



UNIVERSITI  
TEKNOLOGI  
PETRONAS

## **FINAL YEAR PROJECT**

### **i-Journey: Web-based Journey Management Plan (JMP) System**

By

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16825

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

SEPTEMBER 2014

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CERTIFICATION OF APPROVAL

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(BUSINESS INFORMATION SYSTEMS)

Approved by,

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SEPTEMBER 2014

## CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.

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(Muhamad Azlan Bin Abdul Halim)

## **ABSTRACT**

This report discusses the research done on the chosen topic, which is i-Journey: Journey Management Plan (JMP); An Interactive Content Management Plan System for managing JMP. JMP is a set of procedures for employees in an organization to adhere to if they wish to travel for business purposes. The general purpose of the JMP is to ensure the safety of staff prior to travelling based on the input given by the employee. The procedures include filling up paper-based forms, performing manual calculation of risks involved, submitting forms and getting superior approvals. Currently these procedures were conducted manually, requiring full human intervention. Therefore, this project is proposed in order to automate the certain process of JMP since manual process is known to pose problems such as no data validation, incorrect calculation, missing forms and no tracking of documents. In particular, the objectives of this research is to design and develop a web-based JMP system that is interactive, has a good navigational structure with good usability.

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## **ABBREVIATIONS AND NOMENCLATURES**

|               |                                |
|---------------|--------------------------------|
| <b>Et al.</b> | And others                     |
| <b>JMP</b>    | Journey Management Plan        |
| <b>HSE</b>    | Health, Safety and Environment |

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Background of study**

JMP is a set of procedures for employees in an organization to adhere to if they wish to travel for business purposes. The general purpose of the JMP is to ensure the safety of staff prior to travelling based on the input given by the employee

Moreover, organizations implement JMP in order to achieve business objectives and meet safety requirements preset by the company by ensuring the employees to comply with driving safety rules and regulations.

In this research, the study focuses on the implementation of JMP in Baker Hughes. Baker Hughes (BH) is one of the renowned Oil and Gas service companies. This company is chosen because it is widely used JMP for its employees journey safety assurance and journey tracking. Based on the research, it was identified that the implementation of JMP in BH poses such problems as lack of information about journey management plan, submission period because waiting of manager to receive their application. The employees who wanted to travel will need to submit their forms to their respective managers. The request must be approved by HSE Manager SEA or Location Manager. At the moment, they do not have a system for the whole process of

submission and reviewing JMP. As such, the current process is likely to be exposed to human errors such as typo errors, late in approval, lack of journey and safety information which eventually will result in inefficiency of yet a crucial process. Hence, this project aims at proposing a web-based system to computerize the process. Additionally, the project will take into account usability features for the web-based system for not only promoting corporate identity, but to ensure ease of use and efficient usage to the hectic employees.

Usability refers to how well and how easily a user, without formal training, can interact with an information system. Extant researchers have highlighted the importance of the usability of the corporate web-based system presence towards stakeholders such as manager, HSE manager, employee and outsiders. Due to that, this project focuses on usability of corporate web-based system as the main research theme. In this context, usability of a website involves interface design and navigation structure. Developing usable websites or in this case a web-based system is pivotal for a company to ensure prolonged usage as well as to remove the burden from the employees.

According to ISO 9241, users achieve their goals in IT system usability which involves efficiency, satisfaction and effectiveness in various environments. The website may look cold and distant, comparing to a classical or traditional creation, it may look interesting and offer new possibilities to the users. Based on internet influencing compliance with economic traditional activity areas of research, such as loyalty and satisfaction, internet seems to have received a new desire as an effect of the internalization of business in essential channels. By navigating the site or doing transactions, such as purchasing or buying via internet reflects usability in a website. As stated by Nielsen (1994) the level of error turning away and the common satisfaction of the users and website usability require the ease with which people or users can study, experience to handle the system and remind the basic functions and ability of designing the site in website usability.

## 1.2 Problem Statements

The problems of this project are:

- Don't have a platform or content management system which provides information about journey management plan and safety tips.
- Late approval and not direct to HSE Manager after submitting the application.

| Asia Pacific - Road Journey Risk Assessment Form   |  |                                    |                       |   |                             |   |           |  |  |
|--|--|------------------------------------|-----------------------|---|-----------------------------|---|-----------|--|--|
| Date:  |  | Origin:                            |                       |   | Destination:                |   |           |  |  |
| Journey No:  |  | IVMS Installed & Working: Yes / No |                       |   | Road Journey Manager:       |   |           |  |  |
| Driver(s):   |  | Vehicle(s):                        |                       |   | Vehicle: Personal / Company |   | Plate No: |  |  |
| No   | Assessment Criteria  | Risk Rating                        |                       |   | Points                      |   |           |  |  |
| 1  | Is this the driver's first time journey on this route?   | No = 0                             |                       |   | Yes = 25                    |   |           |  |  |
| 2  | Is the driver unfamiliar with the road system (left, right hand drive)? Local traffic rules?                     | No = 0                             |                       |   | Yes = 40                    |   |           |  |  |
| 3  | How many hours has the driver been on duty before starting the journey?  | 0 to 8 hrs = 0                     | 8 to 12 hrs = 10      | 12 to 16 hrs = 20   | More than 16 hrs = 40       |   |           |  |  |
| 4  | How many hours of sleep has the driver had in the last 24 hours?   | 0 to 4 hrs = 40                    | 4 to 6 hrs = 5        | More than 6 hrs = 0   |                             |   |           |  |  |
| 5  | What is the anticipated driving time (hours) for the journey?  | 0 to 2 hrs = 0                     | 2 to 4 hrs = 10       | 4 to 6 hrs = 15   | More than 6 hrs = 20        |   |           |  |  |
| 6  | Will the journey require driving in darkness?  | No = 0                             |                       |   | Yes = 40                    |   |           |  |  |
| 7  | Is there a back up driver for journeys over 6 hours?   | No = 15                            |                       |   | N/A & Yes = 0               |   |           |  |  |
| 8  | Is the entire leg of journey covered by GSM network?   | No = 25                            | Fairly Covered = 15   |   | Yes = 0                     |   |           |  |  |
| 9  | What are the weather conditions and visibility for the journey (rain, fog, dust, storm, etc.)?                   | Good = 0                           | Fair = 10             |   | Poor = 25                   |   |           |  |  |
| 10   | What is the road surface condition and topography?   | Good & Blacktop = 0                | Graded & Compact = 15 |   | Off-road = 25               |   |           |  |  |
| 11   | Are there security issues (high risk for kidnapping, hijacking, civil unrest, loss of hazardous material, etc.)? | No = 0                             |                       |   | Yes = 75                    |   |           |  |  |
| 12   | When transporting Hazardous Materials will there be a convoy?  | No = 20                            |                       |   | N/A & Yes = 0               |   |           |  |  |
| 13   | Is there a risk of animal strike / motorcycle crossings on the route?  | No = 0                             |                       |   | Yes = 15                    |   |           |  |  |
| <b>Stop Work Authority:</b> Any driver or passenger has the authority and responsibility to suspend a journey when: 1) Conditions change that elevate the risks, 2) the road journey management controls are not clearly established or understood and 3) any other condition is present that is unacceptable to the driver, regardless of the score obtained on the Road Journey Risk Assessment. |  |                                    |                       |   | Total Points                | 0 |           |  |  |
|  |  | Points                             | Risk                  | Risk Management   |                             |   |           |  |  |
|  |  | More than 75                       | HIGH                  | requires approval of Location Manager and completion of the Road Journey Management Plan  |                             |   |           |  |  |
|  |  | 40 to 74                           | MEDIUM                | requires approval of Location Manager and completion of the Road Journey Management Plan  |                             |   |           |  |  |
|  |  | Less than 40                       | LOW                   | Routine: Self assessment and self approval, needs to be documented<br>Non-routine: Requires approval of Location Manager and completion of the Road Journey Management Plan |                             |   |           |  |  |
| Asia Pacific - Road Journey Management Plan Form   |  |                                    |                       |   |                             |   |           |  |  |
| <b>Important Notice:</b> All High, Medium and Non-routine Low risk journeys must be planned and approved accordingly. All routine low risk journeys must be self approved after the risk assessment. Journey Manager must complete and file this form after close out of the journey for future reference and audit.   |  |                                    |                       |   |                             |   |           |  |  |

Figure 1: Journey Management Plan (JMP) Form

Figure 1 shows a form used in a company for employees to request a road plan journey. It is a paper-based form requiring the user to input a send manually to the manager and the printout from printer machine. The total points computed will be manually compared against risk table which is also presented in the form. The employees must take subsequent action manually based on the information guide in the table. It can be deduced that this will prone to human errors such as failure to know who a sender, difficult to catch up the form from unknown recipient and result in wrong action taken by the employee that might cause negative impact to the safety of the employee.

The implication of previous procedure is user has difficulties to know about Journey Management Plan (JMP) process and bad with the user interface. Then, they need to wait the HSE manager to approve their application. This became an issue where some employees confuse to apply and know the flow of JMP.

Additionally, with the manual procedure system, it is hard to track the movement of the form within the organization since certain types of requests require a few layers of managers' approvals. This problem is crucial to be solved since the request to perform journey might be just a few days before the actual journey to date. Delay in approval might result in delay of the journey to start.

