

The interpretation and discussion of the obtained results makes it possible to draw conclusions and propose solutions in the area of contemporary issues – analysis of intelligent transportation systems that use neural networks with respect to the recommended model of road traffic management. With a view to further research, the most advanced information technologies were characterised and classified, which revealed some of their shortcomings and limitations, especially in terms of basic methodological problems of designing such technologies in the area of planning, control and management. The new prospects and advantages offered by the research concentrate around qualitative methods for supporting design decision-making in the area of management, and possibilities of using neural networks in flexible intelligent transportation systems. Designing flexible intelligent transportation systems attracts continuous interest and currently constitutes one of basic directions of research that is of fundamental importance in the study of engineering and transportation management.

The research, though limited, shows that the possibility of road traffic management largely depends on the level of undertaken activity involving the use of neural networks. As the above-presented research results, so different from those obtained by other researchers, show, this requires overcoming quantitative limitations. The need to change the paradigm of perception refers to the design, functioning and management of road traffic using neural networks. This statement takes on a new importance during the shift from the extensive to the intensive phase of economic globalisation. The extensive phase is characterised, among other things, by a simple migration of individual data. However, it can be assumed that in the long run more competitive will be those systems in which innovative techniques of road traffic management have been implemented, thus allowing, among other things, the existing road infrastructure to be used. Such an approach is a characteristic of intensive globalisation, which in the future will prevail over the present one, as the extensive growth possibilities of the existing systems will be exhausted. Thus, this situation imposes new requirements on the forms of flexible intelligent transportation systems, which are one of the tools for increasing the potential of neural networks. Therefore, efforts should be taken to create new forms of prospective directions of road traffic management in line with the evolutionary progress in the area of fully automated ITS. With the complexity of these systems growing dynamically, conventional technologies can no longer meet the requirements of modern civilisation. This leads to decreased control that a human being exerts over the systems they create, which in the area addressed in this paper is manifested in ITS's low tolerance to disruption, considered to be the major disadvantage of such systems. An increase in this control, without the need for a human being to be engaged in each case, as well as an increase in the control over the complexity of systems, without the loss of their functionality, leads to the phenomenon of intelligent transportation systems that use neural networks. A promising path in this regard is to take advantage of the natural paradox of constructing reliable systems from unreliable elements. The above-presented model of road traffic management does not diminish the importance of partial, universal solutions.

CONCLUSION:-

The improvement of town traffic condition is largely dependent on the modern ways of traffic management and control. Advanced traffic signal controllers and control system contribute to the improvement of the urban traffic problem. The intelligent of traffic signal controller that is introduced in this project with powerful functions and hardware interface. Good quality social benefit has been made through the application of the intelligent traffic controller in practice, and the application result shows that the intelligent traffic signal controller will improve.

Traffic signals mainly operate in three modes, which are Fixed-time mode, Semi-time mode and Actuated mode. For this project, the actuated mode was chosen. Under this mode, there are detections for all approaches. The traffic signal is set to provide the green light "on-demand" or only in the presence of vehicles. If the road has pedestrians crossing, the pedestrian must push button in order to cross either the major or minor streets.

This project has two major phases. The first stage is to design a program, which consists of reading, research, planning and designing a program. The simulation is needed to get a waveform and the output of this simulation must be a same value or data with the waveform. After that, continue with the hardware implementation using the gate logic and the interface light is using led. The blinking is depending on the state machine transition.

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As a conclusion, the controller can control the traffic movement and detect a busy and non busy road. The overall of this project is ok but certain condition the traffic signals are not function properly. The critical problem is about the timing. The output of the timing always changing, certain time the timing is ok and certain time is not. The environment and equipment's are used can effects the output.

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