SOLID-STATE INDICATION SYSTEM FOR AUTOMOTIVE APPLICATION

This project is presented in partial fulfilment for the award of the

Bachelor of Electrical Engineering (Honours)

UNIVERSITI TEKNOLOGI MARA

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ABSTRACT

This project involved the design of solid-state indication system for automotive application. The significance of the project is in the designing of active brake signal and the application of low power solid-state device as replacement to the conventional indication system for automotive. The system is designed to increase safety and reduce the power consumption in vehicle.

During initial design session, the existing system was studied. The area of improvement is identified and a rough system design is proposed. Also, the related international standard was collected to ensure proposed design follows the international requirements.

Once the proposed design has satisfied the objective of the project, the circuit was designed with suitable values. After all the circuit has been satisfied, a computer simulation using OrCAD® Capture v9.1 series – an electronics aided design software was performed.

When all the simulation results satisfied with the design specification, the circuit was constructed and tested on a test board. Here component values were adjusted and the circuit was fine tuned.

In conclusion, the system constructed met the specification by the design, simulation and build. There were few improvements should be done to the system for better functionality, as mentioned briefly in future development.

KEYWORD: Dynamic Brake Signal (DBS), LED Light Source.

TABLE OF CONTENS

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter lays the groundwork of the project. It provides basic but crucial information required by the reader in understanding the thesis as a whole. It provides the objectives, scope of work, some literature review and last but not least on how the thesis was organised.

By the end of the chapter, reader is expected to get an overview of what will be discussed throughout the thesis.

1.2 Objective

The project is aimed to:

- Design of solid-state indication system result of upgraded from existing automotive indication system.
- Introduce a new signalling system, Dynamic Brake Signal (DBS).
- Built a test circuit for obtaining circuit parameter as a comparison to the existing system in terms of power consumption.

1.3 Project Background

The project is primarily requires the knowledge on how the indication system in automotive are working. The knowledge further forwarded to design stage which utilizes the skills in computer simulation using OrCAD® Capture software.