

PERPUSTAKAAN UMP



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PRODU (HICOM TECK SEI SIA SDN. BHD) **EM**

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ABSTRACT

The Production Management System (PMS) is special designed for manufacturing industry with the purpose to enhance efficient, effectiveness of stock traceability and data analysis at the production floor. It is also used to replace the manual system to trace stock and carry out analysis task which consume more time and work force. This system includes two modules which are of normal staff and admin. In order to develop a Production Management System for Hicom Teck See Manufacturing Malaysia Sdn. Bhd, Rapid Application Development (RAD) has been chosen. RAD has several characteristics that are suitable for the development of Production Management System. PHP and MySQL have been be used as programming language and database respectively for project development. In this project, using web-based will increase the efficiency and reduce human workload in Production Management System. This system was tested with unit testing, functionality testing, and user acceptance test. The results show the functionality of the system is passed which users satisfy with the system.

ABSTRAK

Sistem Pengurusan Pengeluaran (PMS) adalah khas direka untuk industri pembuatan dengan tujuan untuk meningkatkan kecekapan , keberkesanan pengesanan bekalan dan analisis data di tingkat pengeluaran. Ia juga digunakan untuk menggantikan sistem manual untuk mengesan bekalan dan melaksanakan analisis tugas yang memakan lebih banyak masa dan tenaga kerja . Sistem ini merangkumi dua modul iaitu kakitangan biasa dan admin . Dalam usaha untuk membangunkan Sistem Pengurusan Pengeluaran untuk Hicom Teck See Manufacturing Malaysia Sdn . Bhd , metodologi Rapid Application Development (RAD) telah dipilih . RAD mempunyai beberapa ciri-ciri yang sesuai bagi pembangunan Sistem Pengurusan Pengeluaran . PHP dan MySQL telah digunakan sebagai bahasa pengaturcaraan dan pangkalan data masing-masing untuk pembangunan projek . Dalam projek ini , dengan menggunakan berasaskan web akan meningkatkan kecekapan dan mengurangkan beban kerja manusia dalam Sistem Pengurusan Pengeluaran . Sistem ini telah diuji dengan ujian unit , ujian fungsi , dan ujian penerimaan pengguna . Keputusan menunjukkan fungsi sistem itu diluluskan yang pengguna berpuas hati dengan sistem.

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Chapter 1

Introduction

1.0 Introduction

This chapter will briefly introduce the Production Management System. The Production Management System is special designed for manufacturing industry with the purpose to enhance efficient, effectiveness of stock traceability and data analysis at the production floor. It is also used to replace the manual system to trace stock and carry out analysis task which consume more time and work force.

1.1 Background

Most of the manufacturing, production floors still insist in manually key in data and conduct analysis. Why this phenomena still happening? Because they do not understand well about the potential of a software solution and assume that software solution would be a complicated work. Nowadays, there is lots of software in the market which only need to key in data 1 time with different types of analysis can be generated in a short period of time. A software solution may include system that helps a company and business to increase productivity, reduce redundancies, and boost efficiency. There are many types of software solution in the market, such as web application, mobile application, and standalone application.

This Production Management System is designed and developed for Hicom Teck See Manufacturing Malaysia Sdn. Bhd is a one stop center for plastic material products Hicom Teck See Manufacturing Malaysia Sdn. Bhd. Hicom Teck provides services including product design and development, testing, injection molding, blow molding, assembly and painting. This company also supplies quality-consistent parts inclusive of bumpers, full instrument panels, interior trim assemblies and headlamp housings for both the local and international automotive industry. Over the years, they have developed their

expertise in secondary production processes comprising vacuum forming, polyurethane foaming, ultrasonic plastic welding, component assembly and painting.

The target users of this system are Quality Department workers, which include the basic foremen, supervisors, executives and manager. This system is a web based application and the main function of this system is to provide a solution for staff to have a good planning of production and provide traceability function to stock and check part status. Compare to the current system that are still used by the department, the staff need to manually record the part type, status, and rejection rate also the executives have to key in data and provide report by using Microsoft Excel. This would consume a lot of time and also not systematic.

1.2 Problem Statement

Currently, there are few problems are faced by Hicom Teck See Manufacturing Malaysia Sdn. Bhd.

The main problem faced by Hicom Teck See Manufacturing Malaysia Sdn. Bhd is the poor productions planning in the Quality Department in term of time managing. The department has more than hundred parts that need to proceed and only check the status of the stock and parts before planning the production.