Furthermore, the current procedure that has been used in an organization does not offer a facility for keeping centralized travel details and contact details of the employees on travel. If there is a need for tracking the employee on the move for safety purposes, the clerk or a staff must go through a pile of forms in order to obtain such information. Since the travel details are often changes according time, it is unlikely for the information to be easily obtained. Therefore, there is a need for a system that can also track the movement or the travel agenda of the employees.

### **1.3 Objectives**

The objectives of this project are as follows:

- To study the usability features required for developing a web-based or content management system application.
- To design and develop a journey management plan system based on the usability features identified in objective 1.

### **1.4 Scope of study**

The scope of study for this project, which to solve the problem from problem statement through case study and user experience. The development is focused for HSE Manager and employee of Baker Hughes Malaysia or other organization which required JMP portal to their company. All of the employee/stakeholders would like to travel outside of the range required to complete Journey Management Plan (JMP) form and get approval before start the journey. Then the project will be focused on usability of web-based system in terms of user interface and navigation structure and usability.

The system will be developed by using Joomla Application which is a Content Management System (CMS) which provide the information such blog, and some features which user can submit the form through this portal. Then, the system will add by Xampp Database which user needs to register their name and password by self. The scope for this only is focus for user and manager. The manager will be acting as Admin to test their IT Skill and assign the group by their self. System Admin will help manager to assist in some coding or IT application which out of their range.

## **1.5 Project Feasibility**

The benefit to develop this system which to develop a corporate website content management system which provides information about the journey, procedure, tips, safety information and submission journey management assessment form through online and direct to the HSE manager.

This project will be completed within the 28 weeks been. For the first four months, it is to complete the project designation, proposal, idea generating and preliminary result. It is also the period of analyzing and study of literature review. The development of the application is to be done in the next 4 months, which is during Final Year Project (FYP) 2 time frame. The scope of development is also being focused as to set the base of requirement of the development which to implement a system which converting a paper based form into website and mobility.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Understanding website usability**

Usability is the simplest ways and process created and describing for a web site to understand and use it. Studies have shown that usability of a website will affect the users and increase the effectiveness of an organization while using the website. The usability of the website needed to follow web site evaluation and guidelines to ensure effectiveness and focus website usability to avoid other technical issue and aspects (Wikipedia, 2014).

It is normally a norm that a goal of any system is to provide the necessary functions for users to complete the tasks. However, functionality is not enough to ensure users use the system as it was intended. Therefore, research has suggested that the determinants of system and user acceptance are functionality and usability (ease of use, a user-related and a task-related concept) If a system is not usable, therefore the system cannot function well (Goodwin, 1987). Thus, usability is of paramount importance to be considered on top of functionality. As such, this project focuses on both aspects.



### **2.1.1 The relationship between website usability constructs**

Lee and Kozar (2012) mention that measuring the effect of website usability on online customer perceptions or behavior is crucial for designing more usable sites. Previous research has concluded that the relationships between website usability have different from their outcome, such as principles of website, intention such navigation of the website, action and satisfaction of using the website. Then, influence of using a website has justified based on the usability of website, attractive, user friendly and navigation structure.

A homepage is the most important site of webpage because it shows the main content and the main interface before proceeding to next pages and one of the main views. Furthermore, it can attract the user to log in and use the system. A website is like the main doors before entering the house. Then, after user submit their document it will auto response or back to the main pages. Putting a linking is very useful, but it doesn't give user satisfaction and enjoy if the homepage design is not following strong usability guidelines, that is (Nielsen,2002).

### **2.1.2 Importance of website usability**

A study by C. Liu, K.P. Arnett (2000) suggests that visitors visit again a web site when they feel enjoyable and attractive with user interface, navigation and design.

C. Liu, K.P. Arnett (2000) states that electronic commerce is a medium between customers and business enterprise to build interactive function between them. Furthermore, it's an importance of two way communications between firms and customers. Therefore, it raises the customer's abilities to study and how to browse searches suitable information on the web.

System quality is important to fix error recovery and maintain operation. According to a survey by the European Electronic Messaging Association, the design of quality is the priority need to be care of electronic commerce customers by more than 79% of respondents.

Putting too much attention on heuristic way in order to evaluate design quality and calculate user performance will cause usability problem in a system (S. Lee, R.J. Koubek,2010). It's more important to ensure user's revisit again a system or website with enjoyment, comfort and satisfaction.

The important result from web site might be found on internet marketing in previous or recent studies, which will be one of support and use of pleasure in web site system. Therefore, all the information on a website is relevant, complete, trustworthy and up –to-date (K. De Wulf et al, 2006).

The importance of having website structure is to increase the attractiveness in provision of graphics, audio, video, backgrounds and some multimedia elements that to enhance website content and information. By using interesting themes and template such flash, graphic and some design appeal and embedded onto system may increase visitors and make web site experience entertaining more better to conduct business activities.

## **2.2 Usability Features**

Researcher Sabina Idler (2013) have said to build a website need a strong usability features which can interact user to use the system and ensure system availability all the times . Then, there is some usability features need to develop systems which are:

### **Implement Site Search**

When user looking something and they can look for a text field which they can enter their need and easy to find them. By including a search button make easy to user to find their need.

### **Clarity**

Do not make the user feel in trouble when using a system. The system must be clear through simplicity, guidance, good information architecture, consistency and direct feedback.

### **Learnability**

By use a design of concept will attract a user to meet system expectations. Keep it simple and clear with the visual concept to ensure people remember using a system.

### **Relevancy**

Then, the information provided in a system must be relevant to inform. To ensure user attract with the information and help user to searching according to their goal.

### **Error Checking**

Checking an error such empty or wrong field that required to input. Then, errors checking also check such password and username to login the systems.

## **2.3 Website Usability in Navigation Structure**

X. Fang, C.W. Holsapple (2007) states that Website navigation can conclude variable dimensions. Semantics and syntax is the characterized in navigation structure. Text sentences, multimedia presentation and graphic is the web objects in semantics indicates the concept of language or objects that been used in a navigation structure to plan and arranged that will refer especially change of state by one or more way in a web site. A navigation protocol, accessing pages, organizing layout on the web site's object, consistency is to determine in a navigation structure. By making information easier to find, acquire more knowledge, data and information is an important construct and design element in navigation structure as an objective by allowing users to find it. Create a links and involve with navigation mechanisms is a tough challenge to building a usable web site.

### 2.3.1 Support Navigation Structure



Figure 2: The Navigation structure framework

Fisher et.al (2004) stated that Navigation is a major factor in website usability. The support navigation meets user expectation and guided users to right system, process and way to submitting the document based on figure 2. Use a good page template and layout. The most easy to navigate users by preparing the most usability link that guide users to the right way of process and systems. Avoid concise menus: explain what each link contains- so that users can find the right link first time. Provide a site map or overview- this helps users understand the scope of the site (Nigel,1999). By improving the navigation structure can ensure readers or users have an awesome navigation experience then can recommend to other users to use it. Then, to ensure our language easy and can be understood by other users. Other than, to ensure our system user friendly while supports the navigation structure. The navigation, design is used to help or invisible users or avoid them from access the other site (Cyr et al., n.d). The navigation aspect will ensure website effectiveness, design consistency in both navigation elements and information. Fisher et al. (2004) stated that, greater credibility of website will increase the business in the user eye and rate of using a website.

### **2.3.2 Importance of website navigational structure**

#### **Navigation Layers**

Primary navigation of a website must be clear and structured. Break a subject into categories and group by presenting in a logical ways. Commonly the navigational layers found the top of website layout and as a primary navigation for the main site. Therefore, navigation will links such as contact, about us and some information about the company (Nataliya Patin, 2014).

#### **Good Site Structure**

Keep a webpages flat in pages and close to the home page. By creating web navigation structure to positions pages and site will save time. Then, categories section by arranging elements into the group and positioning in a hierarchical order (Haydn Rowe, 2014).

### **2.4 Benefits of web-based system**

Based on the previous research of (Tony Liu & William Xu, 2001), the benefits of a web-based system can be summarized as follows:

#### **User-friendliness**

The development process from beginning to end will affect the user perception. Then, the system needs minimal training to compare and make more usability to other website or system; hence the Implementation of the system will be reduced in term of cost Simple, the right system will ensure the user to use and play with the system.

**More manageable**

It is easy to manage a computer-based system than a paper-based inventory system.

**Greater accessibility and applicability**

Increasing speed of reading and easy for accessing the web system in any location provided by the internet. Then, can be used anytime without hassle.

**Loyalty**

The importance of website service might be important as a growing in our daily life. Then, some of the researchers strive to solve and find ways to boost website loyalty and raise consumer's aim to buy.

**Cost savings**

Cost savings such from reduction by using of paper and print based from and to use.

## CHAPTER 3 RESEARCH METHODOLOGY

### 3.1 Introduction

The system methodology is discussing about the system development approach that suits the project. Some organizations had a lack of resources to build web developing knowledge and they still used the traditional method such paper based form. Issues are resolved by proposed the web application which more usability in terms of user interface, navigation structure content and mobility. Methodology has been used for project prototyping. The initial user interface and flows have been drafted. The examples of methodologies that are available are System Development Life Cycle (SDLC), Joint Application Design (JAD), Rapid Application Development (RAD), Agile Scrum Model and Waterfall Model Diagram. The important factors have derived from Rapid Application Development (RAD). Thus, through deeply researched and based on the result, RAD will be used in implementing a project and be applied in my system and work development.

