

MARA INSTITUTE OF TECHNOLOGY
(ELECTRONICS DEPARTMENT)
SCHOOL OF ENGINEERING

STUDENT'S PROJECT REPORT ON:

"MODEL OF SEQUENTIAL TRAFFIC LIGHT CONTROLLER."

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Thank You,

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ABSTRACT

The original topic for the project was "Programmable Traffic Light System." But, consultation with the GEC Traffic Light Consultant had proven the above project to be not feasible for a Diploma student because it involved many complexity. But, initiative was undertaken to proceed with other project on traffic light and the present topic was finally accepted, though at first it was hard to believe that the project could be carried out with the very elementary knowledge that we have on digitals.

IC chips were mostly used in the project to replace the mechanical parts used in real life traffic light system. The use of ICs would eliminate the problem of space, weight and cost. Though ICs have some advantages over mechanical parts, they could not fully replaced the latter because ICs could not withstand much shock and vibrations.

As a whole, the use of ICs in this project had proven to be successful when the prototype of the model run satisfactorily. But, it was rather unfortunate that the project, when fully assembled did not function at all. The fault could not be detected since time did not permit us to do so.

This report on

"MODEL OF SEQUENTIAL TRAFFIC LIGHT CONTROLLER."

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CHAPTER 1

INTRODUCTION

Each day the number of vehicles on the road keep on increasing. An efficient traffic light system is thus necessary in controlling the traffic flow.

Traffic light system can categorised into four categories namely:

- 1) the fixed time system
- 2) the continuous green (green wave) system
- 3) the vehicle actuated system
- 4) the computerised system.

In our model, the intersection of Jalan Barat - Jalan Utara and the Federal Highway is a perfect model example of an intersection that we had in mind.

To design a complete traffic light system on a model scale is rather complex. It is possible to design the system on a model scale, but, much time will be consumed and more attention must be paid especially to the designing part. For convenience, the system was broken up into several sections and our project mainly deals with the fixed time system having two variable time periods and some additional features such as:

- 1) provision of manual longer green period
- 2) provision of manual override switch
- 3) provision of immediate green to existing red light lane.

The project had to be broken up into two parts.

Part I deals with the input requirements to Part II such as:

- i) regulated power supply
 - ii) the clock input and
 - iii) digital display
- and is undertaken by Zainal.

Part II of the project deals with:

- i) the combinational circuit which give the sequential timing of traffic lights
 - ii) traffic light display and
 - iii) PCB designing,
- which is undertaken by Mohd. Norain.