Web Based Manufacturing Production Planning

by

Ahzarizaq Bin Nazari

Dissertation submitted in partial fulfillment of
the requirements for the
Bachelor of Technology (Hons)
(Business Information System)

MAY 2007

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CERTIFICATION OF APPROVAL

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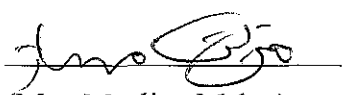
Approved by,

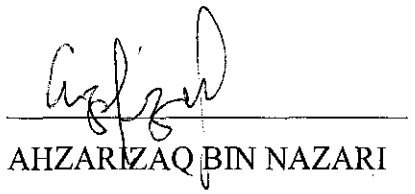


(Mrs. Mazlina Mehat)

UNIVERSITI TEKNOLOGI PETRONAS
TRONOH, PERAK
May 2007

CERTIFICATION OF ORIGINALITY

This is to declare and certify that I am liable for all the contents presented in this project paper as for that reason it is my individual and original hard work unless being affirmed in the references and acknowledgements, moreover my effort in this project have not been contaminated or prepared by unspecified sources or persons.



AHZARIZAQ BIN NAZARI

ABSTRACT

Nowadays, nearly all business processes are being build around an electronic system, may it be in web based technologies as well as stand alone software. As time move on, the concepts and such applications will be significantly extended to where it will attract more investors to fund on acquiring such system. In the manufacturing line of work, one essential topic in its business process is the production planning. It is where most enterprises generate revenue from their efficiency of producing goods and meeting datelines. But in many cases in this country, small and medium size enterprises (SME) that involve in the respective field still rely on the traditional method which is manuals and paper work. Due to the significant contribution of SMEs to the country economy, it is interesting to find out their involvement in adopting an online production planning system.

In this study, a web based system was introduced to them in order to help eliminate data storing crisis such as record search as well as data integrity issue. For developing the project, the author used Rapid Application Development methodology which stress on prototyping that involve heavy user participant in order to enhance the project as to user requirements. As to measure the successfulness of the system itself, a questionnaire related to it was being circulated to users for their feedbacks. Besides that, there was also time comparison between using the old working method and migrating to the new system.

At the end of this project, it became obvious that the objectives have been achieved according to the time frame and the system was very well accepted by users. It was important to know the level of user acceptance since it will contribute to future indication whether the system can penetrate into the existing market. Albeit the positive feedback, the system can be further enhance on the overall design as well as adding other web services element for better outcome.

ACKNOWLEDGEMENT

In the name of Allah SWT, I have accomplished this Final Year Project fruitfully. Not even a single moment in developing this project that I felt discomfort nor pressured. As a matter of fact, each phase brought me closer to the actual state of technological growth which gave me such an invaluable experience. Countless opportunities had been spared for me to improve my abilities within various learning areas to solve problems. Alhamdulillah, I have harnessed enough understanding in order to craft this project into a successful outcome.

In this opening, I would like to express the utmost gratitude toward every person who had facilitated me throughout the whole project until completion. Not to mention an overwhelming appreciation to my supervisor, Mrs. Mazlina Mehat for all the patience and willingness to tolerate with every hardship that I had encountered.

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CHAPTER 1

INTRODUCTION

1.1 Background of study

Overtime, companies have begun increasing their workload heavily upon the use of computing capabilities. The growth in the IT technologies itself contribute to the shift of trend where small companies are starting to make big steps towards adapting this strategy into their structure. But it is sufficient to say that only big players in the industry can really have the utmost advantage of migrating into the new business process that involve technology. It is basically because they have much more resources to disperse compared to SMEs capital. It is also that these company are well organized which in a way can help them to come up with a proper business plan and project their future expenditure as to the system acquirement.

1.2 Problem Statement

Most of the SMEs available that involve in manufacturing goods do not practice the use of technology in their manufacturing process. While quoted from T. C. Seow (2006), "According to the MCA ICT Resource Centre (MIRC), although SMEs have been identified as the next engine of growth for the nation, it is reported that only about 30 per cent of SMEs in Malaysia have a web presence and use IT on a daily basis".

As heavily as the government vision to initiate them to start adopting the available technology in their process, majority of them are still rely on paper works to track manufacturing processes. This can be tedious since keeping records using paper works can be risky. It is disposable which will contribute to data loss and also easily sabotage by unauthorized personnel. Besides, searching important records in a pile of papers will be very hard to locate and seriously a waste of valuable time and resources.

1.2.1 Problem Identification

The main problem that contributes to this dilemma is because of the SMEs lack of initiative to understand the usefulness of the new system. This arises because of short of funding towards better research and development in their processes. Most of this type of organization does not include its own researchers within the group project members thus making them uncompetitive and lagging behind. Apart from that, they are used to their everyday work and reluctant to start it all over again where it will maybe need further alteration and reorganization inside the company itself. Below is a list of problems that SMEs in Malaysia face as discuss by Ali Salman Saleh and Nelson Oly Ndubisi (2006):

1. SMEs in Malaysia often face difficulty in obtaining funds from financial institutions and the government. Usually the interest charges by financial institutions on loans borrowed by SMEs are high.

2. Lack of human capital is the most significant challenge for Malaysian SMEs. It is often too expensive for Malaysian SMEs to employ a professional and competent workforce.

3. SMEs in Malaysia face a high level of international competition; this includes AFTA and competition from MNCs or new competitors (for example, China and India).

4. There is a lack of access to better technology, and ICT hinders efficient and productive business operations among Malaysian SMEs.

5. The high level of bureaucracy in government agencies hinders efficient business development operations among Malaysian SMEs.

6. There is a low level of research and development.

7. There is a substantial orientation towards the domestic market.

1.2.2 Significance of Project

This application is generally developed as a prototype towards the studies that is being discussed here. Nonetheless, it will still show the ability to adapt and being practice in the real world. It can be enhanced from time to time especially for the usage of further study from people in the education area plus companies that have deep interest in this topic. The advantages of the project are stated as below:

- *Organized and more efficient*

  Normally small medium manufacturing company is unorganized and does not have a complete system regard to their functions. Most of these companies are using only paper and files to store all the material used to build a product. Using a computerized system to store all the data will help them to be well-organized and capable of running their facilities to the maximum potential.

- *Handle materials and items more specific*

  Production planning system is the answer to handle all the material used in a manufacturing company to keep outstanding record in a computerized manner. It is about keeping track of all the stocks in warehouse or stores in detail with specific code that are being stamp to each of the material.

- *Increased accuracy and integrity of material in the manufacturing company*

  In a medium size factory such as Future Communication Industries, a local manufacturing company, all materials are only being tag on the parts but it lacks on using a computerized referencing system to differentiate the various type of materials. With this production planning system referencing is more efficient and accurate and guarantees the integrity of the material. Not only

that, it will also cover the whole production process of each product in the factory.

- *No more tedious old method of searching materials*

  It has a more efficient searching method of the entire database. All materials are being reference accurately for better searching. Just with a click of mouse all data about the specific material being reveal on the screen.

- *Reduce time and energy of production*

  As all the above advantages has been lay out on the paper it is easy for manufacturing company to do the math to calculate the amount of time and energy in order to reduce overhead cost as well as scope creeping .

1.3 Objectives and Scope of Study

The relevancy of the development is to reduce the time and energy in production process and making sure all the data of material in production is computerized.

The objectives of this project are:

1. *To introduce a web based manufacturing production planning system* to small and medium size manufacturing companies as for the use of storing all material data into database and using all the function available in the system to handle the production process.

2. This system will tremendously help the factory to handle data thus eliminating manual data processing and irrelevant working procedures. It will *reduce the time of searching and data mining of all physical files*. It can also keep track the production volume of each and every product in the factory referred to the related components or item parts.

The scope of this study will involve small and medium enterprises as the target user. This project focuses on delivering a system that can be commercialize and practical for the usage of small and medium manufacturing companies that concentrate on production house. The feasibility of developing the best resulting product will finish within 12 weeks.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction to SMEs in Malaysia

Small and medium size company in Malaysia plays significant role in contributing towards the economic growth. After a few years of venturing and developing the country's prized assets, the result is starting to show and it indicates a very stable and ongoing process which can generate more revenues and open up the market share among local companies.

Ali Salman Saleh and Nelson Oly Ndubisi (2006) categorized SMEs as below:

Malaysian SMEs can be defined according to size, turnover and activity. Those relevant to this paper find
SMEs in Malaysia falling into two broad categories:

1. Manufacturing, manufacturing-related services and agro-based industries, which have either:
    - fewer than 150 full-time employees; or
    - an annual sales turnover of less than RM25 million.
2. Services, primary agriculture and information and communication technology (ICT), which have either:
    - fewer than 50 full-time employees; or
    - an annual sales turnover of less than RM5 million.