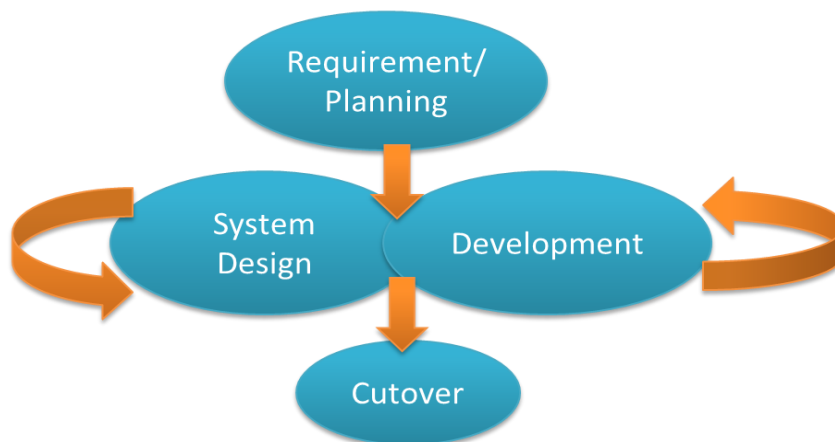


Figure 3: Rapid Application Development (RAD) Phase Methodology



Rapid application design is an approach to the development of the information system that do promise the better and cheaper system with rapid development by having system developers and end users work together jointly in real time to develop a system. It is perceived as a systems methodology, a method for developers to change their development processes or as RAD tools to improve development capabilities (Beynon-Davies, 1999).

Rapid Application Development (RAD) is a development model process which focuses to short development cycle. RAD model focus to produce rapid software and cut cost the development process. Thus, the RAD process enables development to develop a system and function within a short period time given to complete their project.

### 3.2 Comparison between SDLC and RAD

Table 1: Comparison between SDLC and RAD

| <b>SDLC</b>                          | <b>RAD</b>                    |
|--------------------------------------|-------------------------------|
| 1. Working under large project       | 1. Work under small project.  |
| 2. Feasible time frame               | 2. Reduced Development Time   |
| 3. Focus on long development process | 3. Focus on short development |
| 4. Highly cost                       | 4. Low Cost                   |
| 5. More quality                      | 5. Highly skilled developers  |

### **3.3 Project Phases**

#### **Phase 1: Requirement/Planning**

In the RAD life cycle, requirements planning incorporates elements of the traditional planning and analysis phase. During this phase, knowledgeable end users determine system requirements, but the determination is done in the context of a discussion of the problem statement. Once specific systems have been identified for development, users and developer had discussion to reach agreement on system requirements. This stage requires analysis made up such define problem, finding title proposal, collect data, review previous research, initial drafting for user interface, analyse data and conduct literature review. . Interviews with HSE Manager Baker Hughes (Malaysia) and some of staff will help the developer in this phase.

#### **Phase 2: System Design**

This stage will design the interface and create system architecture. This stage design the system by following the usability features that have been used in literature review parts. Users and the developer work closely and quickly to create prototypes that capture systems requirements and that become the basis for the physical design of the system being developed. The outcome of this project are storyboard and prototype procedure created.

#### **Phase 3: Development**

During this phase, Start to develop web systems after analysis data needed and information by using software such Joomla Content Management System, Xampp Database, Notepad ++, Joomla JSN Extension Form and hardware such laptop and local host. The outcomes of this project design have been finalized and system success builds are Joomla application and connected with Xampp Database.

#### **Phase 4: Cutover**

Cutover is the delivery of the new system to its end users. Planning for cutover must begin early in the RAD process because the RAD approach is so fast. Cutover involves many of the traditional implementation of activities, including testing the system, training users, dealing with organizational changes, and running the new and old systems in parallel, but all these activities occur on an accelerated basis. The outcomes of this project are the new system has been implemented and testing. Therefore, by building this system able to solve the problem and give a better solution to the user

#### **3.4 Key Milestone**

Table 2: Key Milestone

| <b>Num.</b> | <b>Milestone</b>                    | <b>Completion Week</b> |
|-------------|-------------------------------------|------------------------|
| 1           | Requirement Gathered                | Week 10                |
| 2           | Interim report submission           | Week 12                |
| 3           | Proposal Defense                    | Week 14                |
| 4           | Progress Report                     | Week 18                |
| 5           | Dissertation and Technical Report   | Week 25                |
| 5           | Prototype Development Complete      | Week 26                |
| 6           | Project Submission and Presentation | Week 28                |

### 3.5 Gantt Charts

Table 3: FYP 1 Gantt Chart

|          |   | Week    |           |         |         |         |         |         |         |         |           |         |         |         |           |
|----------|---|---------|-----------|---------|---------|---------|---------|---------|---------|---------|-----------|---------|---------|---------|-----------|
| No.      | Project Activities (FYP1)               | 1       | 2         | 3       | 4       | 5       | 6       | 7       | 8       | 9       | 10        | 11      | 12      | 13      | 14        |
| <b>1</b> | <b>Selection of Project Title</b>       | Process | Milestone |         |         |         |         |         |         |         |           |         |         |         |           |
|          | Search for Project Title                | Process | Process   |         |         |         |         |         |         |         |           |         |         |         |           |
| <b>2</b> | <b>Planning &amp; Research Analysis</b> |         |           | Process | Process | Process | Process | Process | Process | Process | Milestone |         |         |         |           |
|          | Conduct interview and questionnaire     |         |           | Process | Process | Process | Process | Process |         |         |           |         |         |         |           |
|          | Define the system scope                 |         |           |         | Process | Process | Process | Process |         |         |           |         |         |         |           |
|          | Determine system outline                |         |           |         |         |         | Process | Process | Process |         |           |         |         |         |           |
|          | Literature review research              |         |           |         |         |         | Process | Process | Process | Process |           |         |         |         |           |
| <b>3</b> | <b>User Design</b>                      |         |           |         |         |         |         |         |         |         |           | Process | Process | Process | Milestone |
|          | Design storyboard diagram               |         |           |         |         |         |         |         |         |         |           | Process | Process |         |           |
|          | Preliminary screen layout               |         |           |         |         |         |         |         |         |         |           |         | Process | Process | Process   |

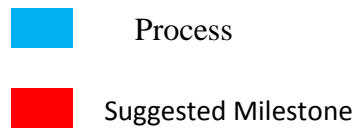
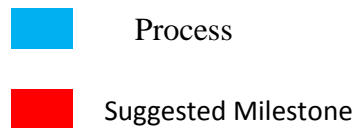


Table 4: FYP 2 Gantt Chart

| No.      | Project Activities (FYP2)                                | Week |   |   |   |   |   |   |   |   |    |    |    |    |    |
|----------|--|------|---|---|---|---|---|---|---|---|----|----|----|----|----|
|          |  | 1    | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| <b>4</b> | <b>System Construction</b>                               | █    | █ | █ | █ | █ | █ | █ | █ | █ | █  | █  | █  | █  | █  |
|          | • Build  | █    | █ | █ | █ |   |   |   |   |   |    |    |    |    |    |
|          | Develop User Interface                                   | █    | █ |   |   |   |   |   |   |   |    |    |    |    |    |
|          | Create pages in Joomla Content Management System         |      |   | █ | █ |   |   |   |   |   |    |    |    |    |    |
|          | Homepage design and navigation structure                 |      |   | █ | █ |   |   |   |   |   |    |    |    |    |    |
|          | • Demonstrate  |      |   |   |   | █ | █ | █ |   |   |    |    |    |    |    |
|          | Run simple test to show the workability                  |      |   |   |   | █ | █ |   |   |   |    |    |    |    |    |
|          | Ensure all components interrelated and working           |      |   |   |   |   | █ | █ |   |   |    |    |    |    |    |
|          | • Refine   |      |   |   |   |   |   |   | █ | █ | █  |    |    |    |    |
|          | Fix coding error   |      |   |   |   |   |   |   | █ | █ |    |    |    |    |    |
|          | Reconstruct the system                                   |      |   |   |   |   |   |   |   | █ | █  |    |    |    |    |
| <b>5</b> | <b>System Cutover</b>                                    |      |   |   |   |   |   |   |   |   |    | █  | █  | █  | █  |
|          | Testing system functionality and usability               |      |   |   |   |   |   |   |   |   |    | █  | █  |    |    |
|          | Check system specification aligned with the requirements |      |   |   |   |   |   |   |   |   |    |    | █  |    |    |
|          | System implementation                                    |      |   |   |   |   |   |   |   |   |    |    |    |    | █  |



### **3.6 Tools Required**

To develop this project, there are several tools and requirements needs to be filling to run the system. Below is the minimum requirement and tools required:

- Personal computers with Windows platform, 1 GB RAM (minimum), 50 GB hard-disk space, including 115 MB of available space on the hard disk that contains the operating system.
- Joomla Content Management System Application
- Joomla JNS Extension Form
- Notepad++
- Xampp Database
- Microsoft Excel

## **CHAPTER 4**

### **RESULT AND DISCUSSION**

#### **4.1 Data Collection and Research**

##### **4.1.1 Literature Review Findings**

From literature review research, the findings are:

- The usability features of website.
- Understanding website usability.
- Web site usability in supporting navigation structure.
- Importance of navigation structure.
- Benefit of web-based system.

