

VEHICLE IDENTIFICATION SYSTEM

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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This report is submitted in partial fulfillment of the requirements for the award of Bachelor of Electronic Engineering (Computer Engineering) With Honours

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Special dedication to my beloved father and mom, my entire sibling and my kind hearted supervisor PM Abdul Rani Bin Othman, and my dearest friends.

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ABSTRAK

Projek ini telah dibahagikan kepada dua fasa utama; pembangunan perkakasan dan pembangunan pangkalan data. Dalam pembangunan perkakasan itu meliputi litar pemancar dan litar penerima pembinaan yang menggunakan pemancar RF dan penerima dengan frekuensi 315MHz. Sementara itu, dalam pembangunan perkakasan, ia juga terdiri daripada pembangunan perisian; dan melibatkan reka bentuk, proses simulasi dan muat turun proses mikropengawal.

ABSTRACT

This project has been divided into two main phases; hardware development and database development. In the hardware development covers transmitter circuit and receiver circuit construction that using RF transmitter and receiver with 315MHz frequency. Meanwhile, in the hardware development, it is also occupied software development; it is involved with the design entry, simulation process and downloads process of microcontroller.

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LIST OF ABBREVIATIONS

PC	-	Personal Computer
PCB	-	Printed Circuit Board
PIC	-	Programmable Interrupt Controller
DC	-	Direct Current
LED	-	Light Emitting Diode
I/O	-	Input and Output
ADC	-	Analog Digital Converter
UV	-	Ultra Violet

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CHAPTER 1

INTRODUCTION

1.1 Project Introduction

A method for identifying an object and determining the location of an object is disclosed. The method includes the steps of focusing a first directional antenna on a first area, focusing a second directional antenna on a second area, transmitting a first field strength pulse from the first directional antenna, transmitting a second field strength pulse from the second directional antenna, and comparing in a transponder the first field strength pulse to the second field strength pulse to determine in which of the two areas the transponder is located [1].

In the preferred embodiment of the present invention the method relates to a Vehicle Identification system capable of vehicle lane discrimination. The system include a receiver, for receiving a registration number of a motor vehicle over a communication network, database containing information associated with vehicle registration numbers and computing means in electronic communication with the receiver. The computing means is arranged to retrieve motor vehicle information associated with the received motor vehicle registration number, from the database. The receiver is arranged to

transmit the motor vehicle information retrieved from the database by the computing means, over the communications network [1].

There are many types of technology that are been used in the development of vehicle identification system. Those technologies are such as RF, Barcode, Bluetooth and Wi-Fi technologies.

The project is proposed to develop vehicle identification system by using radio Frequency, RF. The RF consists of one RF transmitter and one RF receiver. The data transfer speed varies based on the frequency of receiver and transmitter. Make sure the transmitter and receiver are both for the same frequency for an application [2].

1.2 Project Objectives

The major objective of this project is to develop a vehicle identification system that contains a RF transmitter and receiver with same frequency. The other objective is to construct the circuit of receiver and transmitter by using encode and decode concept.

1.3 Scope Of The Project

The scopes of work to complete this project includes:

- i. Do some researches about a vehicle identification system. After that, feasibility study and read up related technical knowledge.
- ii. Get some literature review about identification system that involve in this project like RF, bar code system, infrared, and Bluetooth. Other than that do research about RF transmitter and receiver characteristics.
- iii. Learn about how the RF transmitter and receiver operation and integration between hardware and software.

- iv. Get some literature review about encode and decode concept.
- v. Get some researches about the circuit of receiver and transmitter that is compatible with the aim of the objective.

1.4 Problem Statement

Problems rising in vehicle identification and city traffic management for example include vehicle registration, annually check, traffic statistic (counting car numbers and measuring speed), anti-theft, police supervision, over-speed check, traffic light and violation control. Other than that, the idea of this project is motivated by our personal experiences that have to queue up in long lines to wait for the police checking. The police and road transport department of Malaysia (JPJ) officer still using the conventional way in road block. They have to check one by one vehicle that passes by. It will cause traffic jam. In addition it also may cause accidents. By using this system it can be automatic detected the problem's car in a long range where the RF transmitter will transmit the data or the number of the vehicle to the receiver where the receiver is the police or road transport department of Malaysia (JPJ) officer. It will automatically detected and no need for all vehicles to stop their vehicle when police or road transport department of Malaysia (JPJ) officer doing the road block. The problems about missing vehicle also can be resolved. By using this system also can automatically detect the stolen vehicle, automatically detect vehicle which have summons, automatically detect vehicle which have end the road tax, decrease the traffic jam and accident.