According to Mary Ann Tan (2007), "SMEs share of the manufacturing sector rose from 22.1 per cent in 1996 to 29.6 per cent in 2005 while its added value to the manufacturing sector rose by 5.7 per cent as well, from 19.5 per cent in 1996 to 25.9 per cent last year, a SMIDEC report released in June this year indicates. And while electric and electronics comprise the largest sector within the manufacturing chart, SMEs contribution to this puts it only in sixth place in terms of share of output (4.6 per cent), value added (4.8 per cent) and employment (5.6 per cent)."

2.2 Benefits of IT to SMEs

In order to be success, companies must start to be proactive in implementing a new business process based on IT services. Dr. Henning Kagermann and Dr. Peter Zencke (2006) wrote:

The close proximity to customers afforded by the new developments in IT began to exert pressure on companies to continuously adapt their processes to changing market conditions. Once process efficiency had become a matter of course, attention turned to management of customer and vendor relationships. Being able to respond rapidly to changes was necessary to set companies apart from their competitors even if that meant adjusting entire business models to new conditions.

For a company to enjoy success in 2010, flexibility, openness, collaboration, and speed must become an integral part of its corporate culture. Companies will focus increasingly on their core competencies and will be ever more dependent on an integrated network of partners and suppliers to meet customers' requirements of flexibility and convenience. In an economic ecosystem comprising different firms, it must be possible to implement new business models as quickly as possible in order to secure competitive advantages.

More than 80 percent of respondents see IT in a central role, enabling necessary changes within companies and preparing them to face future challenges. Almost 60 percent feel that IT should be deployed as a strategic competitive tool rather than simply as a driver of cost efficiency.

2.3 Usage of technology in Malaysia

At the present time, only a handful of companies in Malaysia dared to engage themselves with the up to date technology in order to run their business process. Even so on doing that, it incurs large amount of investment which basically is the main setback for others to follow their footsteps. As for Justin Then (2005) stated, "With this realisation, BCM Electronics went ahead and invested more than RM2.5 million in an IT project to streamline its business operations and manufacturing processes. The company deployed the integrated Oracle E-Business Suite (EBS) solution, which includes financials, order management, inventory, discrete manufacturing, business intelligence, advanced supply planning, enterprise asset management, and balance scorecard modules. The company also uses Oracle Application Server and Oracle database for its technology infrastructure layer."

CHAPTER 3

METHODOLOGY/PROJECT WORK

The methodology that was being used in this project development is Rapid Application Development (RAD). **Figure 1 (See Appendix 1)** shows the overview of the RAD development cycle.

3.1 Development Cycle

Planning:

The planning phase is where all relevant requirements were being drawn together basically from the system and user needs. Later, problem statement and the objectives of the system were generated. Each objective is specific and feasible which related to the problem statement itself. During this phase, it also performed quick design of the systems.

In this phase the author plans to:

- Gather requirements from the web on production planning system
- Identify problem statement and objectives of the system
- Make a quick design for the overall system

In this phase the author has achieved:

- In depth understanding on Enterprise Resource Planning and production planning system
- Knowledge in problems that usually occurred during the development of this type of system

Design:

Through the documentation requirement report, the system was designed into two types which is the logical and physical design. With this design, it has achieved on giving the overview of user interface and the flow of the system from start until finish.

In this phase the author plans to:

- Create a logical design that is the system architecture
- Making sure of the correct flow throughout the progress of system
- Design user interface as the physical design which best suit for the system

In this phase the author has achieved:

- a system architecture **(See Appendix 2)** of the logical design was completed
- a proper system flowchart **(See Appendix 3)** that gave users the idea of this system
- user interface design that facilitate them when using it

Develop:

At the development phase, the system went through the process of prototyping which eventually become the real system. Construction of the system been done after it took into account all the design specifications.

In this phase the author plans to:

- Start with embedding coding and make it functioning according to the estimate result
- Design a prototype and try to avoid from any errors during development
- Configure the database and set it up upon the Internet Information Server (IIS)
- Make sure the database is running without any problem

In this phase the author has achieved:

- Developing a working system which responded correctly to the request
- Integration of the whole system with Internet Information Server (IIS) that can be accessed
- Running the database successfully where it can be manipulated through the system

Testing:

In testing phase stage, the system is being carried on according to the real environment in order to detect any errors or whether it met the required specification. The type of testing that being selected was **Program Testing with Test Data**. At this point, desk checking was implemented as to verify the system work according to plan. Each step in the program on paper was checked to whether the routine worked as it is written. Next, valid and invalid test data were created. These data were being passed in order to see the performance of base routines as well as to catch errors. Based on the results, the system was corrected and being tested again for better performance.

In this phase the author plans to:

- Test the prototype regarding to the database and its functionality while hosting on the IIS
- Fix and improvise errors of the prototype.

In this phase the author has achieved:

- Retrieved positive feedbacks on the working system where it ran smoothly
- Integration between the database and system still proved some errors at certain part. The interface design was tested using dummy database

User review:

In this phase, the system was evaluated by user based on a number of criteria that has been fixed as whether it is successful or not. A questionnaire was being distributed to a group of supervisors from a manufacturing company consist of 10 representatives. Conclusion from users' feedback was reviewed to overcome any limitations.

In this phase the author plans to:

- Have volunteers to evaluate the system through questionnaires
- Create a report on the user's review
- Make a note on the system evaluation

The system is being cycled back to the design phase based on the testing results and user reviews when it stumbled upon errors and did not meet user expectations.

Implementation:

The system was fully implemented after it has passed all the above phases. It is a product of rapid prototyping, testing and review in order to come up with the complete system. It must:

- Meet the customer needs
- Can be adapted according to the environment
- Enhance the existing software and offer new specifications related to the trend

In this phase the author plans to:

- Install the system into the related working environment
- Train user to used and master the system

Rapid Application Development (RAD) is the best selection for applying it as the methodology of the system that oversees the whole development process. It focuses on prototyping where both have the same goal of shortening the time taken between design and implementation of the information system. By using RAD, it is useful for supplementing rapid adjustment to business requirements. The flexibility for changing the system early in its development stages gives the advantage of error reduction to the system. Since it requires heavy user involvement in the processes, the output is parallel to users' needs and expectations. Thus, the system is more scalable, efficient and a well designed application being produced. **Table 1 (See Appendix 4)** shows the duration of each phase taken in order to complete the development cycle.

3.2 Project Tools Requirements

The operating system that the author used when developing the project is Microsoft Windows XP. It can also be developed on a Microsoft Windows 2000 platform. The web pages were being created by using Microsoft Visual Studio.Net 2003. It included the .NET Framework, version 1.1 which also came with built-in support for developing programs for mobile devices, using either ASP.NET or the .NET Compact Framework. Microsoft Office Access 2003 is being used as the database for the project since it does not require massive data storage. The hosting was being conducted on a computer that had an Internet Information Server (IIS) version 5.0 and above installed. Additional tool that was required is the Microsoft JET 4.0 Database Engine for a clean installation of the Visual Studio software.

CHAPTER 4

RESULT AND DISCUSSION

Production planning system is specially design to handle all the data regarding component specification. By using this system, it can handle a factory that produce 100 types of different product to keep track all the component and item for each product whereas compared using traditional method, it will need a massive effort. Plus there is no space for it to keep double copy for each reference which usually happens in conventional technique that can slow or affect the work progress. Using this, all co-workers will enjoy the same fresh data that has been updated by their colleagues for making decision and product material inventory. This system is break into three components as for now which are product, item and task.

In order to produce a merchandise, there are hundreds of component to be assembled together to form a difference parts. Each of these components is called an item. A final product is a result of items that has been put together and passed its quality control process. The system can monitor each item in a computer and information about the products are frequently updated. There are also tasks involve in creating a product which will inform the user whether works are still in progress or has been completed. For real-time data, the use of IIS and web based method is crucial so that each worker is aware of any changes in the inventory department.

In this chapter, the author has identified two types of approach for data gathering and analyzing. For the first method, a questionnaire was distributed to volunteers that participated in the system demo for further studies on the system usage and its capabilities. Whereas moving to the second method, the author took the time taken to complete a process as a base for comparison between two different

ways of handling data processing which can determine the most efficient manner to do it.

4.1 Questionnaire

In findings and discussion, the author has done a questionnaire **(See Appendix 5)** regarding to the system that was vital in the basis of having a constructive user feedback. The respondent of this survey were 10 plant supervisors from Future Communication Industries, a local manufacturing company. They were being well briefed on the Production Planning System and were given the chance of using the system. Upon satisfied navigating through the system, they were asked to complete and submit back a questionnaire that consists of 5 questions related to it. The result of this activity and its argument is as follows:

Q1. What type of software do you use in production planning?