Besides that, they also facing difficulty to trace stock and finish goods in limited time and unable to get rejection rate for each process in a limited time frame. These may affect the efficiency of respective department productions line and the management for the company.

In addition, the generation of the rejection rate part analysis report is time consuming and it would slow down the production rate and affect the personnel distribution of workforce manpower.

1.3 Objective

There are a few objectives of this Production Management System:

- To develop a system for data entry and management of the information.
- To develop a system for trace stock and check parts status.
- To develop a system generates analysis report.

1.4 Scope

The scopes of this Production Management System are:

- This Production Management System variables range from the raw parts of the materials to the finished goods and delivery included in the process.
- The range of user include are Admin and Staffs only.
- Numbers of parts for raw material, finished goods and the process are recorded and tabulated only.

1.5 Thesis Organization

This thesis is divided into six (6) chapters and each chapter is devoted to discuss different issue in the project. Below is a summary of the content for each chapter.

Chapter 1

Introduction to the project is presented along with the project's problem statement, objectives of the project and scopes of the project.

Chapter 2

Research and literature review related to the project is presented.

Chapter 3

Project analysis, design and methodology are presented.

Chapter 4

Discuss on the system implementation phase.

Chapter 5

The testing result of the system and discussion on the result are presented.

Chapter 6

Conclusion and enchantment

Chapter 2

Literature review

2.0 Introduction

This chapter briefly describes the review on the existing techniques related with Production Management System that will be developed later on. It consists of two parts: The first part describes the comprehensive review on existing system; the second part describes the review on the technique, method, equipment and technology previously used in the same domain.

2.1 Current and existing systems

This part is to review the current system and existing system that related to the Production Management System or inventory management system.

2.1.1 Golden Inventory System

Golden inventory system is a multi-user, multi-location and multi-currency system used to manage the inventory of the organization and for tracking of purchases, sales and payments. There is a system interface in the system show the functions such as purchase orders, receiving, vendor payments, seller orders, customer payment and etc.

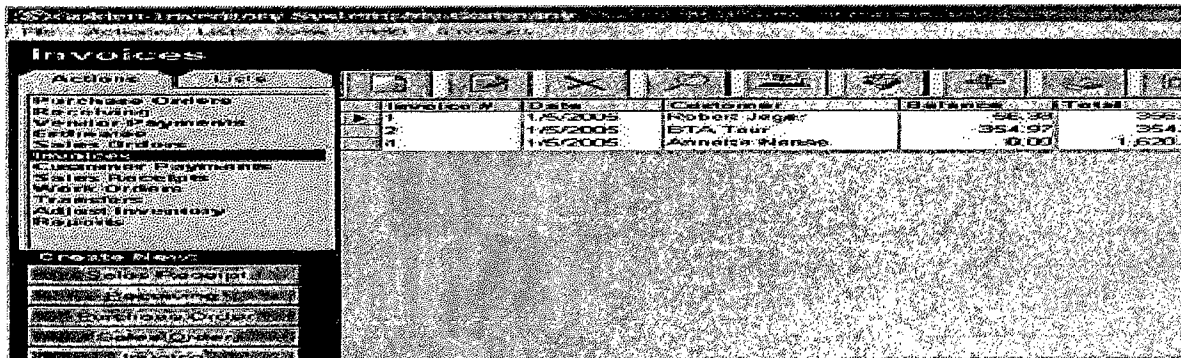


Figure 2.1 System Interface of Golden In System

2.1.2 Production Management System (Existing)

Production management system is a system to allow users to control all aspects of batch production processing in a centralized and decentralized environment. There is a system flowchart show how the production management system works.

