

CHAPTER 1

INTRODUCTION

1.1 Background

In the era of fast development of technologies, companies and corporations have been using the internet on a daily basis. Financial reporters have seen the growth in businesses that have adopted the Internet with several advantages such as cost saving, in terms of quantity and speed of information delivery [1]. Therefore, this has helped companies tremendously in improving work productivity, for example staff within a company can exchange information via email or chatting messenger when they are not nearby. In a company, there will always be projects. And in the project, there will be a lot of information that is gathering and sharing information within the team members of the project as well as other staff in the company [2]. Because of that, a Project Management System (PMS) has become one of the tools which can help organize the project.

PMS is a tool that allows Project Manager (PM) to break down tasks to be given to their team and oversee the progress during the process. PM also can manage the preparing, managing, scheduling all the projects' needs. Furthermore, the PM can also have the digital record of the progress of the project itself for documentation. There are few benefits of PMS that are storing all the progress of the project, including project task, assets, and schedules for development and modification [3]. There are a couple of examples which are examples of PMS, for instance Trello and Jira. In some cases, companies have to hire freelancers since they are lacking human resources in completing many projects/tasks. In that case, companies also need to keep track of the progress of the project assigned to those freelancers.

There will always be many freelancers looking for jobs within their expertise. Therefore, websites such as freelancer.com, guru.com, and upwork.com are built to hire those freelancers by posting project descriptions by the companies/project owners. From the previous fact itself, the author, as well as his team members, decided to develop an integrated, web-based project management system and freelance marketplace. This is due to the fact that a web-based application does not require the users to download and install the application beforehand into their devices such as

smartphones or tablets, thus consuming their device storage. On the contrary, a web-based application can be accessed anywhere at any time as long the user is connected to the internet.

Therefore, companies are able to find suitable candidates for the projects from all around the world. This has been extremely beneficial for both parties to find the help.

The problem is freelancers have to use third parties when they want to break down the tasks within their own team after the hiring process by the companies / project owners. They will need to set up the tasks' board. At this current moment, we only see freelancers hiring and project management system websites which exist side by side, but not integrated. Through PMS, freelancers can always update the situation and progress of the projects. The integration between freelancer hiring and PMS is necessary so that the project owners can oversee the progress that freelancers and their team have done about the projects. On the side of the freelancers, the PMS is convenient for the freelancers to use since they have been prepared a template which they can set up and invite their teammates to break down the project into multiple tasks.

1.2 Scope

The Design and Development of Freelance Marketplace Integrated with the Web-Based Project Management System is a thesis which is intended to design and develop a web-based application that integrates PMS and hiring freelancers in the IT industry. This web application will be using React JS as the frontend framework and Golang as the backend framework. Due to the huge number of work in this thesis, the workload is thus divided among the team members, where in this case, the author will be developing the back-end part of the web application, SPIRITS (Specify Project Requirement InTo Simplicity).

This main features that will be applicable in this project are the following:

1. Integration with Trello as Project Management System. This feature will allocate 1 trello board to each project when the project owner has found a freelancer.
2. Interactions between project owner and potential freelancer using WhatsApp integration and email. This feature will help the project owner interview and ask questions to the potential freelancers
3. Project Listing / Hiring Freelancers
 - a. Listing space for project owners to specify all the requirements and scope of work for the potential freelancers to access.
 - b. This also helps the freelancers to have descriptions about the potential project they will tackle.
4. E-Wallet
 - a. This feature will help the project owner to deposit money needed to pay the finished projects to the future freelancers
 - b. This feature will also help in the way freelancers are guaranteed the money they accept prior to finishing the project. They are also able to withdraw the money to their personal bank accounts.
5. Assessment Rating. Both project owner and freelancer can give star ratings to each other upon completion of a project collaboration.

Given the fact that the project requires real time management of data, this project will apply socket.IO as a JavaScript library in the frontend application. This is used for utilizing the feature of real time communication.

For this thesis project, the author will be responsible for handling the back-end part of the web application. Moreover, the author will handle the logic part of the program in the back-end which needs to be processed from the frontend as well as maintaining the integrity of the database for the overall needs of the program.

Table 1.1 Job Division Scopes of SPIRITS Developer Members

SPIRITS Scope Tasks	Job Division		
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	<ul style="list-style-type: none"> ● Register ● Login ● Logout ● User Profile ● Post Project ● Search Project ● Filter Project ● Whatsapp Chat & Email ● Integrate with project management software ● Assessment Rating 	<ul style="list-style-type: none"> ● Forgot Password ● Submit & Accept project interest ● Deposit & Withdraw Balance ● Payment 	<ul style="list-style-type: none"> ● MySQL Database ● Create Trello board using public API ● RESTful API SPIRITS ● Backend Deployment (database + Go)

1.3 Aim and Benefits

1.3.1 Aim

This integrated project management system and freelance marketplace, SPIRITS, aims to create a platform where companies recruit software engineer freelancers and integrate them into the project management system of the project owner with ease. Furthermore, the project owner can independently oversee the progress of the work of the freelancer. From the perspective of the freelancer, this project aims to target software engineer freelancers to get the simpler way to get the project based on their expertise and also smooth transition between the deal with the project owner and also the platform to carry on the management in listing tasks and subtasks of the projects.

1.3.2 Benefits

The benefits of this project are to improve the integrity of the relationship between project owners / companies with the freelancers in terms of transparency and documentation of the progress of the projects. Another benefit is that project owners can always oversee the real time task that is currently being worked on and also specify the deadlines that have been agreed upon. This also helps freelancers find a space to strategize and break down the tasks necessary to complete each project with a dedicated and integrated project management system.

1.4 Thesis Structure

- **Chapter 1 - Introduction**
 - The first chapter will explain the background of the problems, scope that will be implemented, aims and benefits, and structure which this thesis will cover.
- **Chapter 2 - Theoretical Foundation**
 - This chapter will explain all the theories that will be used during this thesis project, both theoretical frameworks and foundations.
- **Chapter 3 - Problem Analysis**

- This chapter will cover the analysis of the problems and some proposed solutions that the author will come up with.
- **Chapter 4 - Solution Design**
 - This chapter will cover all the designs that will be implemented in the project to tackle the problems.
- **Chapter 5 - Results and Solution Implementation**
 - This chapter will explain about the reviews, observations and the methodology results in order to implement the proposed solutions
- **Chapter 6 - Discussion**
 - This chapter will discuss the results and solutions implemented in chapter 5
- **Chapter 7 - Conclusion and Recommendation**
 - This chapter will summarize the implementations to the solution and recommendation for further developments.