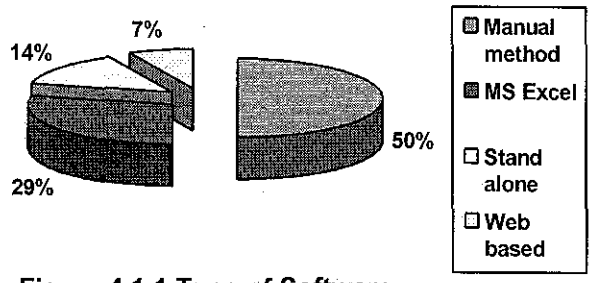

Figure 4.1.1 Type of Software

The question reveals half of them are using normal and manual method. 6 of those representatives select either MS Excel or other stand alone software. Only one person had the experience that really implies web based method to facilitate the production planning. This shows that online system is still lack of exposure among its field. It also means most of them felt more content on using their old normal manual method.

Q2. The online Production Planning System is:

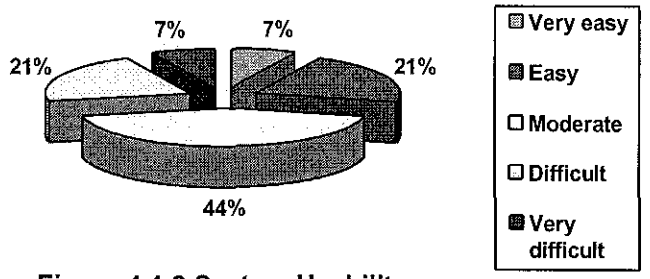

Figure 4.1.2 System Usability

In this usability question, majority of users rate it above average while 4 of them confronted difficulty while using the system. Even though there were some negative reviews, it can yet be consider as in working condition and effective.

Q3. Are you satisfied with the system functionality?

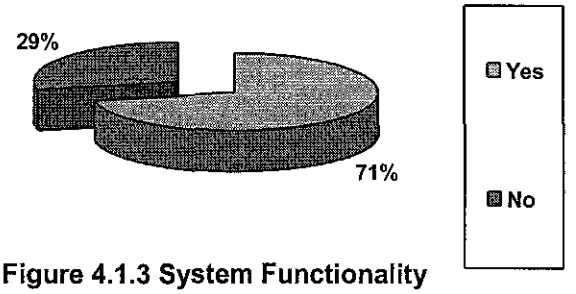

Figure 4.1.3 System Functionality

It is obvious that more than 70% of users are satisfied with the system functionality. Those that opposed came from the group that previously stumbled upon complexity in question number 2. This suggests that the system can be operated to its maximum level in the near future.

Q4. Do you think by using this system, it can help improve productivity?

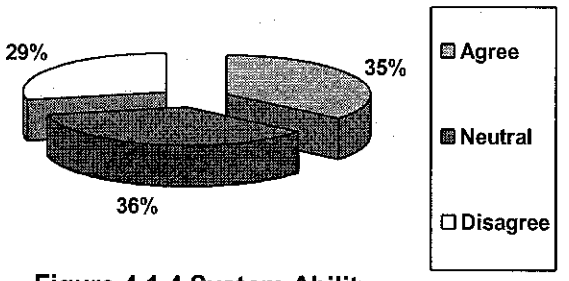

Figure 4.1.4 System Ability

The figure indicates that 35% acknowledge the system ability to improve productivity if being used. The same amount of users chose to be unbiased towards it while the rest were influenced by the fact that they disapproved because of failure to use the system.

Q5. State the main problem(s) when choosing a good system for your company.

For this question, it is intended to identify common setback that transpire in the production planning process. Most come out with two main problems when choosing a good system for their factory. One of it is on heavy investment into software that are already available in the market. This medium size companies felt that they cannot afford expensive system until they have matured into an establish name. The second main problem for them is that the system available does not suit perfectly into their line of work. It is such a hassle for them to be involved in the rebuilding process which will incur more production time to waste.

4.2 Time Comparison

With the aim of proving that this system can reduce the time of completing each task, the author has selected the job to be included in this study and compared the time period when using manual method as well as using the system.

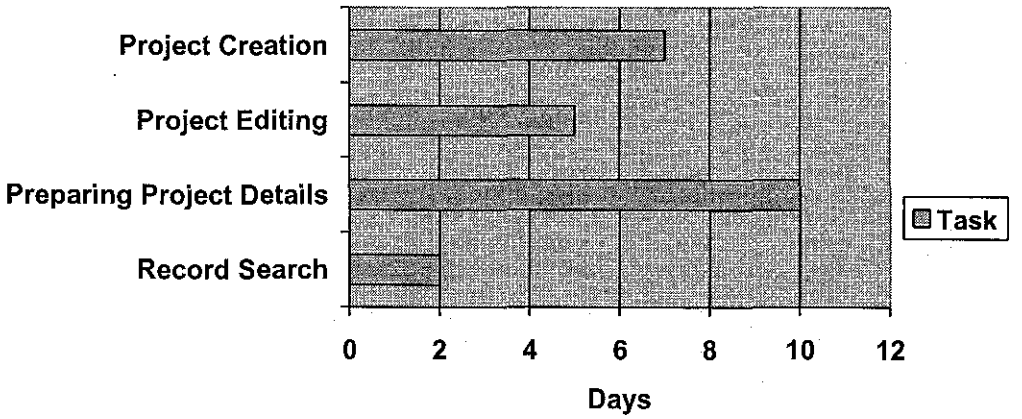

Figure 4.2.1 Manual Task Completion Period

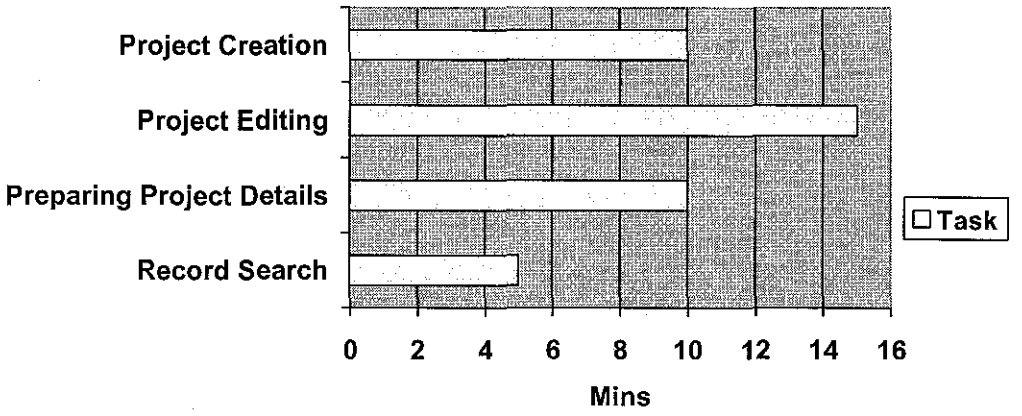

Figure 4.2.2 Automated Task Completion Period

From both of the graph above, it is clear that by migrating to a web based system the time period of each task were reduced significantly. This is because that by manual method, data are being stored at multiple storage location thus consume some time to retrieve the information. Whereas when using the system, it is more centralized and all the information can be access from several location.

4.3 System Screenshots

Below are the screenshots the system screenshots.