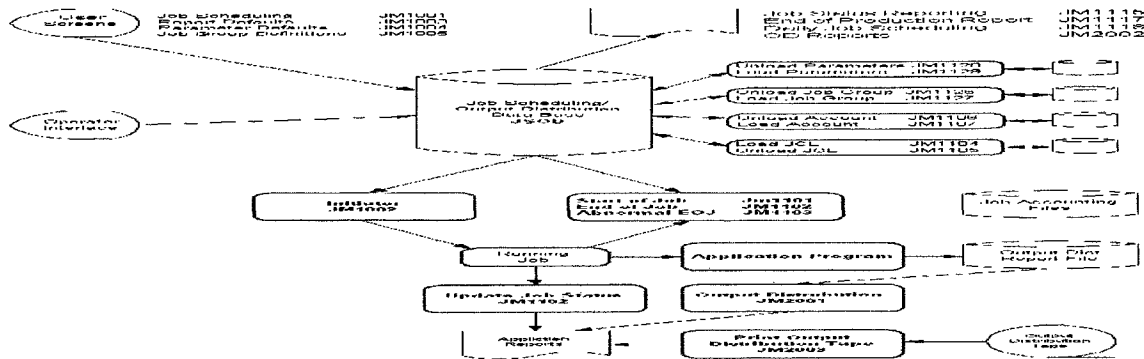


Figure 2.2 Flowchart of Production Management System (Existing)

2.1.3 SAP System (System Application and Products)

SAP software is software that will help to manage small, medium or large business. SAP provides software tailored to fit different aspects of business. The software is modular, thus allowing implementing parts of the solution, and then continuing implementing other parts later on. SAP help to manage different aspect of business such as finance, human resources, project management, purchasing, supply chain and development also manufacturing process. There is a sample of print screen of SAP inventory function.

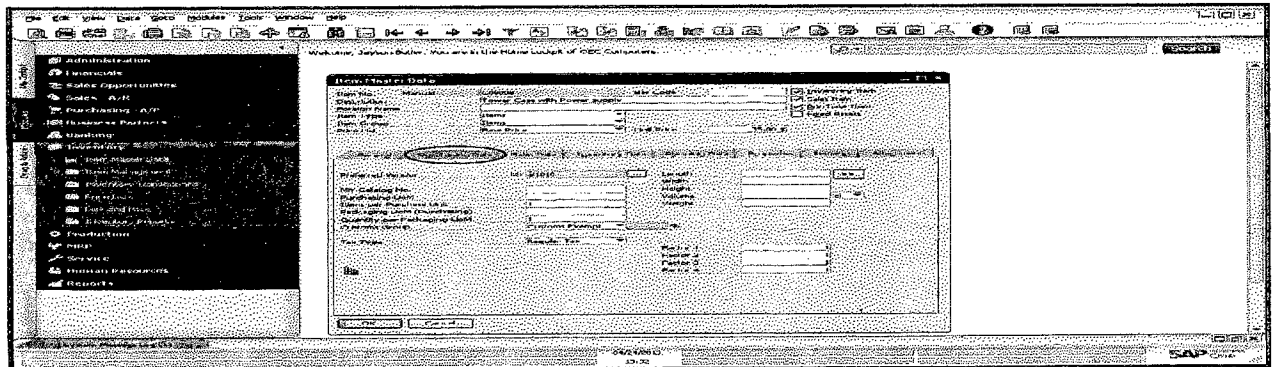


Figure 2.3 System Interface of SAP System

2.1.4 Summary of existing system

The existing system that have been review in the previous subchapter above are related to the system that will be developed for the company Hicom Teck See Manufacturing Malaysia Sdn. Bhd. Table 2.1 shows the comparison between the Golden inventory system ,production management system and SAP system.

System Name	Advantages	Disadvantages
Golden inventory system	<ul style="list-style-type: none"> - Easy installation - Multi user system - Simple intuitive interface - Usage of alphanumeric product bar codes 	<ul style="list-style-type: none"> - Complexity - High cost
Production management system	<ul style="list-style-type: none"> - Simple, menu-driven screens - Create and sequence standard and unique jobs or job groups - Flexibility 	<ul style="list-style-type: none"> - Complexity
SAP system	<ul style="list-style-type: none"> - Flexibility - Features 	<ul style="list-style-type: none"> - High cost - Complexity

Table 2.1: Comparison between 3 Systems

2.2 Programming Languages

A programming language is an artificial language designed to communicate instructions to a machine, particularly a computer. Programming languages can be used to create programs that control the behavior of a machine and/or to express algorithms. The most popular programming languages to develop web page are PHP, JSP, and ASP.NET.

2.2.1 PHP

PHP, which stands for "PHP: Hypertext Preprocessor" is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into HTML. Its syntax draws upon C, Java, and Perl, and is easy to learn. The main goal of the language is to allow web developers to write dynamically generated web pages quickly.

PHP code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications.

