BORANG PENGESAHAN STATUS TESIS*

JUDUL: WORKSHOP INFORMATION SYSTEM

SESI PENGAJIAN: 2004/2008

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WORKSHOP INFORMATION SYSTEM

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This report is submitted in partial fulfillment of the requirements for the Bachelor of Computer Science (Software Development)

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2008

DECLARATION

I hereby declare that this project report entitled

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

STUDENT: _____ Date: 30.4.2008

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SUPERVISOR: _____ Date: 30.4.2008

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DEDICATION

To my beloved parents.

"Achieve the success moments
Only when you dare to face failure."
- Unknown.

ACKNOWLEDGEMENTS

It is well-known as the greatest cliché to write the "biggest thanks" for your supervisor in the acknowledgement section for any supervised report. And even though I despise to begin my dissertation with any kind stereotype, I have to admit that my supervisor Dr Abd Razak is the person that I should express my highest gratitude for not just his guidance but also his enthusiasm, support and reassurance during the completion of this project document and also understand of every dissuculty.. Without him as my supervisor, I am sure this project still in the middle of nowhere.

Enormous thanks also go to Nurul Ashiki Abd Samad whose trigger my interest in developing this project. Also for helping me understanding some of the issues related to workshop industries and for those brilliant suggestion and ideas given. I am hoping that this project will extend our contribution not just to our Universities but also to the field of workshop management in this country.

And finally, I would also like to thank my family, lecturers and friends for their support and understanding especially those who have taken time to advice upon and proof read this document.

ABSTRACT

The current process of workshop management requires different methods in separate environments. All records in the current process are kept in the manual filing system. Workshop Information System (WIS) moves the current environment of workshop management into the current web technology. WIS merges the different environment in one centralized system. It's not just helping the management to record the data and details; but also beneficial to everyone the industry that is responsible for the assessment in order to manage the organizations and respondents involve in the assessment other than generating the statistical outcomes.

ABSTRAK

Kaedah semasa proses pengurusan bengkel memerlukan proses yang berbeza di tempat yang berasingan. Kesemua rekod yang disimpan di dalam sistem fail manual. Workshop Information System (WIS) mengubah kaedah yang digunakan dalam pengurusan bengkel kepada teknologi web semasa. WIS mengabungkan perbezaan tempat kepada satu sistem berpusat. Ia tidak hanya menolong pihak pengurusan merekodkan kemasukan rekod dan data, malahan menguntungkan semua pihak yang terlibat langsung dalam pengurusan bengkel yang memantau penilaian. Proses merekod maklumat organisasi dan responden yang terlibat juga akan menjadi lebih mudah dengan penggunaan sistem ini.

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LIST OF ABBREVIATIONS

WIS	-	Workshop Information System
OOAD	-	Object Oriented Approach Design
SMS	-	Short Messaging System
admin/hr_dprt	-	Administration/Human Resource Department
financial_dprt	-	Financial Department
inventory_dprt	-	Inventory Department
UTeM	-	Universiti Teknikal Malaysia Melaka
UC	-	Use Case
SD	-	Sequence Diagram
ID	-	Interaction Diagram
CD	-	Class Diagram
ERD	-	Entity relationship Diagram
ERM	-	Entity relationship Modeling

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CHAPTER I

INTRODUCTION

1.1 Project Background

The Workshop Information System (WIS) is a new developed system that will be access through an intranet server connection from a workshop. It can be used by any workshop that required to used the system because of the system have a minimal specification that is can be used using Windows operating system. Nowadays, a workshop manage all the information and details and also their business flow using manual paper and filling process that can have consequents of losing data and even data redundancy. By using manual process of form and log books it is disorganized and hard to manage. Normally current system (paper/manual system) gives much trouble to the workshop business flow itself with the complexity of data searching by departments in the workshop

The commonly used system only provided data storing but all the other work must be done manually for example the calculations of total amount need to be paid by a customer. A manual calculation also needs to be done to calculate and make report on monthly or yearly profit statistic of the business. With WIS it still have the similar business flow as current flow, but it been given an IT touch were all the process and procedures will be done in a same interface with many automatic and well organized

functions that reduce the usage of men's power. The WIS will upgrade current business flow to a web based system that needs the user to interact with several interactive interfaces by only clicking the mouse and pressing the keyboard. There are also several additional functions in the system such as inventory alert for reminding on product and components that need to be replaced or purchase and etc.