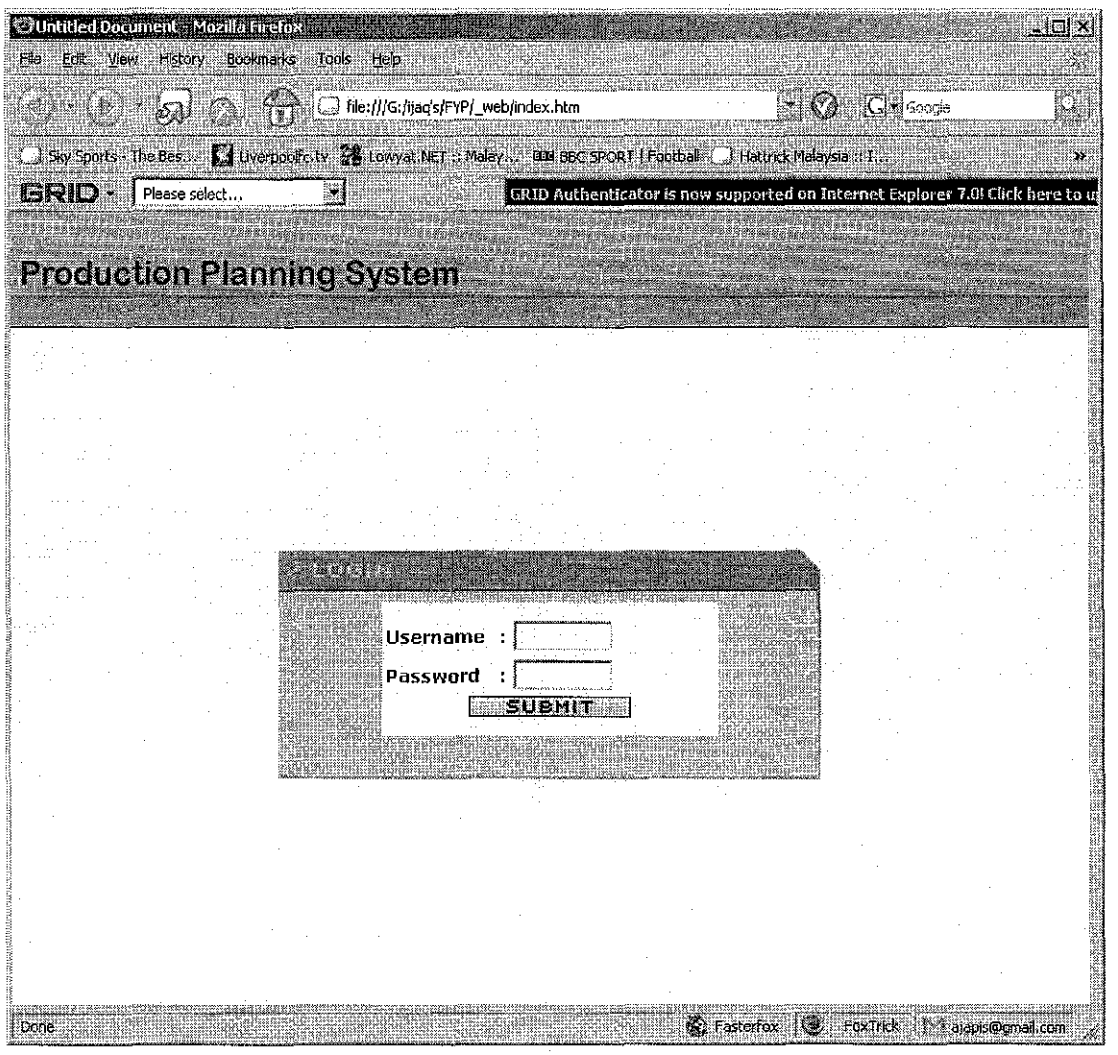

Figure 4.3.1 Login Page

Here is the login page. Administrator need to input username and password. It will go to a landing page after successful login session.

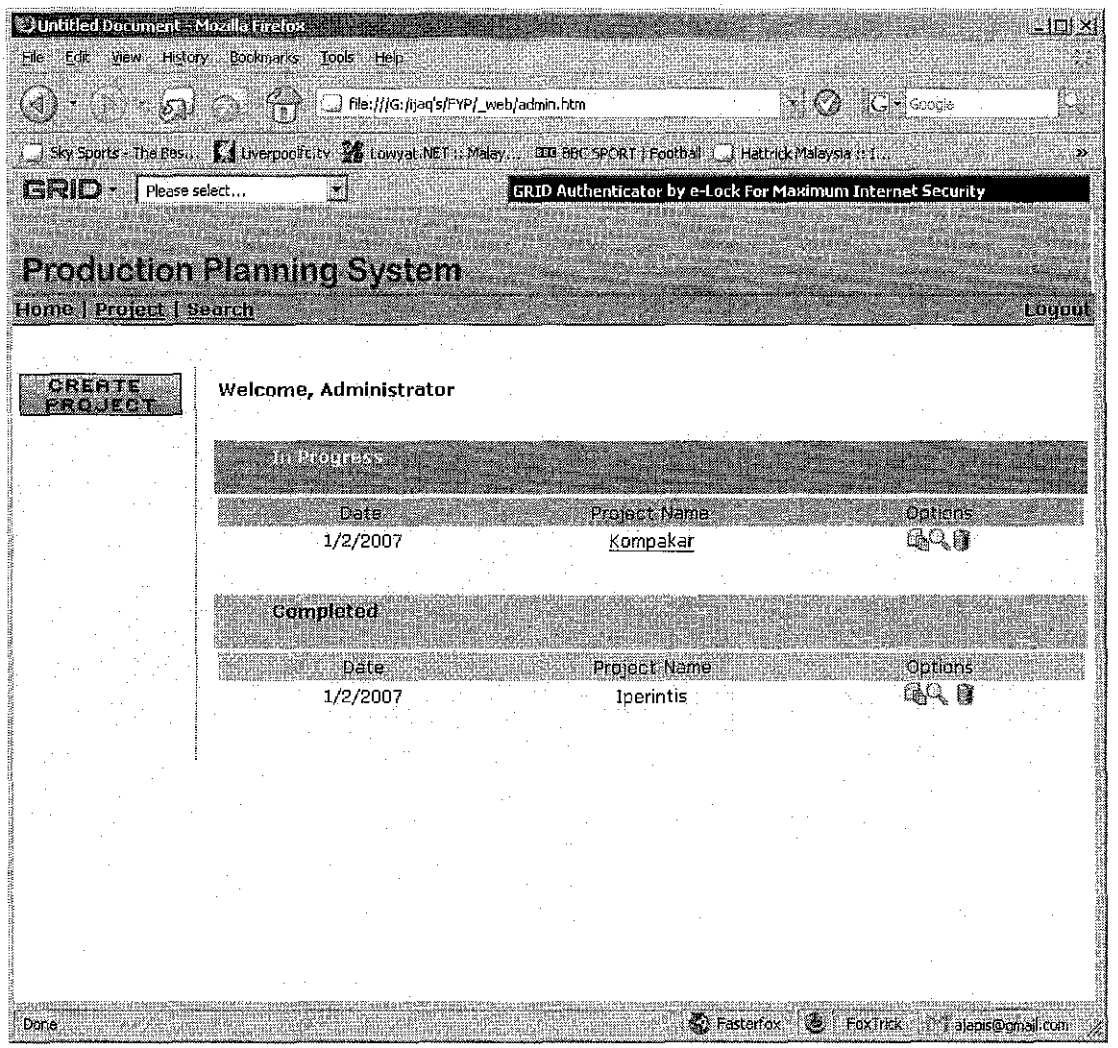

Figure 4.3.2 Landing Page

This is the landing page where it has three main links on the menu bar which is Home, Project and Search. The first table on the center pane contains the project in progress where users can have several options to it. For instance, the project can be copy, preview or delete. If the project name is click, there will be a pop up windows that preview the project details. The same goes for the completed project table. Besides, it also has a **Create Project** button to start a new project.