PHP is free software released under the PHP License. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

2.2.2 Java Server Pages (JSP)

Java Server Pages (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types. Released in 1999 by Sun Microsystems, JSP is similar to PHP, but it uses the Java programming language.

To deploy and run Java Server Pages, a compatible web server with a servlet container, such as Apache Tomcat or Jetty, is required.

2.2.3 ASP.NET

ASP.NET is a server-side Web application framework designed for Web development to produce dynamic Web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services. It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

2.2.4 Comparison between PHP, ASP.NET and JSP

	PHP	ASP.NET	JSP
Security	Recognized safety performance	Safety is highest	Medium but have some of security vulnerabilities
Platform	Multi	Multi	Single
Operating Efficiency	Medium	Highest	high
Cost	Free	High	High

Table 2.2 Comparison between PHP, ASP.NET and JSP.

2.3 Methodologies

2.3.1 Waterfall Model

The Waterfall Model was first Process Model to be introduced. It is also referred to as a linear-sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. Waterfall model is the earliest SDLC approach that was used for software development.

The waterfall Model illustrates the software development process in a linear sequential flow; hence it is also referred to as a linear-sequential life cycle model. This means that any phase in the development process begins only if the previous phase is complete. In waterfall model phases do not overlap.

Following is a diagrammatic representation of different phases of waterfall model.

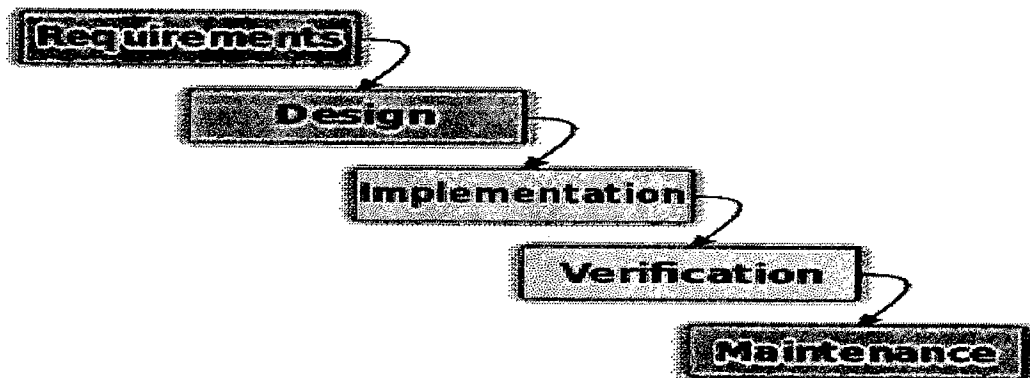


Figure 2.4 Waterfall Model

The following table lists out the pros and cons of Waterfall model:

Pros	Cons
Simple and easy to understand and use	No working software is produced until late during the life cycle
Phase are processed and completed one at a time	High amount of risk and uncertainty
Works well for smaller projects where requirements are very well understood	Not a good model for complex and object-oriented projects
Clearly defined stages	Poor model for long and ongoing projects.
Well understood milestones	It is difficult to measure progress within stages.
Easy to arrange tasks	Cannot accommodate changing requirements
Process and results are well documented	No working software is produced until late in the life cycle

Table 2.3 Pros and Cons of Waterfall Model Design.

2.3.2 Spiral Model Design

The spiral model combines the idea of iterative development with the systematic, controlled aspects of the waterfall model.

Spiral model is a combination of iterative development process model and sequential linear development model i.e. waterfall model with very high emphasis on risk analysis. It allows for incremental releases of the product, or incremental refinement through each iteration around the spiral.

Following is a diagrammatic representation of spiral model listing the activities in each phase:

