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 Electronic Engineering (Computer Engineering) With Honours

Fakulti Kejuruteraan Elektronik dan Kejuruteraan Komputer
Universiti Teknikal Malaysia Melaka

April 2009

UNIVERSITI TEKNIKAL MALAYSIA MELAKA
FAKULTI KEJURUTERAAN ELEKTRONIK DAN KEJURUTERAAN
KOMPUTER

BORANG PENGESAHAN STATUS LAPORAN
PROJEK SARJANA MUDA II

Tajuk Projek   :   VEHICLE IDENTIFICATION SYSTEM

Sesi Pengajian   :   2006/2009

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Author : PM ABDUL RANI B. OTHMAN

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…

Special dedication to my beloved father and mom, siblings, my supervisor and all my friends for their support and advice towards the project successfulness.

ACKNOWLEDGEMENT

A greatest thankful to Allah S.W.T for the blessing toward successful of this project. Then, I would like to extend my sincere appreciation to my supervisor, PM Abdul Rani b. Othman for his assistance and guidance toward the progress of this project. Through the year, PM Abdul Rani B. Othman has been patiently monitoring my progress and guided me in the right direction and offering encouragement. Obviously the progress I had now will be uncertain without his assistance. I also would like to thank to my family especially to my parents, without their support and understanding this would not have been possible.

ABSTRACT

This paper presents approach to develop a database management system for vehicle identification. The database management system consists of database and graphical user interface(GUI). The database was developed in Microsoft Office Access while the GUI was developed in Microsoft Visual Studio 2005. Microsoft Access provided space to store all information about vehicle. Informations in database included summons' details, owner's details and insurance's details of vehicle. All informations were sorted according to the identification number.

ABSTRAK

Kertas ini membentangkan pendekatan untuk membangunkan sistem pangkalan data bagi sistem pengenalan kenderaan. Sistem pengurusan pangkalan data mengandungi pangkalan data dan antara muka pengguna grafik. Pangkalan data telah dibangunkan dalam Microsoft Office Access manakala antara muka pengguna grafik dibangunkan dalam Microsoft Visual Studio 2005. Microsoft Access menyediakan ruang untuk menyimpan semua maklumat mengenai kenderaan. Maklumat-maklumat dalam pangkalan data termasuklah maklumat saman, maklumat pemilik dan maklumat insurans mengenai kenderaan. Semua maklumat disusun mengikut nombor pengenalan.

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LIST OF ABBREVIATIONS

DBMS	-	Database Management System
GUI	-	Graphical User Interface
RFID	-	Radio Frequency Identification
VIN	-	Vehicle Identification Numbers
VB	-	Visual Basic
VIS	-	Vehicle Identification System
MSDN	-	Microsoft Developer Network
SQL	-	Structured Query Language
RDBMS	-	Related Database Management System
DAO	-	Data Access Object
ODBC	-	Open Database Connectivity
API	-	Application Programming Interface
ODMG	-	Object Data Management Group
IBM	-	International Business Machines Corporation

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CHAPTER 1

INTRODUCTION

1.1 PROJECT BACKGROUND

A vehicle identification system includes a transmitter, receiver and a database management system. The transmitter can be placed on any part of a vehicle. The system will read data from tag. The tag were contains identification number for the vehicle. Receiver for the tag is a reader which will be placed in the system. This system also required a database management system to manage and display the data that is associated with identification number.
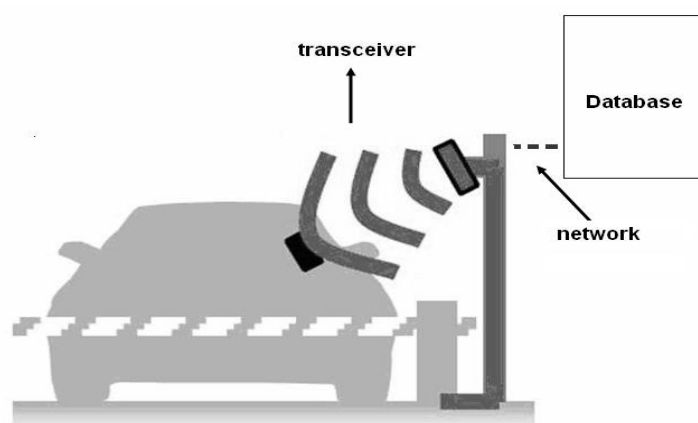
Figure 1.1: Vehicle Identification System

1.2 PROBLEM STATEMENTS

There is lots of news about missing vehicles nowadays. Besides, there are also many vehicle owners who did not renew their road taxes. The development of database management system for identification system can help in avoiding such cases. Information from database can help the authorities to detect the stolen vehicle and also detect vehicle which have summons.

1.3 PROJECT OBJECTIVES

The main objective of the project is to develop a database management system for vehicle identification.