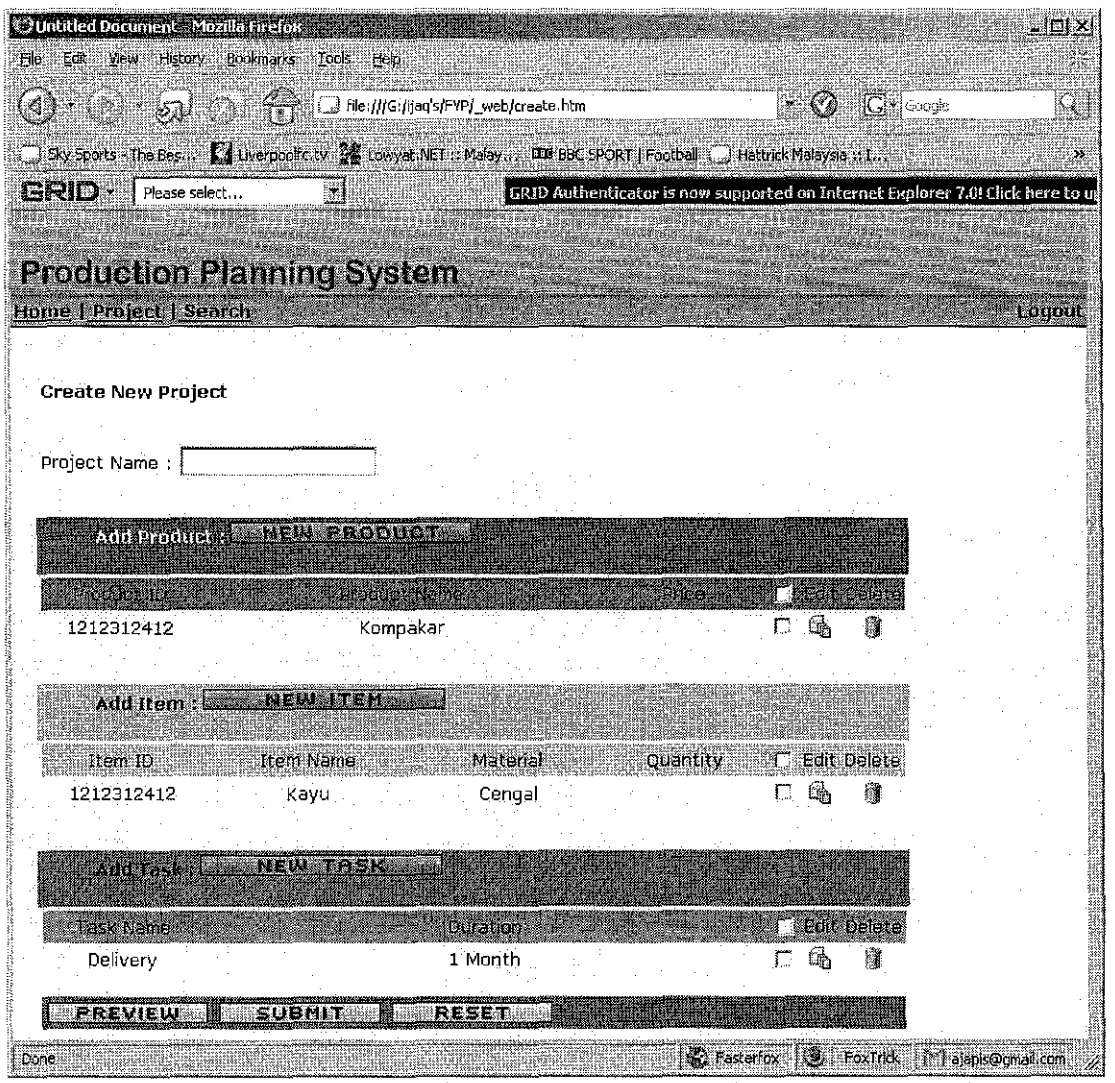

Figure 4.3.3 Create Project Page

This is where administrator starts to create a new project after clicking the **Create Project** button in the landing page. Here it will need a project name followed by adding products, items, and task for the project from the list. The list can be added with new data by clicking the button on top of each data tables. The form can be preview in order to check if all the data entries are correct. Upon satisfaction, the form can be submitted or it can be reset as previous.

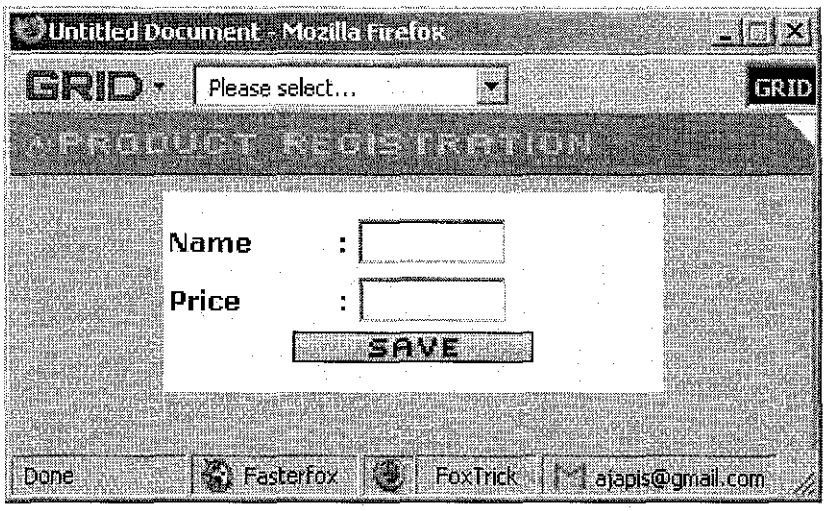

Figure 4.3.4 Product Registration Pop up Window

This pop up window will appear when clicking **New Product** button from **Figure 4.3.3**. Here administrator will register for new product. After saving the data, it will appear inside the **Add Product** table.

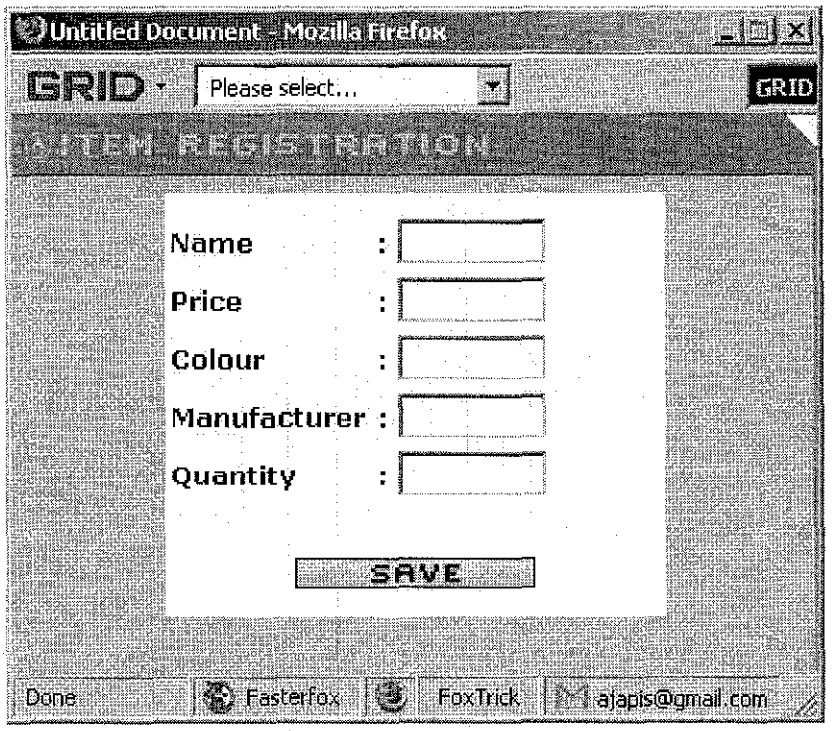

Figure 4.3.5 Item Registration Pop up Window

This pop up window will appear when clicking **New Item** button from **Figure 4.3.3**. Here administrator will register for new item. After saving the data, it will appear inside the **Add Item** table.

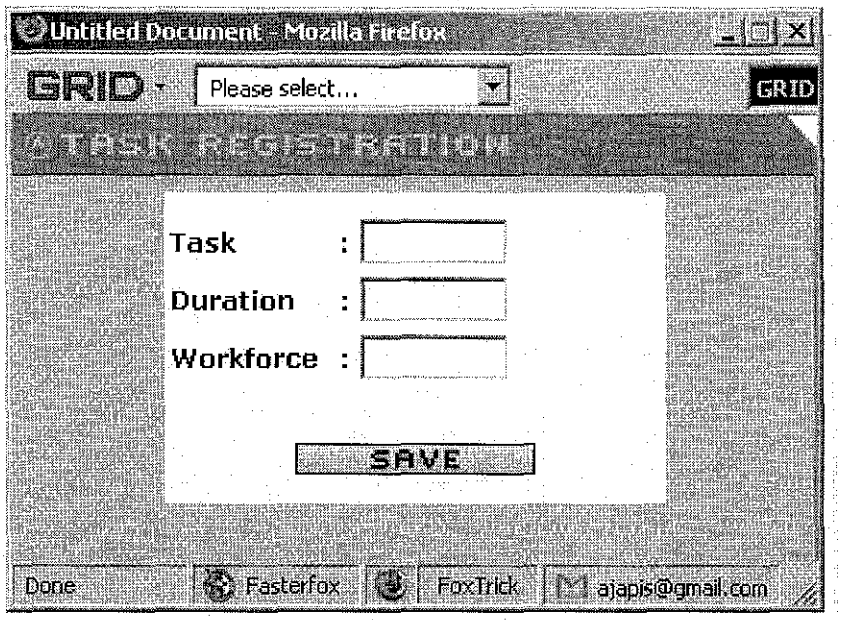

Figure 4.3.6 Task Registration Pop up Window

This pop up window will appear when clicking **New Task** button from **Figure 4.3.3**. Here administrator will register for new task. After saving the data, it will appear inside the **Add Task** table.