1.2 Problem Statement

Most people see that business management for car workshops is as not important as the business management of corporate world. Without been realized by others, car workshop is actually hard to management. It is because there are many aspects to be considered before doing any procedure on the business itself either on repair and service vehicle, financial aspect, data and records storage or many more. By handling task and data manually many problems may occurred such as to way of business are hard to manage and disorganized, the possibility of data redundancy and data losing, difficulty on retrieving customer details and visit record, and inefficiency way of calculating wage and profit of the business.

1.2.1 Hard to manage and unorganized data storage

Most of the workshop business is still using manually system in keeping records and details mostly in every aspect of their business. For example, every record on staff details or even financial details are keep in a paper and been store in a file. Day by day, when the business growth, there will be a bundle of similar document in storage cabinet, it will make the document look unorganized. It also will make the work of searching for documents or data became hardly to manage.

In the system of WIS all the data storage will be more organize and well manage because it will be store in databases. A large size of data can b store inside the database, further more, with the database all the data are easy to be handle. Beside that, the process of key-in or storing the data into the system becomes easier where it can be key-in through an interface that will directly store all the information gathered in the dedicated database. With a dedicated function that will be develop in the WIS it will help the data searching process easier than using the manual system.

1.2.2 Have Possibility of data redundancy and losing data

Handling document and data manually will have big possibility to facing data redundancy. This happen because will filling details form it hard to specify either the data have been used before or not. For example, each registration of product in the inventory store must have it own unique number. When the unique number wasn't been automatically generated by any system, the possibility to key-in or filling the same number twice on different item may happen. This will cause problem when auditing the inventory for identification of item need to be replace or order.

Other than data redundancy, the other problem that usually happen is losing the document or data because of inappropriate placement or losing the document while the process of approval or updating from department to another department. For example, when there is new need to be used by the mechanic, a form will be filled up and the mechanic will hand it for request to the inventory department. Before ordering the item, the inventory department needs to hand the document to the financial department or payment transaction, then to the admin department for record and updating. While this process running there are possibility for the losing of the document happen.

To handle the problem there is a solution that can be found when using the WIS which is all the information and data will be directly key-in in the system then the approval or submission to responsible department are handled via intranet which is using

the server connection in the workshop itself. With WIS all the problem regarding data losing can be reduce easily and the problems regarding data redundancy also reduce. This is because with WIS all information or data been key-in to the system will automatically kept in a database. Each database will have it own unique number for every item in the database. The unique number are automatically obtain by the system, so that there will be no more problems occur regarding the data redundancy.

1.2.3 Difficult to retrieve customer visit record(history)

Normally all workshop doesn't have a record regarding all the services been done by a customer to their vehicle. Each time the customer came to the workshop mostly all the mechanic will ask what and when the latest service or component replacement been done to their vehicle. It is possible to remember the entire customer visit to the workshop in a single day or worst if have to remember the entire customer visit for the whole month or year. On side of the customer they also difficult to remember type of services have been done to the vehicle basically because they don't have good knowledge regarding car services or spare parts.

The problem will be hand by WIS with the history record and details that will be store in the system by the mechanics for every single replacement, services or repair been done to their customer. When the customer come for their next visit to the workshop, the mechanic can easily identify the information needed before services or diagnosis the vehicle problems.

1.2.4 Manually report preparation

Using the manually system, all report must also be prepared manually. With the paper based report system, the consequences to face the lost of the report are big.

Moreover, the report that been prepare maybe contain error regarding it is prepare manually where it had to be referred to old manually system of data entry and filling.

1.3 Objective

WIS is basically to help the user to gain the easier and well managed way to run their workshop business with an easy handled system that provided functions to keep the business information and have a proper inventory system. The WIS is a web based system that can be access form anywhere through the same server of the workshop.

To reduce the possibility to face losing of data and data redundancy will keep the information of staff, customers, supplier, and the products or spare parts components. This will give the easier and well managed way to the HR or Administrator Department to handle their job. The WIS also will give an easier way of allocating and searching for needed information regarding staff, customer, suppliers, or products and spare parts because it been stared in well organized databases.