##### **4.1.2 Interview and Research Findings**

In order to determine the requirements needed for the i-Journey Portal, short interviews had been conducted with HSE Manager Baker Hughes and staff through email, experience and short messaging system (SMS) to collect the information and request the form to be used for sample. Most of the data for development are obtained from the interview and experience.

The present and goal of the study have conduct and research about usability of the website which to make corporate website more usable and useful to users that have been discussed in the literature review. Based on the interview with Baker Hughes HSE SEA Manager through email, they still use Journey Management Plan (JMP) Then, all the information will keep by the HSE region manager after getting approval from the Geo market vice president or region department manager. Then, HSE SEA Manager sometime out for travel and HSE matter, so that this will support the employment of the system that easy for based manager or stakeholders view their staff movement and tracking where they go. Besides that, that has a specific time for journey before and after the time given. Research has been conducted to gather all relevant information regarding implementation of usability, web into Baker Hughes Inc. JMP system. The research methodology is the process where the data collection occurs.

Semi-structured interview has been carried out by HSE Manager who are the expert and knowledge about JMP in Baker Hughes. To obtain a deeper understanding about JMP flows, I contacted the HSE Manager to know more details about Health Safety Environment and Security of organization and JMP flows how they work to the employee. Then, by study the JMP process and procedure given can know the flow process of JMP and it's confusing the user for the first time applies. While the interviews were conducted, interviewees discussed other issues process of implementing and transform JMP into the system.

The criteria for respondent selection area:

Name : Syamsul Azam Shafei

Position : Baker Hughes HSE Manager (Malaysia & Philippine)

Email : Syamsul-Azam.Shafei@bakerhughes.com



- **Semi-Structured Interview**

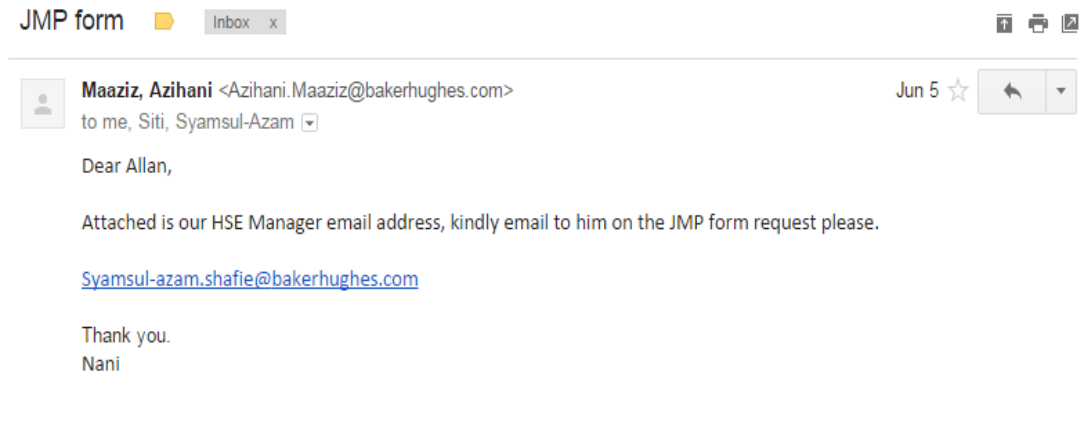


Figure 4: Email attachments from HSE Representative

Figure 4 shows the question that has been asked to HSE Representative which is my previous internship company to take as a study case to develop my final year project based on their criteria.

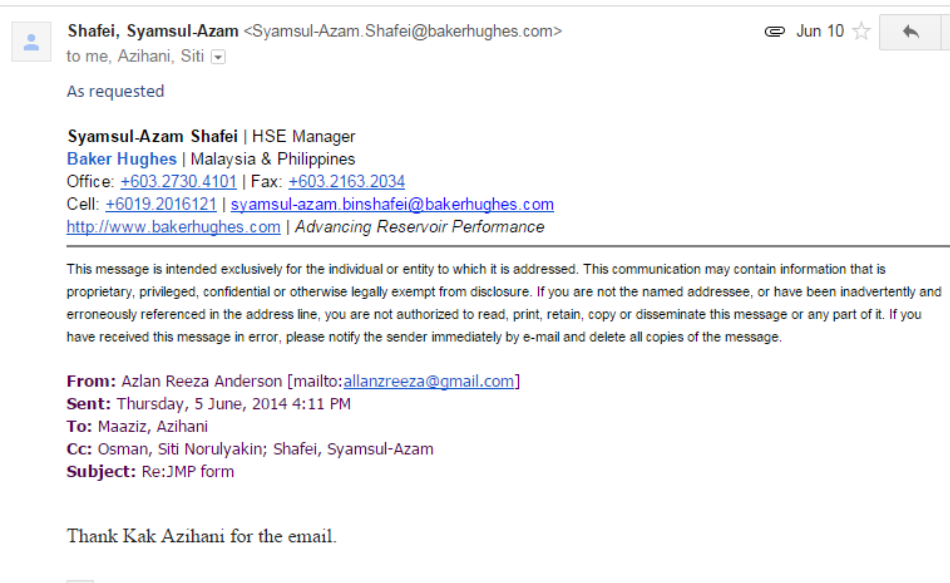


Figure 5: Email sent from HSE Manager

Figure 5 shows the email sending by HSE Manager, I request a JMP Form to study and be as sample to upload them into an online database to be done with my project elements.

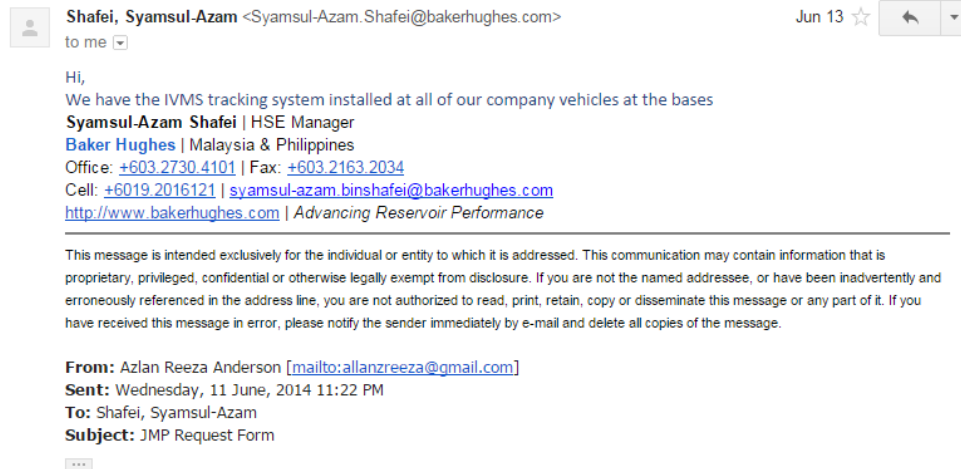


Figure 6: Email about IVMS

Figure 6 shows that question that has been asked about JMP procedures in the organization. Currently, in company there have In-Vehicle Monitoring System (IVMS) which monitor the movement of an employee from one place to another destination which comply with HSE Regulations.