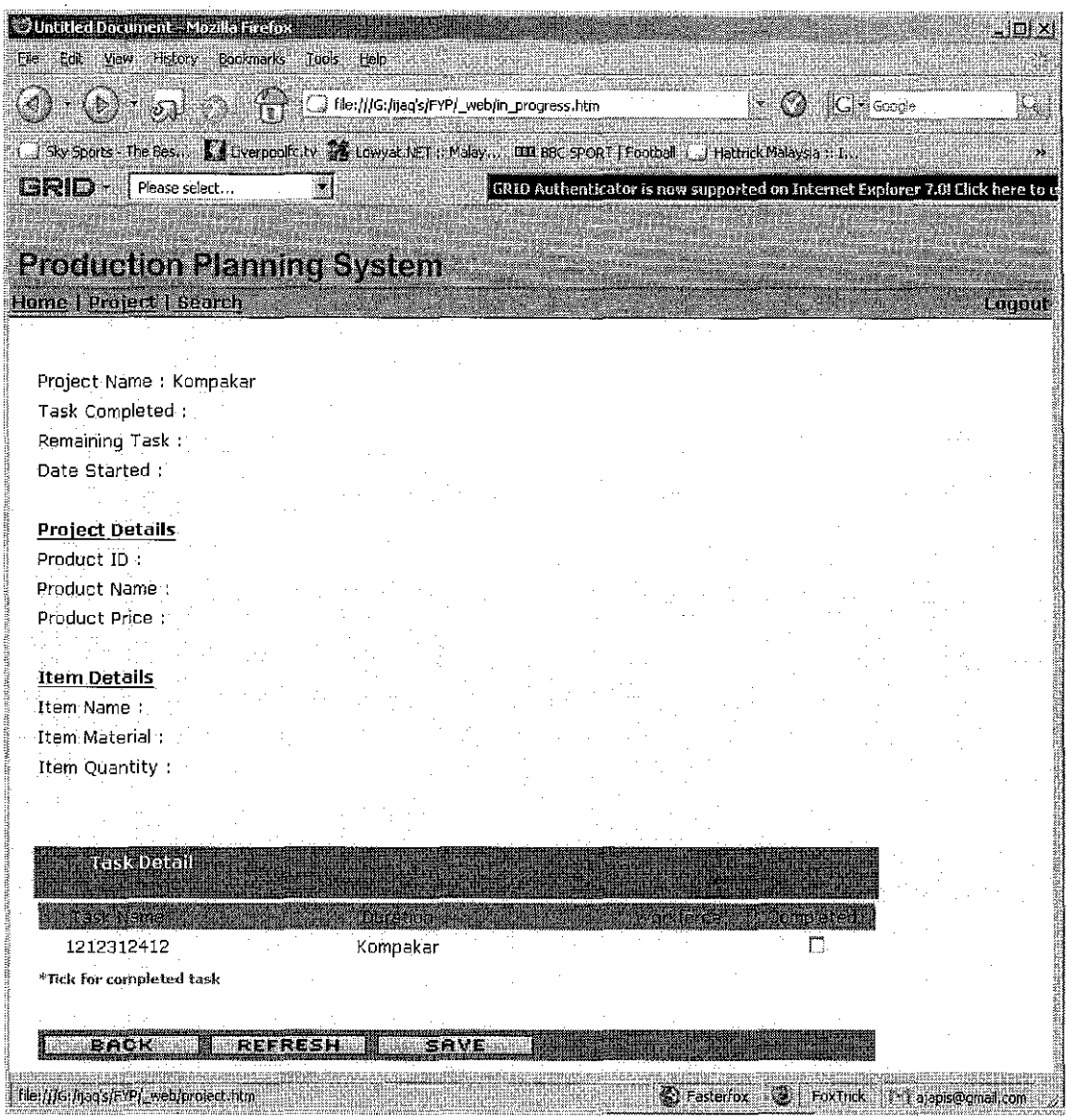

Figure 4.3.7 Project Details Page

Here are the project details which will show all the information regarding to the project. This page will appear when the administrator clicks the project name under **In Progress** table from Screen 2. It can also be view when clicking from the same screen. All the previous data entries from Create Project Page **(Figure 4.3.3)** are being shown here. It also includes any update that has been done in that page.

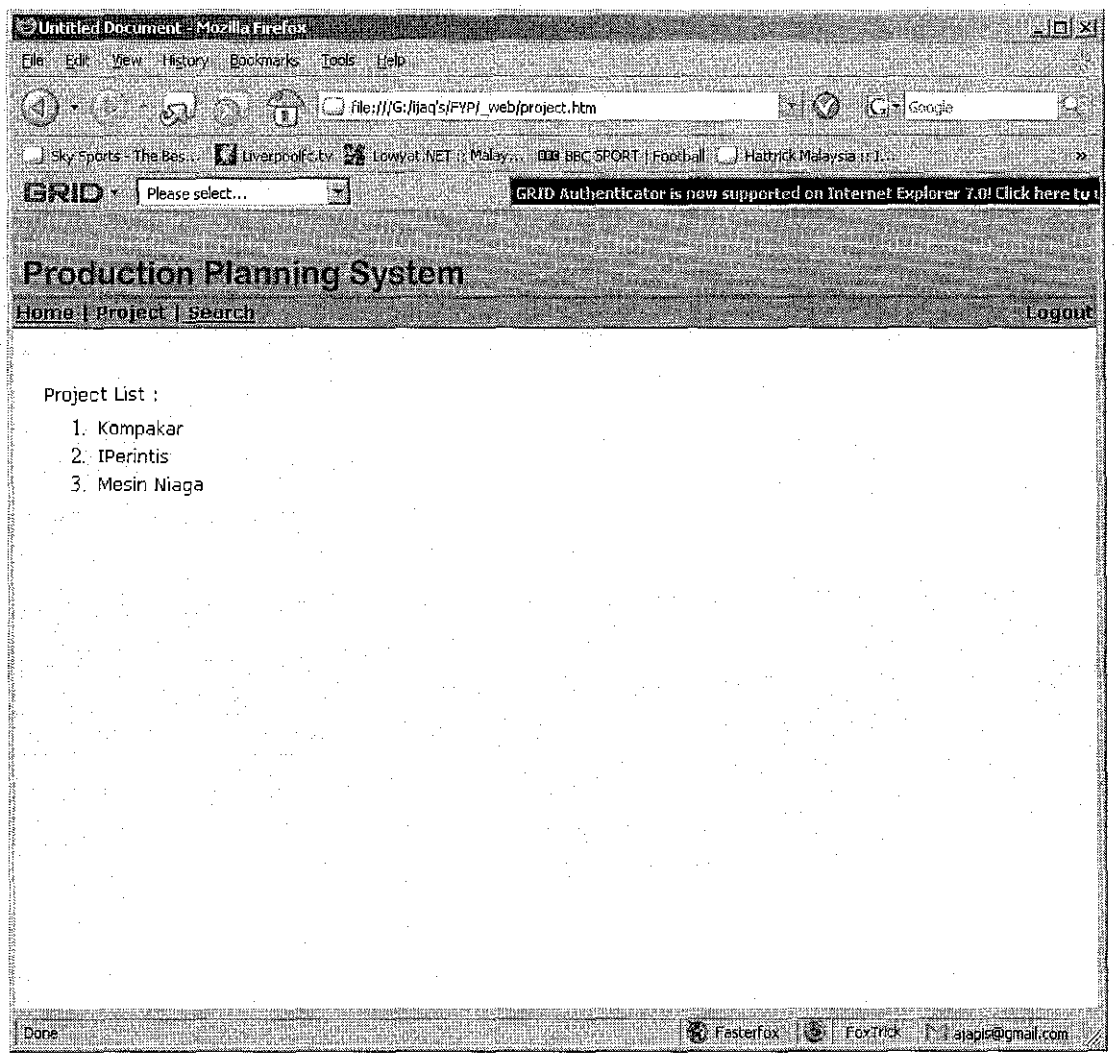

Figure 4.3.8 Project List Page

Here administrator will see a list of projects that may have been completed or within work progress. When clicking the project name it will show a pop up window that preview the project details.