Keep track on the inventory of the products and spare parts components of the workshop is on way to maintain the business flow. With the WIS the user will be able to have a well managed and organized inventory system that will stored all the information on every single products and spare parts component in the workshop. They also will be able to identify which products or spare parts component that need to be ordered or replace with the details from the inventory system.

The WIS will provide information and details on every single customer vehicle that been serviced before at the workshop as history review of the customer's vehicle. This will give the mechanic an easier way to conducts the next session of service or repair the vehicle. Beside that, it also helps the mechanic to have easier way to diagnose the condition of the vehicle.

WIS also will give efficient way on calculating the wage and profit gained by the workshop. Beside that, it gives a proper details record on every transaction in and out been done from the workshop. IT can help to reduce the possibility on gaining problem during calculation process while calculating the payment of the customer or profit of the workshop and etc. Other than that it also give the easier way to produce a report on every transaction of financial of the workshop from one same system in the same platform.

1.4 Scope

The scope of WIS will explain about the limitation and target of the system. There are three main scopes that will briefly explain regarding the system that is the user scope, functionality scope and platform scope. User scope is the part where:

1.4.1 User Scope

- User will be able to get through the WIS when they successfully login to the system with the username and password.
- Each classification of users will have their own access level to the system with different function to handle.
- Target of user to use the system is the worker of a vehicle workshop for many sort of classifications or department such as Administrator and Human Resources, Financial, Inventory, and normal staff such as mechanics.

i. Administrator/Human Resources Department

a. Access to detail management function that is to stored the detail, delete or update it from the systems interface.
b. Have access to update and maintain the WIS
c. Have access to the whole systems.

ii. Financial Department

a. Access to the financial function on calculating the payment to be made by the customer and the total profit of the workshop.
b. Will able to view and record the report on every transaction done by the workshop business flow.

iii. Inventory Department

a. Stored and keep update on information and details of products and spare parts component.
b. Able to keep track and identify the products that need to be replace or order from the supplier.
c. Only able to record the items need to be purchases and issue it to the financial department for further process.

iv. Normal Staff (Mechanics)

a. Able to view the customer vehicle history services record and able to update on the services record.

1.4.2 Functionality Scope

WIS will store all the information and details on the staff of the workshop, their customers, supplier, and also the details on products and spare parts components

- Able to stored large number of data in the database system for storing details and information regarding the workshop business process. The usage of database is the way to reduce data redundancy and to happen.
- Able to handle calculation process regarding payment, profits and etc. This will be used by the Financial Department to view and record the transaction happen in the workshop business.
- Have a well organized inventory system that hold details and information on items in the workshop such as products and spare parts components.

1.4.3 Platform Scope

WIS is developed for workshop with server system to setup the system to be used.

- WIS will be using PHP platform which is a web-based platform and can be access through network server in the workshop
- The database of the system will be using MySQL

1.5 Project Significance

WIS is developed especially for the use of person that involved in the vehicle workshop business. Not only people for the administration department have access to

used the system, but overall workers in the workshop will have access to used the system in with heir related access level that dedicate to many different function in their working area. WIS function was actually developed to several dedicated team such as administrator department, financial department, and even for the mechanics.

With the WIS many benefits can be gain by each individual of the workshop even though to the business flow itself. WIS will give the user to gain experience on handling and having an organize, well manage system with complete functions that help to reduce problem that usually occur before. WIS include several functions such as details and data management for record keeping, financial for profit and wage calculation, history of customer visit for the service and maintenance record, and also inventory system to keep track on every products and spare part component that may needed or need to be replace.

The development of WIS is important because it help to solve the problem that been faced by all kind of vehicle workshop business nowadays. With a system that support the all the business flow, it will bring many advantages to the business itself. WIS will help to reduce the usage of men's power on handling management task such as data registration, data searching, the calculation of monthly profit or wage and many more. With WIS, the problem that related with payment calculation and customer history for maintenance and services can easily be solved. Further more, with the system to be developed as a web based system, all the information and activity done within the workshop can be update at the same time and the procedure can go on the same day without the need to wait for passing papers for department to department.

1.6 Expected Output

After finalize the implementation phase, the Workshop Information System should be able to perform well and suite to the business flow of any vehicle workshop.