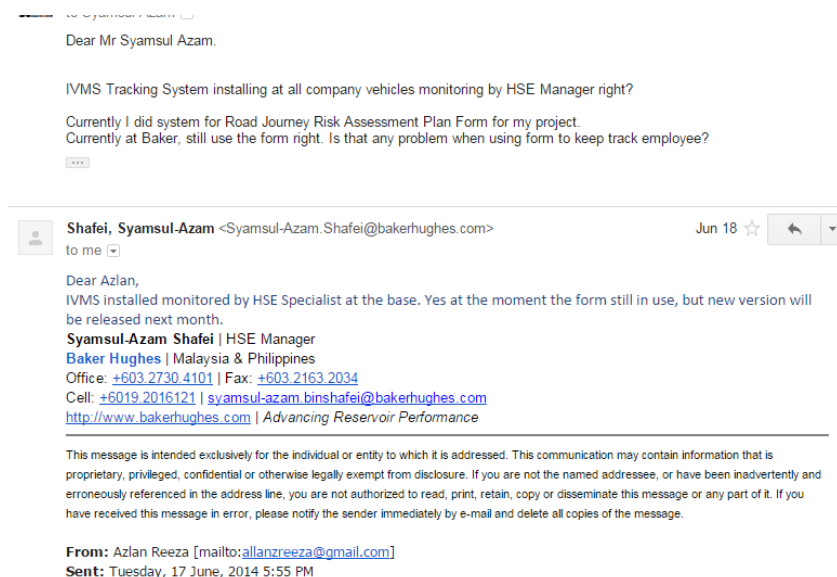


Figure 7: Email about implementation JMP System

## 4.2 System Architecture

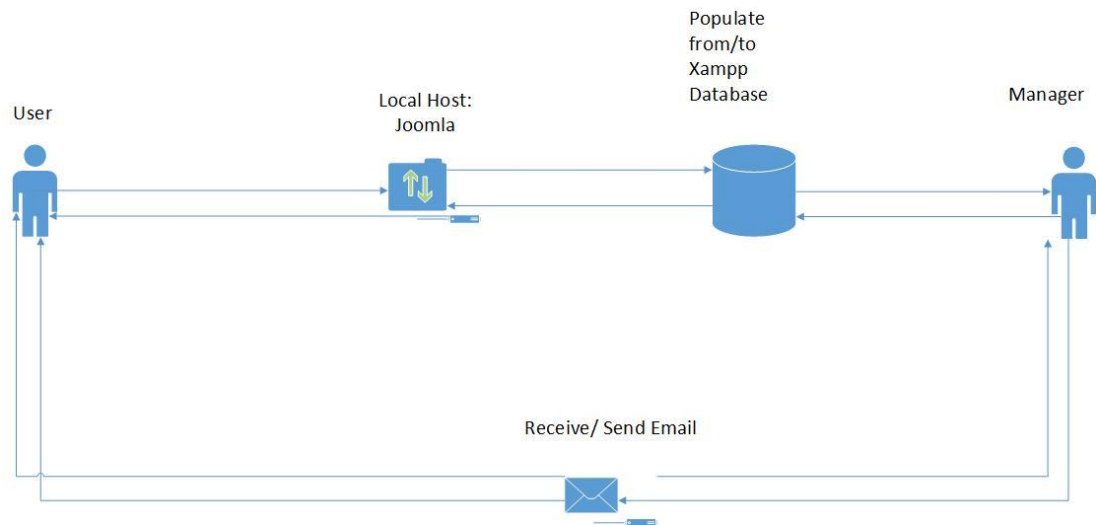


Figure 8: System Architecture

Through the system architecture in figure 8, the User such manager and employee will log in or create an account. Then, access will be directed to Local Host Joomla Content Management System. Then, submit the JMP application to a database which database will keep their information and direct to manage. Then, the Manager will receive the email after users submit their application and able to view and approve immediately after review their application. Then, the user will get a notification email from me-Journey Admin which their application is received by HSE Manager.

### 4.3 Flow Chart

#### Manager

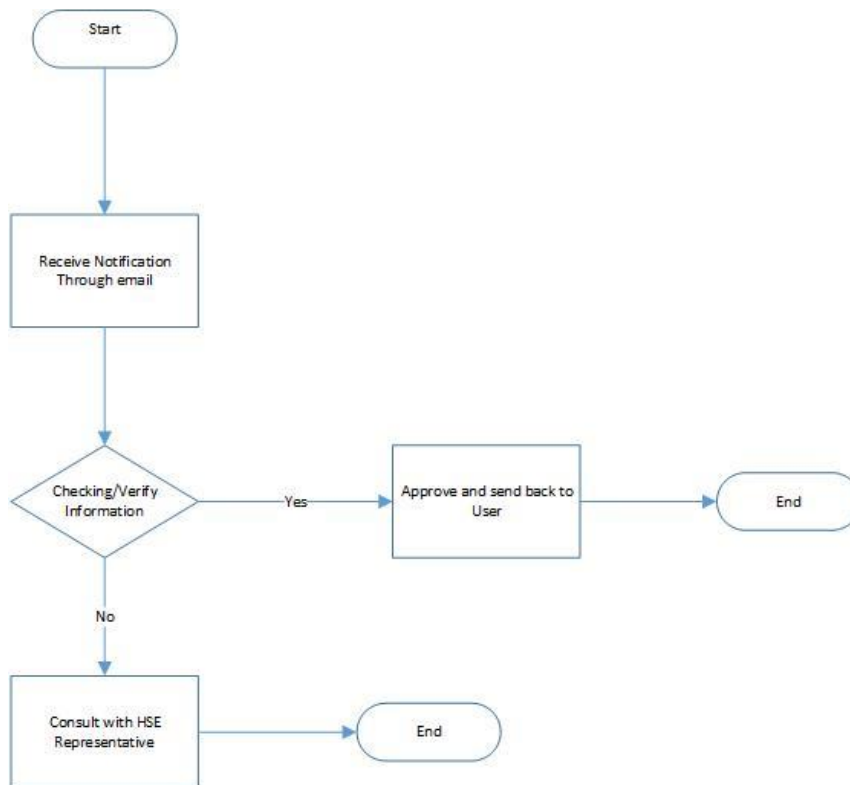


Figure 9: Manager flow chart

Figure 9 shows the flow chart of manager which required to approve an application through email and receiving email from their computer or smartphone. For that, users will get approval earlier than previous procedure which users need to wait manager to review their application and approve through email.

## User

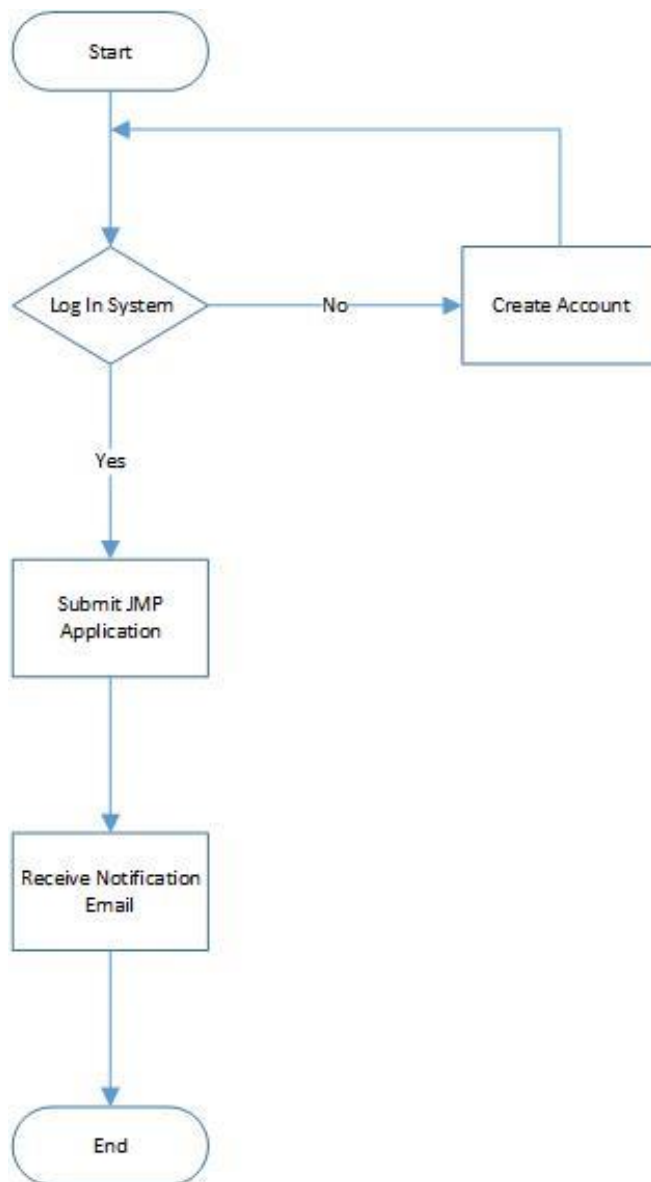


Figure 10: User flow chart

Figure 10 shows the user flowchart which submits the JMP application through a system. Users need to register their user if new or log in if already register. Then submit the application through a system. Then, the user will get a notification email from admin which Manager done or receive their application to be reviewed and approve.

## 4.4 Functional and non-functional requirements

### Functional Requirements

Table 5: Functional Requirements

|              |     |             |   |
|--------------|-----|-------------|---|
| *Must Have   | 1.0 | Employee    | <p>User friendly interface for Intern to</p> <ul style="list-style-type: none"> <li>- Auto-populate employee details upon log in</li> <li>- Update Intern information and details.</li> <li>- Log In portal,</li> <li>- Generate Summary of JMP report</li> <li>- Submit the application to a manager</li> <li>- Receive auto-reply email from admin.</li> <li>- Contact and email person in-charge.</li> </ul> |
|              | 2.0 | HSE Manager | <p>An easy to use online tool for managers to</p> <ul style="list-style-type: none"> <li>- Auto-populate manager information and details.</li> <li>- View employee JMP report directly.</li> <li>- Approve employee application through email.</li> <li>- Assign employee to the department</li> <li>- Receive an application through email.</li> <li>- Receive and send inquiry through email.</li> </ul>      |
|              | 3.0 | System      | <ul style="list-style-type: none"> <li>- Register and add a user</li> <li>- Update user information</li> <li>- Delete user</li> <li>- Update record</li> <li>- Send auto-reply email to user and manager</li> </ul>   |
| *Should Have | 1.0 | Employee    | <ul style="list-style-type: none"> <li>- Auto populates email and approve button.</li> </ul>  |
| *Could Have  | 1.0 | Employee    | <ul style="list-style-type: none"> <li>- View and edit their details before approving by the manager.</li> </ul>  |
|              | 2.0 | Manager     | <ul style="list-style-type: none"> <li>- Approve application through the system.</li> </ul>   |