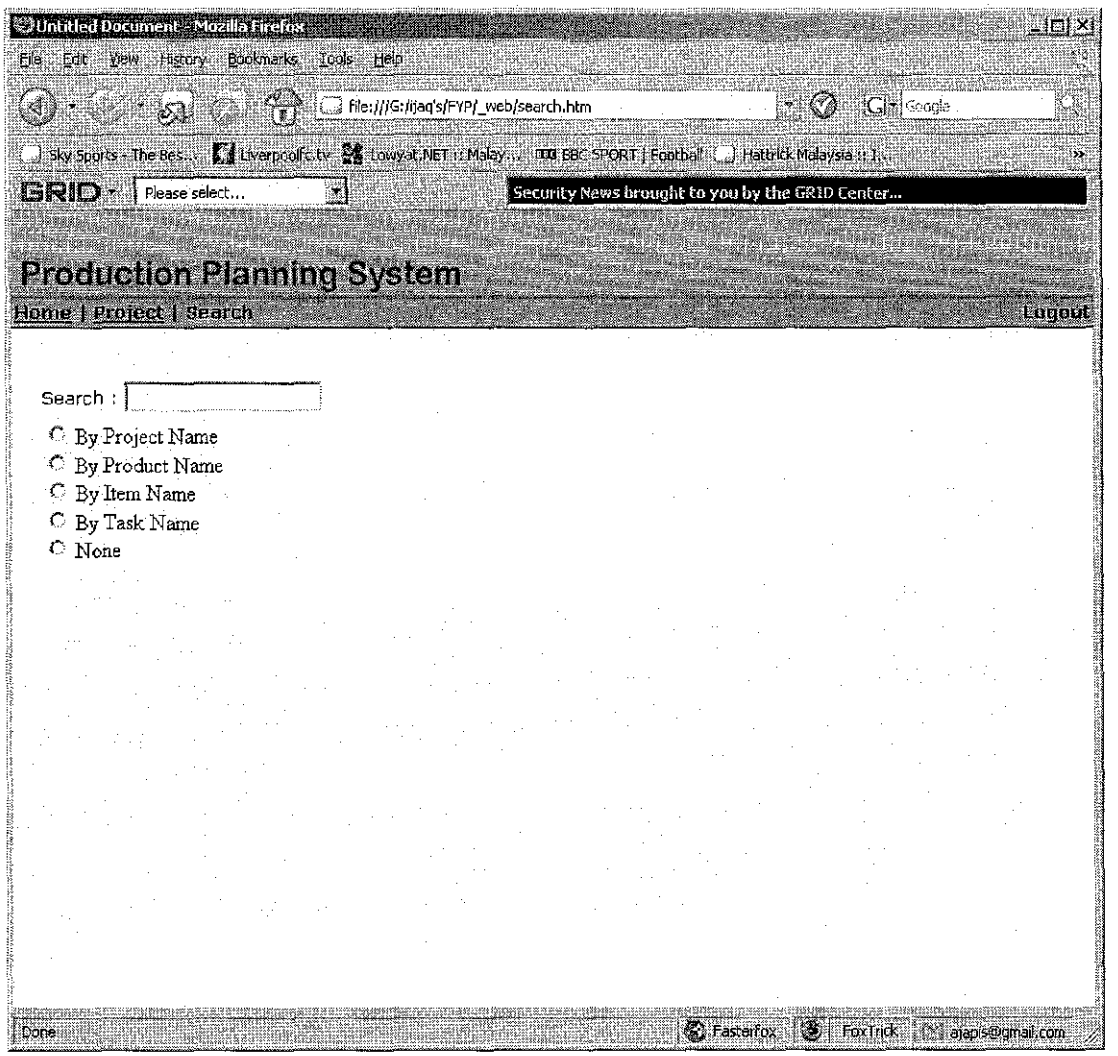

Figure 4.3.9 Search Page

Here administrator can search the data within the system based on 5 choices. There are search by project name, or by product name, or by item name, or by task name, or else none of the criteria provided.

CHAPTER 5

CONCLUSION

After all the research and studies that had been done, the purpose of this project as a developer is to create a clear-cut yet a practical web based system that can deliver towards the small and medium size company's necessity of a production planning system.

The use of this system will help mainly all the manufacturing company to keep track of the stock and production management. Searching will be quick and not as tedious as the old manual way. This will save time and energy and create more production time. It will also increase the overall productivity and help managers to make decision.

Although this system is not in a full specification, the fundamental that we are trying to use is undemanding and most of the manufacturing company will find it essential to use. With it web-based approach, the system will bring towards knowledge sharing where multiple users can access it simultaneously and not limited to any specific location in order to use it. The availability of high speed internet connection in most places might be well push the attractiveness of the system and consequently being implemented in various companies that handle on the production management.

Other advantages of using this system includes the fact that it is cater for multi-level users. They can simply navigate and explore through the system according to the function. They will feel more comfortable to work with it and as for beginners and novice users; they are able to use it wisely.

In ending up this project paper, the author has achieved its main objective where first and foremost, the introduction of a web based production planning system to the SMEs went smoothly. This is based on the positive feedbacks from the volunteers and their anticipation towards the complete system. The second and last objective was shortening and reducing the working procedure processes. It has been shown in the previous chapter that by using this system user can expect a time reduction in completing their business processes when migrating to the new system as oppose to the manual working method.

5.1 Future Recommendation

There are some features that can be recommended to enhance the functionality and capability of the system

- In the future, this system will be covering in all aspect of function such as all material will have their own pictures with its measurement in the database for easy and specific to the dimension of the material

- Integrated with Web services element
  The system could also be enhanced with web services element where each function will be put in a web services for all of the company can just make use of the API to create in what ever platform they like as this services is using XML.

- Improved interface and design
  The system can be upgrade by improving the available interface and design from time to time. Since this is just a prototype, it has been design as a plain portal whereas in the future it can be revamp back by adding more colors and graphics related to the system which will represent the company itself.

- Personalized Page

  With the semantic element applied, the system can be further augmented by auto creation of personalized page after each data insertion of every user. Using the semantic technology, it can differentiate every page which belongs to different user. For example managers; the page will only show high level information that contains the work progress and task completed. It will go further into details regarding to the user ranking so that important information will be safe where it can be filter based on the job level.

