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JUDUL: VEHICLE MANAGEMENT SYSTEM FOR TENAGA NASIONAL BERHAD  
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Vehicle management system for Tenaga Nasional Berhad  
Kelantan / Noor Aidah Ahmed.

VEHICLE MANAGEMENT SYSTEM  
FOR  
TENAGA NASIONAL BERHAD KELANTAN

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This report is submitted in partial fulfillment of the requirements for the  
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FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY  
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2006

## DECLARATION

I hereby declare that this project report entitled  
**VEHICLE MANAGEMENT SYSTEM FOR TENAGA NASIONAL BERHAD**  
**KELANTAN**

is written by me and is my own effort and that no part has been plagiarized  
without citations.

STUDENT : \_\_\_\_\_ Date : \_\_\_\_\_  
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SUPERVISOR : \_\_\_\_\_ Date : 22 NOV 2006  
(PUAN ROSMIZA WAHIDA BT ABDULLAH)

## **DEDICATION**

Special thanks for my beloved parents especially my beloved mother, Mrs Maimun Bt

Zakaria, my beloved father, Mr Ahmed B Salleh and also all siblings.

Also, to my fellow friends that give me more your appreciation and supports.

## ACKNOWLEDGEMENT

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Last but not least, I would like to thank everyone who helped me to finish up this report and also help me to complete my *Projek Sarjana Muda I* (PSM I) as scheduled and successfully.

## ABSTRACT

The system developed for Projek Sarjana Muda (PSM) is entitled Vehicle Management System for Tenaga Nasional Berhad (TNB) Kelantan. Vehicle Management System for Tenaga Nasional Berhad (TNB) Kelantan is proposed as a topic for this final project, with the intention of upgrading the current standalone system to a web-based or online system. This proposed system should achieve a systematic management of vehicle or transportation management. The proposed system of Vehicle Management for Tenaga Nasional Berhad Kelantan is all about the process of managing and scrapping TNB's have-used vehicles in order to smooth the management progress of the vehicles in order to handle the registration and scrapping it. Previously, the current management of TNB's vehicles is handled in a manual way. All the information still uses the papers or forms manually without having a well-organized system to manage those vehicles. The information and all data are stored using insufficient way by using Microsoft Excel. Furthermore, the current process is not suitable to be used by Tenaga Nasional Berhad as the largest electricity utility company in Malaysia. It is highly expected that with the initiative to develop this new system, from a standalone concept to a web-based system, it will help the staffs and the head of the TNB Human Resource Department to store and manage data efficiently and in a more organized manner. The Object-oriented Analysis and Design (OOAD) is one of methodologies that have been selected in developing this system. The Rational Unified Process (RUP) methodology acts as tools that allow verifying software quality, managing requirements, developing system iteratively and controlling changes of software. Hopefully with this idea, this system is capable to help smooth and enhance the vehicle management of Tenaga Nasional Berhad.



## ABSTRAK

Sistem yang dibangunkan untuk Projek Sarjana Muda I (PSM I) ini dikenali sebagai Sistem Pengurusan Kenderaan Tenaga Nasional Berhad (TNB) Kelantan. Sistem Pengurusan Kenderaan Tenaga Nasional Berhad Kelantan dicadangkan sebagai satu topik untuk projek akhir, bagi menaiktarafkan sistem sedia ada kepada sistem web atau on-line. Sistem yang dibangunkan ini perlu mencapai satu sistem pengurusan kenderaan yang bersistematik. Sistem Pengurusan Kenderaan Tenaga Nasional Berhad ini melibatkan proses pengurusan dan pelupusan kenderaan sudah guna bagi melancarkan pengendalian proses pengurusan kenderaan tersebut. Sebelum ini, sistem pengurusan kenderaan TNB yang sedia ada dikendalikan secara manual sahaja. Semua pengurusan maklumat-maklumat masih lagi menggunakan sistem borang tanpa ada sistem pengurusan yang lebih teratur. Semua maklumat masih lagi disimpan menggunakan Microsoft Excel yang kurang berkesan. Tambahan pula, sistem yang digunakan tidak sesuai digunakan lagi bagi sebuah syarikat pembekal elektrik terbesar seperti TNB. Dengan inisiatif untuk membangunkan sistem ini, kepada sistem berkomputer, akan dapat memudahkan pekerja di bahagian Pentadbiran dan Pengurusan Sumber Manusia mengendalikan data secara lebih efisien. Object-oriented Analysis and Design (OOAD) adalah metodologi yang digunakan dalam pembangunan sistem ini. Rational Unified Process (RUP) merupakan satu cara untuk memperlihatkan kualiti sistem, keperluan sistem, pembangunan sistem dan pengawalan perubahan dalam sesuatu sistem. Dengan pembangunan sistem ini akan dapat membantu sistem pengurusan kenderaan TNB agar lebih lancar lagi.