## Nonfunctional requirements

Table 6: Nonfunctional Requirements

|              |   |
|--------------|---|
| Performance  | System responses should not be more than 8 seconds  |
|              | The system should be accessible concurrently to few hundred users with no performance degradation |
| Availability | The system should be online 24 x 7  |
| Scalability  | Phased roll out to other departments and employee between the organizations.                      |
|              | Support unlimited users   |
| Localization | Support multiple time zones   |
| Security     | Allow access to only authenticated users [ employee and HSE Manager]                              |

## 4.5 System Design

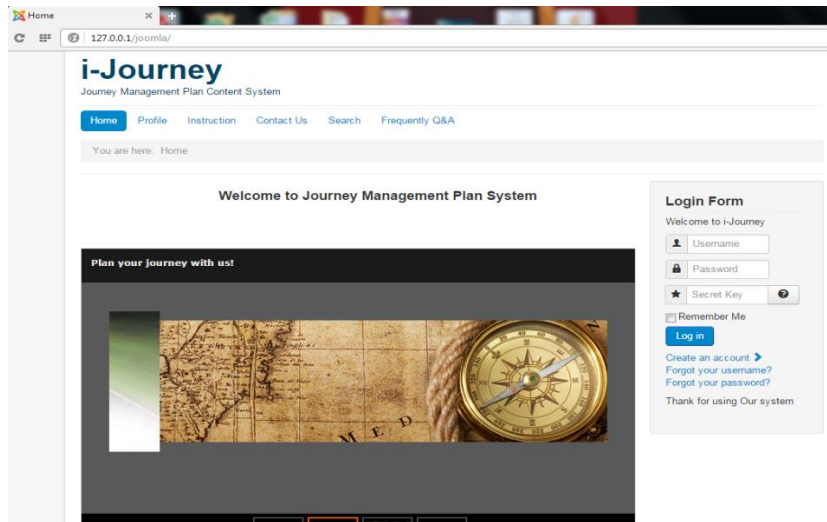




Figure 11: Home page of my-Journey

Figure 11 shows the homepage of me-Journey portal. User need to register or log in to submit their application. There is a login form that user need to log in to enter the system. Then, two new users need to create accounts, and user forgets their username or password, our system will trace user authentication through their registration. Then, before users log in the system, they only can view homes, profile, instruction, contact us, search and frequent Q&A due to security features. Fisher et al. (2004) stated that, greater credibility of website will increase the business in the user eye and rate of using a website. Only users with register can view the full system in figure 12. For home navigation site will view the image transaction gallery as a slideshow. By use a design of concept will attract a user to meet system expectations. Keep it simple and clear with the visual concept to ensure people remember using a system (Sabina Idler ,2013). Therefore, all the information in website are relevant, complete, trustworthy and up –to-date (K. De Wulf et al, 2006).



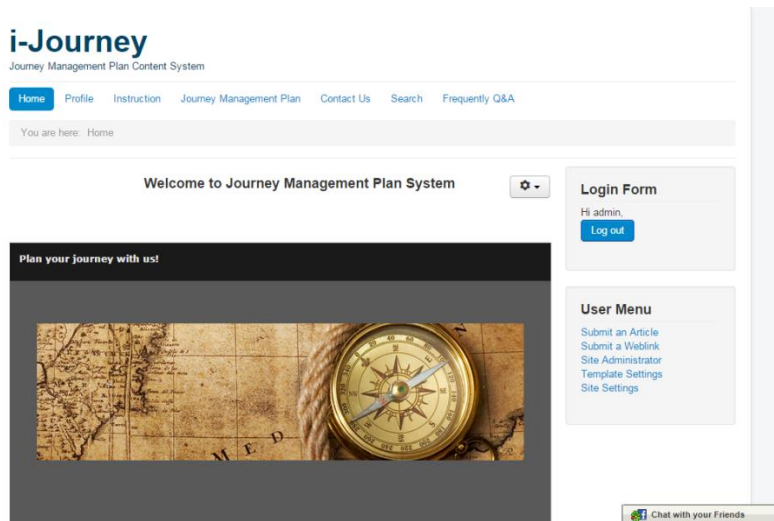


Figure 12: Homepage with full navigation

Figure 12 shows the home page and some navigation structure which user logs in the system. Which contents of Home, profile, instruction, journey management plan, contact us, search and frequently Q&A. A study by C. Liu, K.P. Arnett (2000) suggests that visitors visit again a web site when they feel enjoyable and attractive with user interface, navigation and design. This is because due to security and as one of the usability features I built to enhance the information security. Then, after user log in the system, there will appear your username before log out button. Avoid concise menus: explain what each link contains- so that users can find the right link first time. Provide a site map or overview- this helps users understand the scope of the site (Nigel,1999). By improving navigation structure can ensure readers or users have an awesome navigation experience then can recommend to other users to use it.

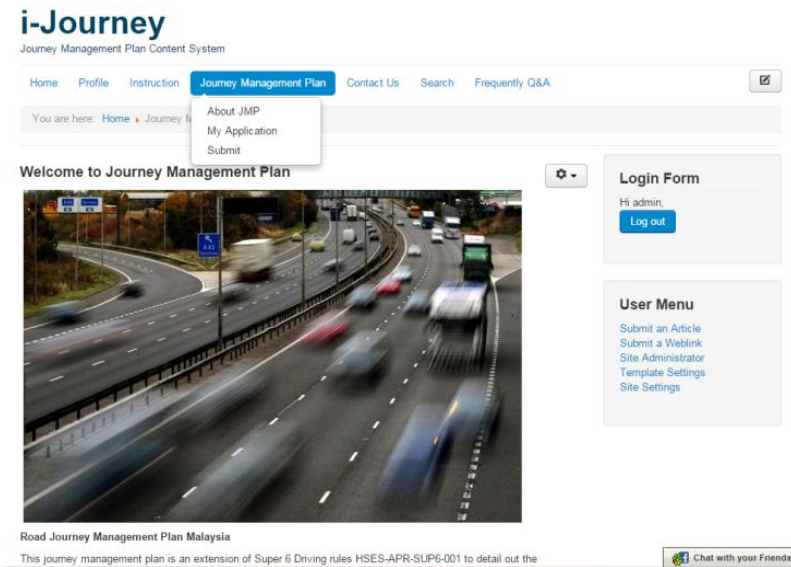


Figure 13: Navigation site in JMP


Figure 13 shows the navigation site in Journey Management Plan, which contains the JMP Landing page, about JMP, application submit through the system and submit features. Then, each of the pages will appear a login form like figure 12, which has been set for each page to allow users to log out their account to avoid other people interrupting their application. Do not make the user feel in trouble when using a system. The system must be clear through simplicity, guidance, good information architecture, consistency, and direct feedback (Sabina Idler, 2013). Primary navigation of a website must be clear and structured. Break a subject into categories and group by presenting in a logical way (Nataliya Patin, 2014).

Submit an application

Login Form

Hi admin.

[Log out](#)



**Journey No \***

**Driver Name \***

**Date/Time \***

**Road Journey Manager \***

**Depart \***

**Contact No. \***

**Arrival \***

**Email \***

**JMP Form Uploader \***  
 No file chosen

Figure 14: JMP Application Form

**Journey No \***

**Driver Name \***  
  
**This field can not be empty, please enter required information.**

**Date/Time \***

**Road Journey Manager \***  
  
**This field can not be empty, please enter required information.**

**Depart \***  
  
**This field can not be empty, please enter required information.**

**Contact No. \***  
  
**This field can not be empty, please enter required information.**

**Arrival \***  
  
**This field can not be empty, please enter required information.**

**Email \***  
  
**The information is invalid, please correct.**

**JMP Form Uploader \***  
 No file chosen  
**This field can not be empty, please enter required information.**

Figure 15: Error Notifications

Figure 14 shows the JMP application form page to submit which is under Journey Management Plan (JMP) navigation site. Figure 14 shows the forms that have implemented which contains of Journey No, Driver Name, Road Journey Manager, Date/Time, Depart, Arrival, Contact No, Email and file Uploader. Then, have submit button which to submit directly to HSE Manager Email. Therefore, reset button also be implemented to reset and redo key in the application for submission. Figure 15 shows the asterisk sign which user must need to key in their details and will appear error sign which user key in the wrong format or didn't put any details required by a system. This is part of the usability features that have built into this system. Checking an error such empty or wrong field that required to input. Then, errors checking also check such password and username to login the systems (Sabina Idler ,2013). Fisher et.al (2004) stated that Navigation is a major factor in website usability. The support navigation meets user expectation and guided users to right system, process and way to submitting the document

The image shows a web application interface. At the top, there is a green notification box with the following text: "Thank for submit your application.", "Notice that your application will receive in 24 hours from submitted time.", "Regards,", and "i-Journey Admin". Below the notification, there is a form with several input fields, each with a red asterisk indicating it is required. The fields are: "Journey No \*", "Driver Name \*", "Date/Time \*" (with a date and time picker showing "11/26/2014 03:20 am"), "Road Journey Manager \*" (with a text input containing "Mr.Azlan"), "Depart \*" (with a dropdown menu showing "- Select Origin -"), "Contact No. \*" (with a text input containing "019-1234567"), "Arrival \*" (with a dropdown menu showing "- Select Destination-"), and "Email \*" (with a text input containing "user@gmail.com"). At the bottom of the form, there is a "JMP Form Uploader \*" section with a "Choose Files" button and the text "No file chosen". Below the form, there are two buttons: "RESET" and "SUBMIT".