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APPENDICES

APPENDIX 1

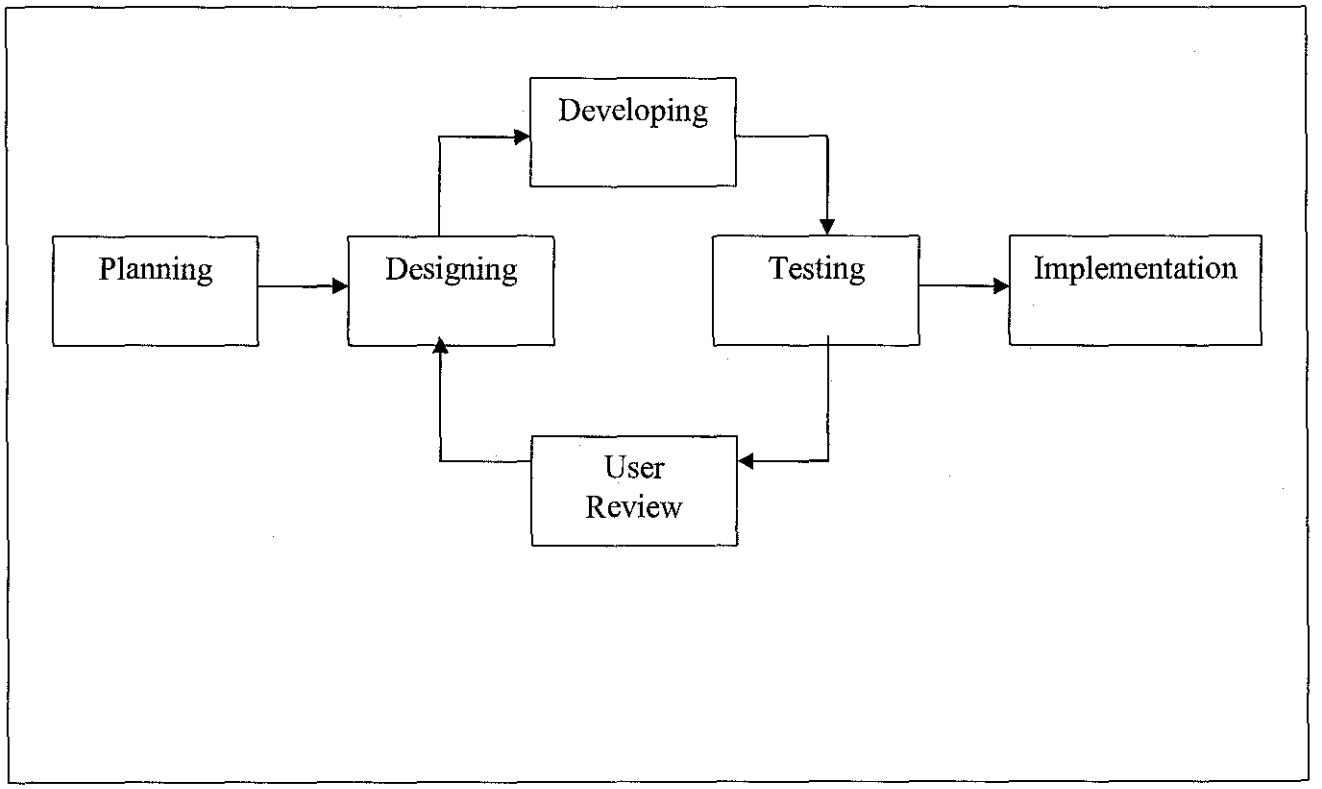

Figure 1: Rapid Application Development

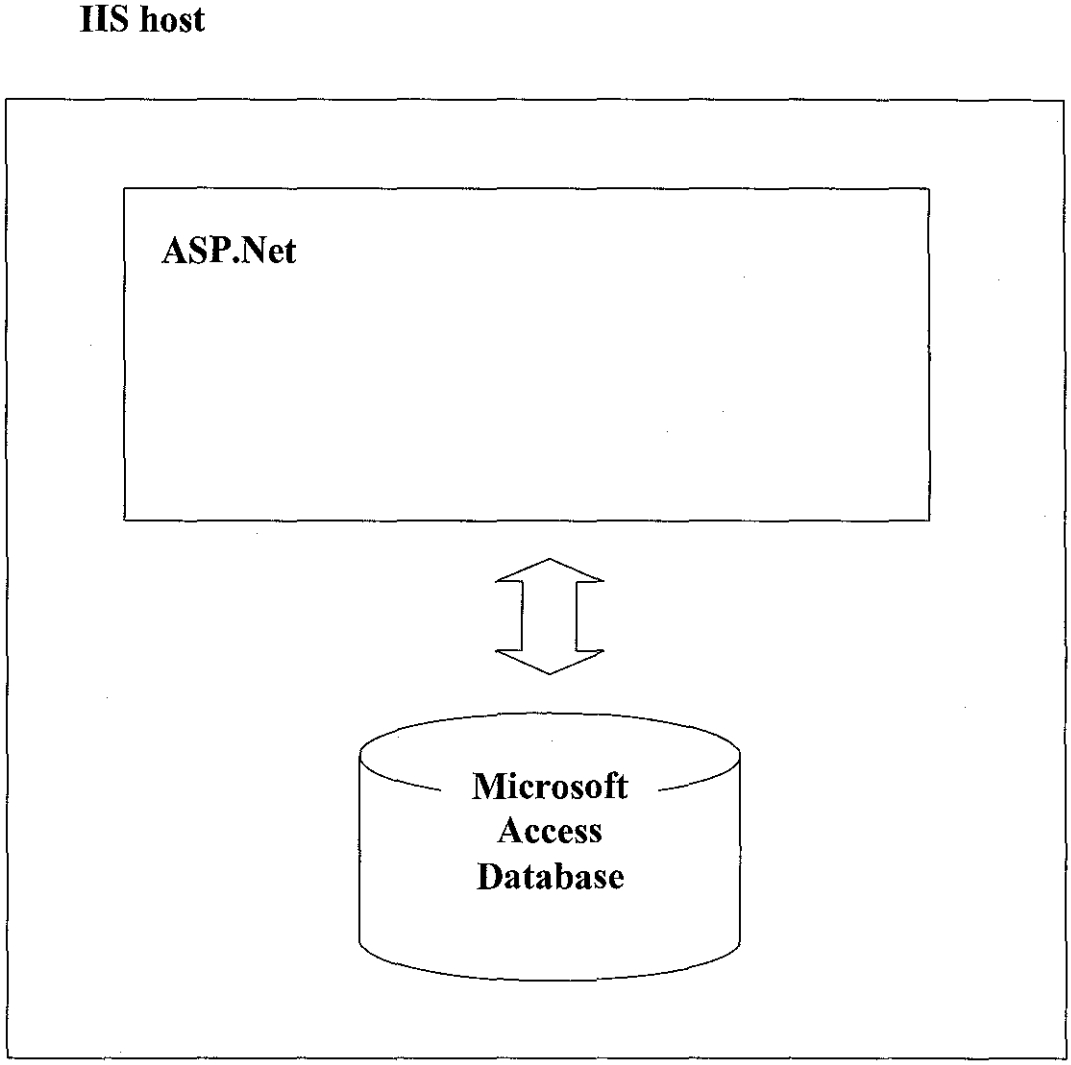

Figure 2 : System Architecture

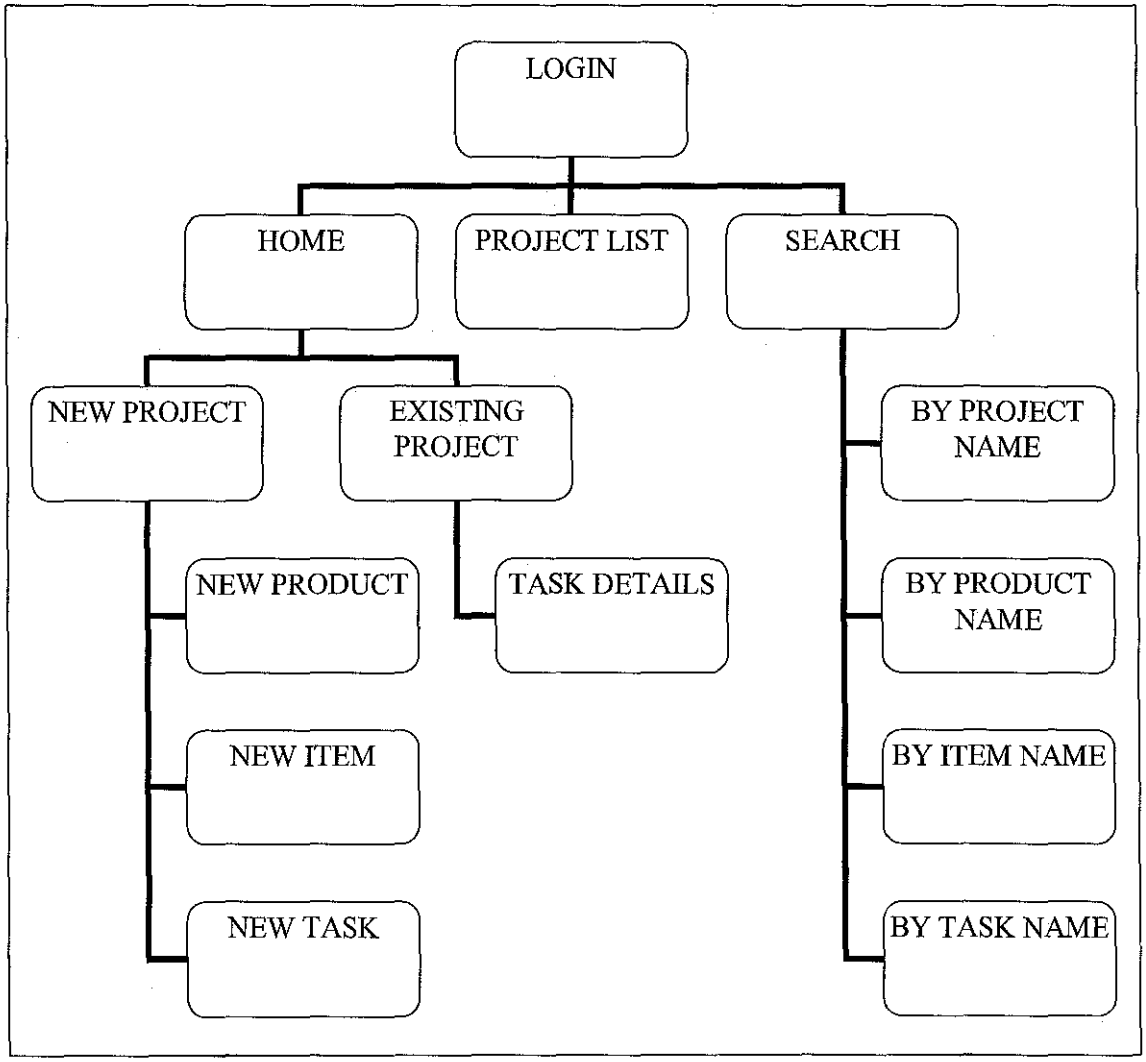

Figure 3 : System Flowchart

SEMESTER JANUARY 2007 (JANUARY – MAY)

	TASK	WEEKS 1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Important Events														
1	Preliminary Report														
2	Progress Report														
3	Seminar														
4	Exhibition / PreEDX														
5	Final Report														
6	Oral Presentation														
7	Dissertation Submission														
	Projects														
1	Planning														
2	Designing														
3	Developing														
4	Testing														
5	User Review														
6	Implementation														

Table 1 : GANTT Chart

APPENDIX 5

QUESTIONNAIRE (PRODUCTION PLANNING SYSTEM)

Please return this form to ajakzs@gmail.com upon completion.

1. What type of software do you use in production planning?
   a. Manual method
   b. MS Excel
   c. Stand alone
   d. Web based

2. The online Production Planning System is:
   a. Very easy
   b. Easy
   c. Moderate
   d. Difficult
   e. Very Difficult

3. Are you satisfied with the system functionality?
   a. Yes b. No

4. Do you think by using this system, it can help improve productivity?
   a. Agree
   b. Neutral
   c. Disagree

State the main problem(s) when choosing a good system that best suits for your company.

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