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# CHAPTER I

## INTRODUCTION

### 1.1 Project Background

Vehicle Management System for Tenaga Nasional Berhad Kelantan (VEMS) is proposed as a topic for this final project, with the intention of upgrading the current standalone system to a web-based or online system. Hopefully with this idea, this system is capable to help smooth and enhance the vehicle management of Tenaga Nasional Berhad.

Basically, the proposed system of Vehicle Management for Tenaga Nasional Berhad Kelantan is all about the process of managing and scrapping TNB's have-used vehicles in order to smooth the management progress of the vehicles in order to handle the registration and scrapping it. The system is proposed to the staff in Administration Department who will be in charge in managing the TNB's vehicle. The carrying out of this system is to transform the manual manner in managing the vehicle that has been used every single day at Tenaga Nasional Berhad Kelantan.

After a series of observation, "Vehicle Management System for Tenaga Nasional Berhad Kelantan" is proposed as a topic for this final project, with the intention of

upgrading the current standalone system to a web-based or online system. Accordingly, this proposed system should achieve a systematic management of vehicle or transportation management.

Previously, the current management of TNB's vehicles is handled in a manual way. All the information still uses the papers or forms manually without having a well-organized system to manage those vehicles. The information and all data are stored using in proper way by using Microsoft Excel. Furthermore, the current system is not suitable to be used by Tenaga Nasional Berhad as the largest electricity utility company in Malaysia. It is highly expected that with the initiative to develop this new system, from a standalone concept to a web-based system, it will help the staffs and the head of the TNB Human Resource Department to store and manage data efficiently and in a more organized manner.

## **1.2 Problem Statements**

There are a few problems with the current process in managing the vehicles that had made to come up with the idea to enhance it. That includes:-

- There is no system even using a standalone concept or manual process, making it ineffective since process can only be done in the office, and not any place available.
- The current process is using Microsoft Excel is not user-friendly and not flexible. This is because the current process is not well-organized in order to manage too much data and information only stored in Microsoft Excel. In addition, there are insufficient graphical interface designs to handle the vehicles information.
- There are a few useless handling of function in the system. For example, the data analysis functions according to various categories such as vehicles analysis based on TNB's station in Kelantan cannot be done properly.

### 1.3 Objectives

The aim of this project is to provide a system and solve existing problem of manual approach.

Objectives of this system are as followed:-

1. To developing a web-based system where the TNB's staff or the user can search for additional information of the scrapping vehicles on procedures and other related information.
2. To register and keep the information about all TNB Kelantan's vehicles.
3. To build up a system that provides and generates the summary or report from the database records in order to get the whole view about the vehicles amounts.
4. To make easy for the staff to keep the information especially the images or the photos of each angle of vehicles that will be scrapped.

### 1.4 Scopes

The proposed system is capable of performing registration for new TNB Kelantan's vehicles, where the system user or department staff in Administration Department who will in charge in managing the TNB Kelantan's vehicle. This system is responsible for managing the vehicle registration process that includes information on vehicle registration number, the type of that vehicle, the station which where it is used and others related information. Besides, the system is responsible for managing the login and logout function for the user who uses this system.

The staff who use this system will have access to key in the information of new vehicles, before and after the scrapped of TNB's vehicles and keep track the record of the vehicles problem. This vehicle management system is responsible to keep track the



record of the vehicles problem whether they are in a good condition or not. The staff will manage the condition of the vehicles in term to make sure that they should to be repaired or not.

Besides that, the proposed system also provides data analysis during a certain period of time. For example, the system might be able to help the staffs at the department to analyse and mark out the data in the database maybe when a vehicle is scrapped. Lastly, the system is capable of having the system user to perform a searching through the database for specified information such as the information of vehicles based on the TNB's station; the data is sorting by the types of vehicles and the information of vehicles registration. User also can manage the checking and tracking availability of the vehicles and this system will check the availability of the vehicles based on the status selected by staff whether it will be scrap or not. Status that are involved are in good condition; propose to scrap, in repaired and in use.

## **1.5 Project Significance**

The VEMS will benefit TNB in many ways particularly to ease the process flow through paperless and well-organized system.

This VEMS is developed as a web-based system is used to make easy the TNB's staff or the user can search for additional information of the vehicles on procedures the TNB's staff or the user can search for additional information of the scrapping vehicles on procedures and other related information.

Consequently, this developed system will help and make easy the user especially the staff who in charge in managing the vehicles record. This system will facilitate the staff in keeping all the vehicles information. Besides that, they also capable to keep the information of images or the photos of each angle of vehicles that will be scrapped. This system also is proposed to build up a system that provide and generate the summary or

report from the database records in order to get the whole view about the vehicles amounts, the vehicles based on the station, the list of vehicles that have been scrapped.