1.4 SCOPES OF WORK

There are several scopes that need to be considered in order to accomplish this project. The main scope of this project is to develop a database management system for vehicle identification. The database will be developed using Microsoft Access as Database Management System (DBMS) and also using Visual Basic to develop the GUI. More than that, database that will be developed must be able to displayed information of vehicle according to identification number.

1.5 METHODOLOGY

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                    ┌─────────────┐
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                │ Phase 1 : Discussion  │
                └──────────────────────┘
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                │ Phase 2:Choose the best │
                │      software         │
                └──────────────────────┘
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                ┌──────────────────────┐
                │ Phase 3:Design and Develop │
                │      Database         │
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                ┌──────────────────────┐
                │ Phase 4: Implementation │
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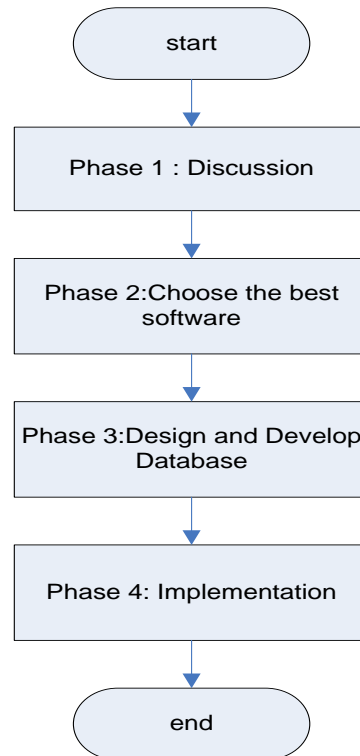
Figure 1.2: Project Methodology

Phase1:-

Meet supervisor and discuss the project progress. Get advice from supervisor in order to choose the suitable software to develop the database. Find more information from internet, books, and so on. Then, understanding the concept and theory for the database management system (DBMS).

Phase2:-

The second phase is about literature reviews for the database development. In this phase, do surveys to the previous vehicle identification DBMS project in order to determine the best approachment to develop database. Also, do the comparison of DBMS and GUI software to choose the best software. Then, find more information about the main element of database which is the identification number. The literature survey was taken from books and internet.

Phase3:-

The third phase is about designing the database and Graphical User Interface (GUI) for the system. The database and GUI were developed by using the chosen software. Study more about programming while designing the GUI and database. The development of database is done in this phase.

Phase4:-

At phase 4, the development for GUI was continued. Source code for object in GUI was developed so that the GUI will function. The database was linked to the GUI in this phase.

CHAPTER 2

LITERATURE REVIEWS

2.1 Vehicle Identification Number

2.1.1 Definition

Vehicle Identification Numbers (VINs) are unique identification sequences on every car manufactured in the United States and many other countries. These numbers are sort of like a fingerprint for a car. They help to keep track of problems, ownership changes, and deter theft. VINs are a security feature, as they help to combat fraud, and are the main way vehicles are identified for administrative purposes. They are checked at each warrant of fitness or certificate of fitness inspection. Because they're recorded on a centralized database, all VIN records are accessible to the Police and vehicle inspectors. [1]

A VIN is a 17-character sequence containing both numbers and letters. It is affixed to every car, truck or trailer made in the United States after 1981. No two cars built within 30 years of each other can have the same VIN. The Motor Vehicle Records database tracks information on a VIN, such as when the car was inspected, when it changed ownership and if it was involved in a serious crash, rollover or flood. [2]

Figure 2.1: Vehicle Identification Number

In 1987, the Department of Transportation's Motor Vehicle Theft Prevention Standard required manufacturers to also put the VIN on the major parts (like engines, hoods and fenders) of certain vehicles if the car is considered "high theft". [2]

On most cars, you can find the VIN on the dashboard on the driver's side, and it's visible through the windshield from outside the car. It is usually on a sticker or plate on the inside of the driver's side door or on the frame sill where the door closes. The VIN is sometimes printed inside the glove compartment, and it's usually on the car's title and/or on insurance documents. [2]

2.1.2 Reviews of vehicle identification system [2]

Detroit automobile manufacturers began stamping and casting identifying numbers on cars and their parts in the mid 1950's. The primary purpose of this vehicle identification number (VIN) was to give an accurate description of the vehicle when mass production numbers were starting to scale in very significant numbers. The early VINs came in a range of variations depending on the individual manufacturer at that time.

In the early 1980's the U.S. National highway Traffic Safety Administration (USDOT) required that all road vehicles must contain a 17 character VIN. This established the standard fixed VIN system which major vehicle manufacturers use currently. The result was a unique "DNA" style number for each individual vehicle rolled off the assembly line.

The Vehicle Identification Number was originally described in ISO Standard 3779 in February 1977 and last revised in 1983. The ISO-VIN was designed to

identify motor vehicles, trailers, motorcycles and mopeds and consists of several parts described below.