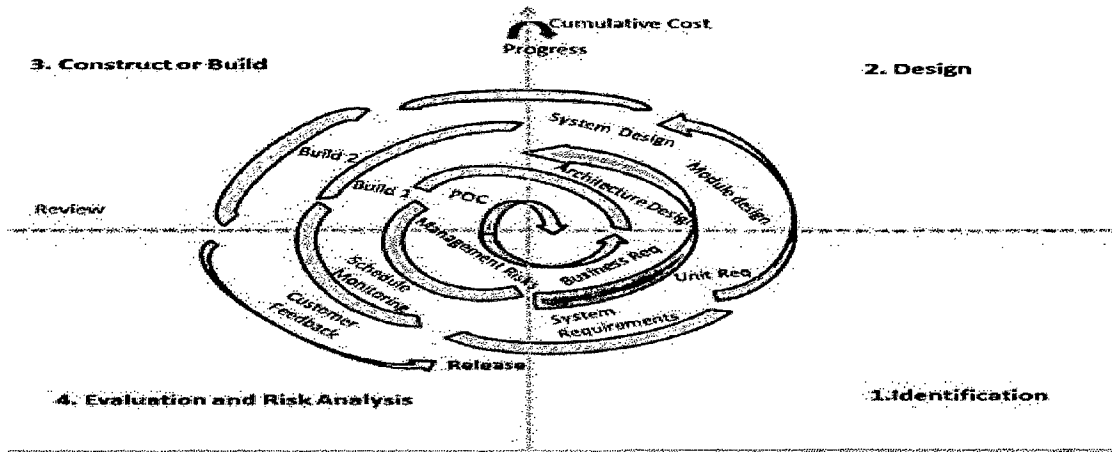


Figure 2.5 Spiral Model Design

The following table lists out the pros and cons of Spiral SDLC Model:

Pros	Cons
Changing requirements can be accommodated	Management is more complex.
Allows for extensive use of prototypes	End of project may not be known early
Requirements can be captured more accurately.	Not suitable for small or low risk projects and could be expensive for small projects.
Users see the system early	Process is complex.
Development can be divided into smaller parts and more risky parts can be developed earlier which helps better risk management	Large number of intermediate stages requires excessive documentation
	Spiral may go indefinitely

Table 2.4 Pros and Cons of Spiral SDLC Model

2.3.3 RAD Model Design

The RAD (Rapid Application Development) model is based on prototyping and iterative development with no specific planning involved. The process of writing the software itself involves the planning required for developing the product.

Rapid Application development focuses on gathering customer requirements through workshops or focus groups, early testing of the prototypes by the customer using iterative concept, reuse of the existing prototypes (components), continuous integration and rapid delivery.

Following image illustrates the RAD Model:

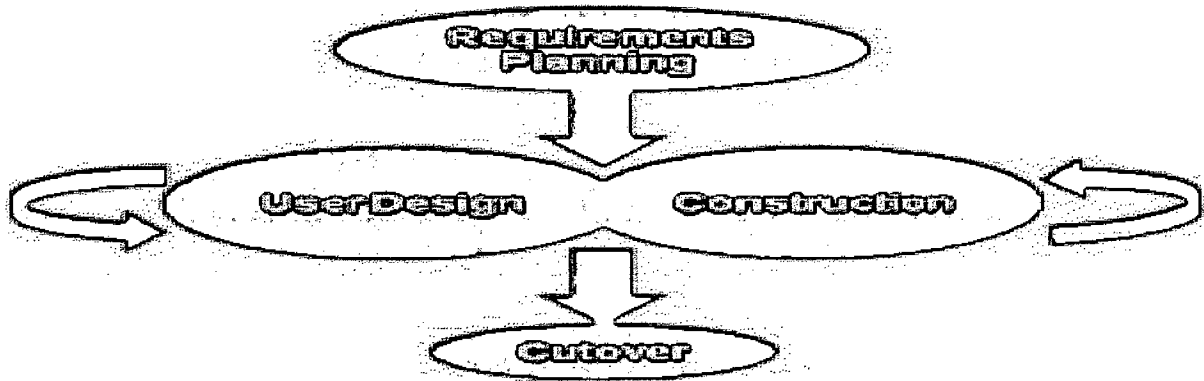


Figure 2.6 RAD Model Design

Following table lists out the pros and cons of RAD Model:

Pros	Cons
Changing requirements can be accommodated.	Dependency on technically strong team members for identifying business requirements.
Progress can be measured.	Only system that can be modularized can be built using RAD.
Iteration time can be short with use of powerful RAD tools.	Requires highly skilled developers/designers.
Productivity with fewer people in short time.	High dependency on modeling skills.
Reduced development time.	Management complexity is more.
Increases reusability of components.	Suitable for project requiring shorter development times.

Table 2.5 Pros and Cons of RAD Model.

2.4 Conclusion

We have discussed the existing system, languages and software development methodology. There are pro and cons in each part and I had stated a few comparison in between the different types of methods. Based on the comparison, it could help us to make the best solution and decision for develop the system.