The approaches in this proposed system would apply the new technologies that are computerized information, systematic data handling and reporting.

## **1.6 Conclusion**

This VEMS for TNB Kelantan has been proposed in order to make easy the process of managing the vehicle and it's related with the objectives to replace the current approach. The main objective is to develop a web-based system where the TNB's staff or the user can search for additional information of the scrapping vehicles on procedures and other related information.

The Chapter 2 will discuss about the literature review and the methodology will be used in developing this system.

## CHAPTER II

### LITERATURE REVIEW AND PROJECT METHODOLOGY

#### 2.1 Introduction

This Chapter 2 begins with a brief overview of describing on literature review and the project methodology, the first section in this chapter will present the fact and finding; it will discuss and evaluate the approaches and related research, references and others finding about the proposed system. The project methodology section is describing the selected methodology that will be used in developing the system.

#### 2.2 Facts and Findings

##### i. Intelligent Transportation System

Intelligent transportation systems (ITS) are a complex of interrelated IT and telecommunication technologies that are applied to transportation infrastructure and vehicles (Cambridge Systematic, 1999).

The process of defining problems, identifying alternatives, evaluating potential solutions and selecting preferred actions that meet goals in a manner that includes all feasible transportation modes. (Meyer, 1993)

ii. Theory of Vehicle Service Maintenance System

This review examines pre-studies conducted from comparing the usual method of service system and this proposed system. Based on the most service system that is applied before to carry out a service, it is discovered that the system used is a manual manner. Besides, the current system never involves any analysis of the vehicles information such as it's performance, failure rate among the vehicles and others analysis.

iii. Workshop Management System for Aplus Car Service Center

This application software is developed by Aplus F&B. This software manages the services at the workshop that covers all process in the workshop. The staffs who use the application or the system will allow to access into Vehicle, Customer, Vendor and Stock master file from the menus.



The screenshot displays a 'Vehicle Enquiry' window with the following data:

Registration No:	11-22-DC
Account:	CEOT01
Name:	EMBASSY OF THAILAND
Registration Date:	/ /
Type/Year:	C200/W202
Chassis No.:	WDB202018-2F-628
Engine No.:	
Engine Oil:	MOBIL 1
Next Service:	23/06/2000
Mileage:	37252
Next Mileage:	47252
Time Accepted:	
Time Promised:	
Road Tax Expiry:	/ / 0.00
Insurance Expiry:	/ / 0.00
Insurer:	
Last Invoice:	AM303431
Last Date:	23/03/2000
Last Amount:	3.50
Receptionist:	F00

At the bottom, there is a search bar and a toolbar with buttons for Add, Edit, Save, Cancel, Delete, View, and Exit.

**Figure 2.1: Example Screen of Workshop Management System for Aplus Car Service Center**

The above figure shows the example interface of the system that has the common functionalities of the system process.

#### iv. The Importance Of Vehicles Inventory Management System

TNB remains a major player in electricity generation that forms a significant part of the Group's diversified range of business activities. Tenaga Nasional Berhad Group is the largest electricity utility company in Malaysia with assets worth more than RM60 billion serving over six million customers throughout Peninsular Malaysia and Sabah. The company likes Tenaga Nasional Berhad (TNB) should have a good asset productivity strategy especially on vehicle management in order to ensure that the productivity and services provide in a good quality manner.

According to John.J.Coyle et al. (2003) ...“Consequently, companies have been investigating approaches to improving asset productivity, or “doing more with less”.



The logistics is one of the important areas for improving asset productivity, and during the last ten to fifteen years many companies have been able to reduce logistics-related assets”.

v. Asset Management Systems

Advanced asset management systems have become an important tool in the management, maintenance and procurement of vehicles for operators of transportation fleets (FHWA, 1999). As defined by the Federal Highway Administration, asset management systems are “a systematic process of maintaining, upgrading and operating physical assets cost-effectively” (FHWA, 1999).

vi. Definition of Access Management

The Michigan Department of Transportation defines access management as: “A process that provides or manages access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed.” [1]

## **2.3 Project Methodology**

A project methodology should be chosen earlier during the project planning. The approach depends on the formalized requirements and on both the general project plan. Actually, the approach will certainly affect all of the planning therefore its pay a huge part in development of this system as a foundation of the system.

The Object-oriented Analysis and Design (OOAD) is one of methodologies that have been selected in developing this system is used defining as “a standard language for specifying, constructing, visualizing, and documenting the artifacts of a software system” (Connolly, T and Begg, C.,1997).