The United States Department of Transportation created a consistent, unified VIN system in 1981. Specifically, it included the VIN system in the Code of Federal Regulations, Title 49, Chapter V, Part 565 . Prior to 1981, auto manufacturers used their own numbering system to stamp cars with unique IDs. The VIN system conforms to a standard developed by the International Organization for Standardization in 1977: ISO 3779. Manufacturers use all letters and numbers, with the exception of the letters I, O and Q.

2.1.3 How To Read VIN

2.1.3.1 Peninsular Malaysia [3]

Vehicle license plates used in Peninsular Malaysia start with a letter of the alphabet defining one of its states where the vehicles are registered. Following an *ABC 1234* format, none of the license numbers use a checksum digit. The regional codes include:

    i.   A: Perak

   ii.   B: Selangor, including plates registered in Kuala Lumpur before the city separated as a Federal Territory in 1974.

  iii.   C: Pahang

  iv.   D: Kelantan

   v.   J: Johor, including the Johor Government (JDT 1 to JDT 10) and Johor Military Force (*Askar Timbalan Setia Negeri*) (JMF)

  vi.   K: Kedah, including Langkawi (KV)

 vii.   M: Malacca

viii.   N: Negeri Sembilan

  ix.   P: Penang

   x.   R: Perlis

  xi.   T: Terengganu (plate T & TA were used by Kelantan)

 xii.   Vehicles registered in Federal Territories:

a. L: Labuan

b. Putrajaya (stylised in oblique Calisto) as the lead text: Putrajaya. Putrajaya's regional prefix is the only kind in the country to represent a region in its full name.

c. W: Kuala Lumpur, issued after the city attained Federal Territory status in 1974; the W represents "*Wilayah Persekutuan*", a Malay term for "Federal Territory". The W series plate is the most numerous license plate issued, at over 4 million as of March 2008.

Since British Malaya, The P, M and W series of plates, along with the S series, were originally created by the British colonial government as one of four early Straits Settlements license plate prefixes during the 1900s: P denotes Penang island, M denotes Malacca, W denoted "Wellesley" of Province Wellesley, and S denotes Singapore. The Province Wellesley plates were issued until 1957 when it was replaced by P series, while the S series is no long administred by the Malaysian Road Transport Department following Singapore's succession from Malaysia in 1965; in the years that follow, the Singaporean license number system began to change with the modification and reintroduction of its "S" prefix and inclusion of a checksum digit as a suffix, in the addition to new prefixes and colour schemes for different classes of vehicles.

2.1.3.2 Peninsular Malaysia [3]

Vehicles registered in the states of Sarawak and Sabah are allocated vehicle number plates commencing with the letters Q (Sarawak) or S (Sabah), followed by the regional code and a serial number - when 9999 is reached a serial letter is used, in alphabetical order, before the serial number in Sarawak and after the serial number, in Sabah. Both license number formats are the result of extensive modifications in the decades following the states' entry into the Malaysia federation in 1963, in an effort to prevent conflicts with license numbers in Peninsular Malaysia and Singapore.

2.1.3.2.1 Sarawakian license numbers [3]

Presently, Sarawakian license numbers follow either the new version of the regional code ("QKA 1234") or the former version ("KA 1234 Q"). Before Sarawak's entry into Malaysia in 1963, the license numbers did not include a "Q" suffix (thus reading "KA 1234"), and were originally distinguished only by "xD" prefixes, with "x" as a number representing any one of the then five Administrative Divisions in the state, followed by a number of up to four digits (i.e. "3D 5690"). For examples, the "1D" prefix was used to represent the First Division of Sarawak, present-day Kuching Division. The original prefix series is as follows:

i.   **1D**: 1st Division (Present-day Kuching Division)
ii. **2D**: 2nd Division (Present-day Simanggang (Sri Aman), Samarahan and Betong Divisions)
iii. **3D**: 3rd Division (Present-day Sibu, Bintulu, Kapit and Sarikei Divisions)
iv. **4D**: 4th Division (Present-day Miri Division)
v.   **5D**: 5th Division (Present-day Limbang Division)

In time, single letters began to replace the original "xD" series, but after new Divisions were formed in the state, new series of xD license numbers were also issued. During the 1970s, Sarikei Division and Kapit Division were formed and split from the Third Division to become the Sixth and Seventh Divisions, and were therefore assigned the 6D and 7D prefixes, respectively. By the 1980s, the following license number prefixes were issued in the state:

2.1.3.2.1 1 Before 1991

i.   **6D**: 6th Division (Sarikei Division)
ii. **7D**: 7th Division (Kapit Division)
iii. **B** : Simanggang Division (Sri Aman Division)
iv. **K** : Kuching Division. The "KT **** Q" series was issued halfway before its replacement by the QA and QK prefixes in 1991.
v.   **L** : Limbang Division