Figure 16: Successful Notification

Figure 16 shows the form after the user complete submit their application and submit to HSE Manager. Then, the user will get a notification email inside this page which to tell that their application success sent to the manager. During this time, user need to wait their application to be approved or not. To know and call direct to the person in charge, user need to click at contact us site which will appear the contact number of HSE Manager, HSE Representative and admin of i-Journey based on figure 17. Provide a site map or overview- this helps users understand the scope of the site (Nigel,1999).

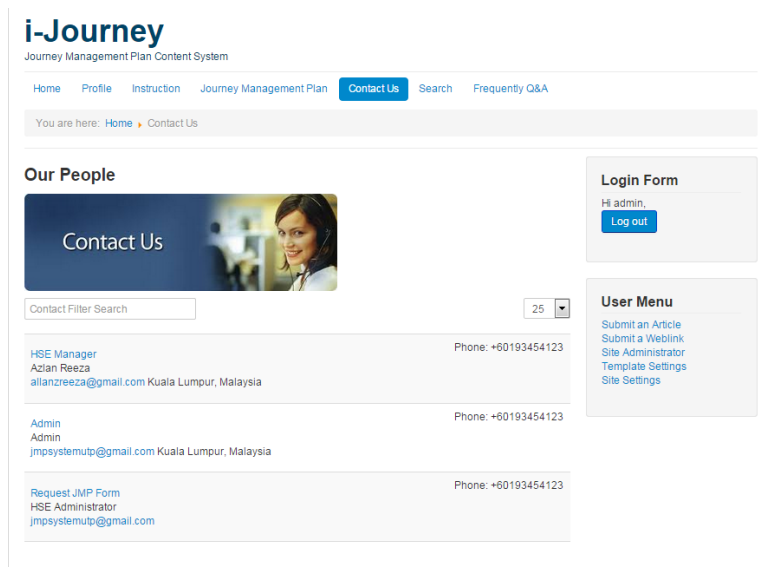


Figure 17: Contact us page

Based on figure 17, this site will focus on contact details such name, email, designation and their telephone number. It will easy to use to call director asking about their journey and application. Then, the information provided in a system must be relevant to inform. To ensure user attract with the information and help user to searching according to their goal (Sabina Idler ,2013).

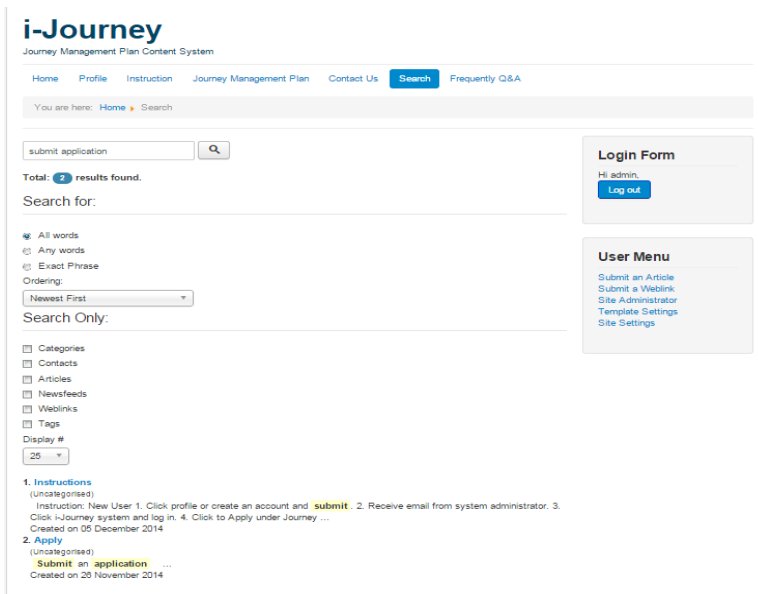


Figure 18: Search page

Figure 18 shows the search page which to make easy and useful for users to find their needs such JMP submission which user needs to key in their finding in the search box and click search. Then, the result will appear below on the page. Then, user can select their criteria which able to filter the searching area. When user looking something and they can look for a text field which they can enter their need and easy to find them. By including a search button make easy to user to find their need (Sabina Idler ,2013). Increasing speed of reading and easy for accessing the web system in any location provided by internet. Then, can be used anytime without hassle (Tony Liu & William Xu, 2001).

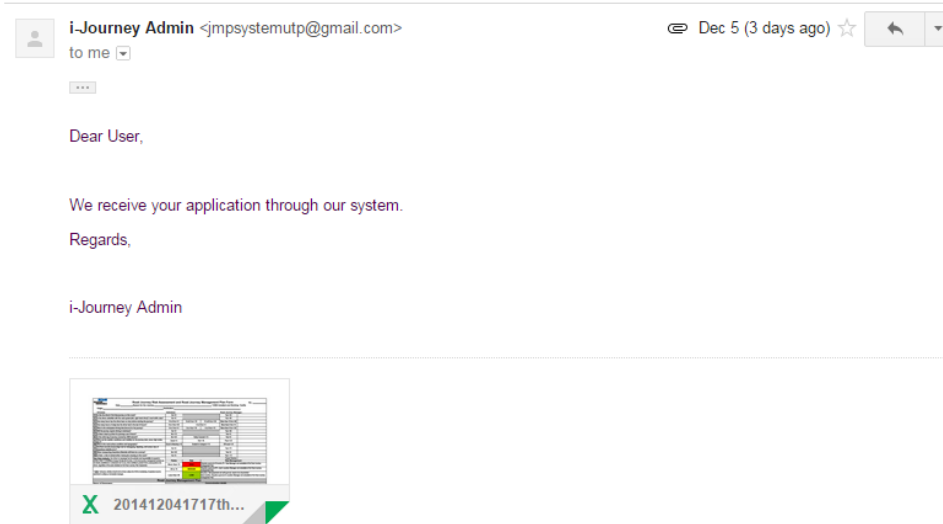


Figure 19: Email notification to user

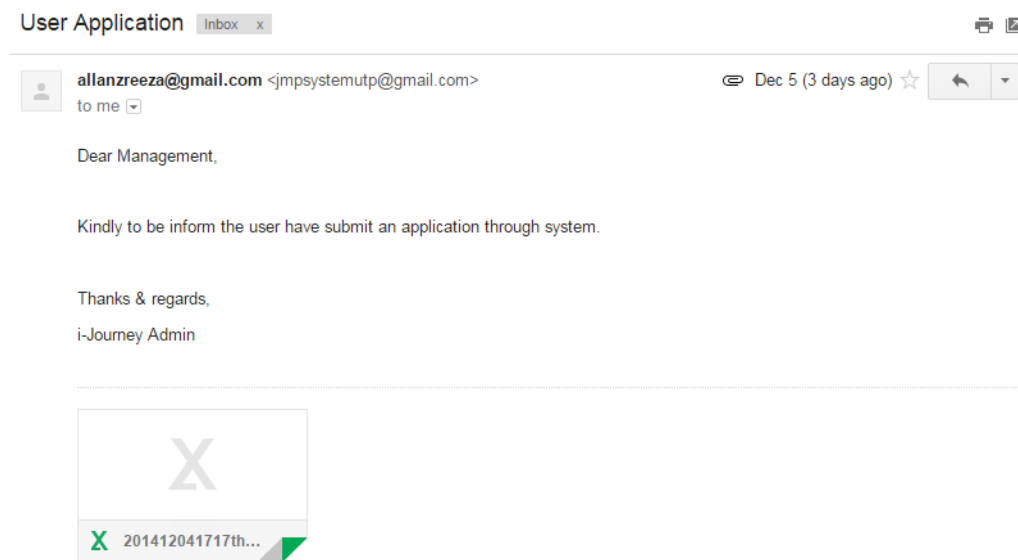


Figure 20: Email notification to Manager

Figure 19 shows the email that was received by HSE Manager. The I-Journey admin will send the email automatically after applications receive and review by the manager. Then, figure 20 shows the notification email to the HSE Manager after user submit their application through the system. Then, the HSE manager will direct open their email and review the JMP form which have been attached in the email. Then, HSE Manager will approve their email and save the application through the system in the company. It is normally a norm that a goal for any system is to provide necessary functions for users to complete the tasks. However, functionality is not enough to ensure users use the system as it was intended. Therefore, research has suggested that the determinants of system and user acceptance are functionality and usability (Benbunan-Fich, 2001).



## **CHAPTER 5**

### **RECOMMENDATION AND CONCLUSION**

There are several recommendations to be made regarding this project. Recommendations are not meant to be used to change this project wholly, but to allow improvements in certain aspects and to put some factors into considerations before proceeding with the development of the software.

One of the recommendations is improving of homepage that will interact and make more users friendly such add-on design. Then, the other recommendation is the data gathering process for this project should not be limited to research and asking for from HSE Manager. The other methods such gathering data in terms of interview, observations, questionnaire and user experience should be helped. Besides that, in order to complete the project early and more effective, the development phase need to be done within the time frame as what has been planned.

Thus, with deeply research about navigation structure will interact the user and to use again the system and influenced strongly to communities. Then, easy of navigation structure will ensure people with easy using that system. The performance of the prototype and their reactions to the products is a part of usability testing which method for improving design.

As a conclusion, the web based journey management plan system is a good project for employees to improve user experience and interface. Then, to encourage employees to use the system. Furthermore, the methodology also has been selected in completing this project. By the end of the stage, the system should work fine as it is intended for and the objectives of this project shall be achieved successfully. Therefore, the conclusion usability of this project content of error checking, ease of use, learnability, minimal scroll, initial experience of the user, have the search in system site, make the form easy to follow and guide. Availability and accessibility and clarity.

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# APPENDIX

# The Paper Based form for Journey Management Plan (JMP) Form

| Asia Pacific - Road Journey Risk Assessment Form |  |                                     |                              |                   |                       |
|--|--|-------------------------------------|------------------------------|-------------------|-----------------------|
| Date:  |  | Origin:                             | Destination:                 |                   |                       |
| Journey No:                                      |  | *IVMS Installed & Working: Yes / No | Road Journey Manager:        |                   |                       |
| Driver(s):                                       |  | Vehicle(s):                         | Vehicle : Personal / Company | Plate No:         |                       |
| No   | Assessment Criteria  | Risk Rating                         |                              |                   | Points                |
| 1  | Is this the driver's first time journey on this route?   | No = 0                              | Yes = 25                     |                   |                       |
| 2  | Is the driver unfamiliar with the road system (left, right hand drive)?, local traffic rules?                    | No = 0                              | Yes = 40                     |                   |                       |
| 3  | How many hours has the driver been on duty before starting the journey?  | 0 to 8 hrs = 0                      | 8 to 12 hrs = 10             | 12 to 16 hrs = 30 | More than 16 hrs = 40 |
| 4  | How many hours of sleep has the driver had in the last 24 hours?   | 0 to 4 hrs = 40                     | 4 to 6 hrs = 5               |                   | More than 6 hrs = 0   |
| 5  | What is the anticipated driving time (hours) for the journey?  | 0 to 2 hrs = 0                      | 2 to 4 hrs = 10              | 4 to 6 hrs = 15   | More than 6 hrs = 20  |
| 6  | Will the journey require driving in darkness?  | No = 0                              | Yes = 40                     |                   |                       |
| 7  | Is there a back up driver for journeys over 6 hours?   | No = 15                             | N/A & Yes = 0                |                   |                       |
| 8  | Is the entire leg of journey covered by GSM network?   | No = 25                             | Fairly Covered = 15          |                   | Yes = 0               |
| 9  | What are the weather conditions and visibility for the journey (rain, fog, dust storm etc.)?                     | Good = 0                            | Fair = 10                    |                   | Poor = 25             |
| 10   | What is the road surface condition and topography?   | Good & Blacktop = 0                 | Graded & Compact = 15        |                   | Off-road = 25         |
| 11   | Are there security issues (high risk for kidnapping, hijacking, civil unrest, loss of hazardous material, etc.)? | No = 0                              | Yes = 75                     |                   |                       |
| 12   | When transporting Hazardous Materials will there be a convoy?  | No = 20                             | N/A & Yes = 0                |                   |                       |
| 13   | Is there a risk of animal strike / motorcycle crossings on the route ?   | No = 0                              | Yes = 15                     |                   |                       |
| <b>Total Points</b>                              |  |                                     |                              |                   | 0                     |

|  |  |                     |                       |   |                       |
|--|--|---------------------|-----------------------|---|-----------------------|
| 1  | Is this the driver's first time journey on this route?   | No = 0              | Yes = 25              |   |                       |
| 2  | Is the driver unfamiliar with the road system (left, right hand drive)?, local traffic rules?                    | No = 0              | Yes = 40              |   |                       |
| 3  | How many hours has the driver been on duty before starting the journey?  | 0 to 8 hrs = 0      | 8 to 12 hrs = 10      | 12 to 16 hrs = 30   | More than 16 hrs = 40 |
| 4  | How many hours of sleep has the driver had in the last 24 hours?   | 0 to 4 hrs = 40     | 4 to 6 hrs = 5        |   | More than 6 hrs = 0   |
| 5  | What is the anticipated driving time (hours) for the journey?  | 0 to 2 hrs = 0      | 2 to 4 hrs = 10       | 4 to 6 hrs = 15   | More than 6 hrs = 20  |
| 6  | Will the journey require driving in darkness?  | No = 0              | Yes = 40              |   |                       |
| 7  | Is there a back up driver for journeys over 6 hours?   | No = 15             | N/A & Yes = 0         |   |                       |
| 8  | Is the entire leg of journey covered by GSM network?   | No = 25             | Fairly Covered = 15   |   | Yes = 0               |
| 9  | What are the weather conditions and visibility for the journey (rain, fog, dust storm etc.)?                     | Good = 0            | Fair = 10             |   | Poor = 25             |
| 10   | What is the road surface condition and topography?   | Good & Blacktop = 0 | Graded & Compact = 15 |   | Off-road = 25         |
| 11   | Are there security issues (high risk for kidnapping, hijacking, civil unrest, loss of hazardous material, etc.)? | No = 0              | Yes = 75              |   |                       |
| 12   | When transporting Hazardous Materials will there be a convoy?  | No = 20             | N/A & Yes = 0         |   |                       |
| 13   | Is there a risk of animal strike / motorcycle crossings on the route ?   | No = 0              | Yes = 15              |   |                       |
| <b>Total Points</b>  |  |                     |                       |   | 0                     |
| <b>Stop Work Authority:</b> Any driver or passenger has the authority and responsibility to suspend a journey when: 1) Conditions change that elevate the risks, 2) the road journey management controls are not clearly established or understood and 3) any other condition is present that is unacceptable to the driver, regardless of the score obtained on the Road Journey Risk Assessment. |  | Points              | Risk                  | Risk Management   |                       |
|  |  | More than 75        | HIGH                  | Requires approval of Country PL / Ops Manager and completion of the Road Journey Management Plan  |                       |
|  |  | 40 to 74            | MEDIUM                | Requires approval of PL Line/ Location Manager and completion of the Road Journey Management Plan   |                       |
|  |  | Less than 40        | LOW                   | Routine: Self assessment and self approval, needs to be documented<br>Non-routine: Requires approval of Location Manager and completion of the Road Journey Management Plan |                       |

Asia Pacific Road Journey Management Plan Form

approved in writing by the location manager. Less than 40 **LOW** Non-routine: Requires approval of Location Manager and completion of the Road Journey Management Plan.

### Asia Pacific - Road Journey Management Plan Form

**Important Notice:** All High, Medium and Non-routine Low risk journeys must be planned and approved accordingly. All routine low risk journeys must be self approved after the risk assessment. Journey Manager must complete and file this form after close out of the journey for future reference and audit.

Is the trip essential? Describe the reasons.

Is there any alternative for the journey? Is there any possibility to combine journeys?

Name of passengers (if any):

| Route Information |                |              |   |
|-------------------|----------------|--------------|---|
| Location          | Departure Time | Arrival time | Overnight Stay Specifics (Address, Phone etc) |
|                   |                |              |   |
|                   |                |              |   |
|                   |                |              |   |

| Communication Details         |                    |  | **Freight Details (Attach Bill of Loading or shipping papers) |        |           |           |
|-------------------------------|--------------------|--|---|--------|-----------|-----------|
| Contact Frequency             | *Person to Contact | Contact Details (e.g. Phone no, Radio) | Nature  | Amount | Reference | Hazardous |
| Daily:                        |                    |  |   |        |           | Yes / No  |
| Upon Arrival:                 |                    |  |   |        |           | Yes / No  |
| Emergencies:                  |                    |  |   |        |           | Yes / No  |
| Other(Rest stops every 2hrs): |                    |  |   |        |           | Yes / No  |

| A                             | B                 | C                            | F                  | G                                      | H      | I      | J         | K         | L |
|-------------------------------|-------------------|------------------------------|--------------------|--|--------|--------|-----------|-----------|---|
|                               |                   | Italicize the selected text. |                    |  |        |        |           |           |   |
|                               | Contact Frequency |                              | *Person to Contact | Contact Details (e.g. Phone no, Radio) | Nature | Amount | Reference | Hazardous |   |
| Daily:                        |                   |                              |                    |  |        |        |           | Yes / No  |   |
| Upon Arrival:                 |                   |                              |                    | Yes / No                               |        |        |           |           |   |
| Emergencies:                  |                   |                              |                    | Yes / No                               |        |        |           |           |   |
| Other(Rest stops every 2hrs): |                   |                              |                    | Yes / No                               |        |        |           |           |   |

| Approval of the Journey (High, Medium and Non-routine Low Risk Journeys) |                      |                     |
|--|----------------------|---------------------|
| Driver(s)  | Road Journey Manager | Authorizing Manager |
| Printed Name:  | Printed Name:        | Printed Name:       |
| Signature:   | Signature:           | Signature:          |

**After Action Review and Comments (Document any special learning of the journey before close out)**

\*Person to Contact must be either the Journey Manager or Supervisor.      \*\*TREM Cards/ MSDS or Emergency Response Guide must be attached if load includes hazardous material

**DOCUMENT ROUTING:**  
**Routine Low Risk** - Submit the completed risk assessment to Journey Manager for filing locally.  
**High, Medium & Non-routine Low Risk** - Signed original: Carried by driver. Copy: Retained by Journey Manager