Intelligent Software Project Management System (ISPM)

Software Requirement Specification

Project ID : 16-098
Gimhana Dewapura

(IT13030568)

Sri Lanka Institute of Information Technology
Bachelor of Science special (Honours)Degree in Information Technology
Department of Information Technology
April, 2016

Intelligent Software Project Management System

Project ID : 16-098

Gimhana Dewapura
Author

Mr. Tharindu Dilshan
Supervisor

…….
Signature of Supervisor

2015 - 04- 04
Date of Submission

Declaration

I declare that this document submission represent our my own ideas. these are our original work and we have not put any unauthorized materials. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission.

Gimhana Dewapura

---------- ----------

Name **Signature**

Table of content

List Of Tables

List of Figures

Introduction

1.1 Purpose

This document's main task is to illustrate the requirements of the Intelligent Project Management System. The system described in this document is "analyzing and summarizing information using textmining". The document gives the detailed description of the both functional and nonfunctional requirements proposed for the system. It explains the high-level architecture of the system, purpose and features of the system, the interfaces of the system, user requirements, what the system will do, the constraints under which it must operate in order to obtain optimal results and how the system will react to external factors.

On the whole this document is written with the purpose of providing a complete description on the behavior of analyzing and summarizing information and the
way this is going to be developed will be provided in this document for better understanding about the system including its features, its sub modules, how each sub module works and the relationship between those sub modules to the end users, developers. The intended audience of this document is the project supervisor and the research team.

This document will also be a benefit for the future researchers, developers who will be engaged in developing and maintaining the application in the future and any person, who is interested to implementing this kind of system.

1.2 Scope

Document pertain to cover first release of the Intelligent Poject Management system. Scope contains about having inputs to the system, basically in here the inputs will be in the text form and those text files will be stored in a repository and from the repository the information will be taken for the further analysis to give outputs as the inputs for the other subsequent sub systems in the Intelligent Project Management System.

This SRS is also aimed at specifying requirements of software to be developed .The standard can be used to create software requirements specifications directly or can be used as a model for defining project specific standard. It does not identify any specific method, nomenclature or tool for preparing an SRS. Indentation of this document describe all applied technologies, use case and use case scenarios, methods use for develop operations, classes need to be defined, libraries, other hardware and software interfaces need development in detail. Content of this document will describe how to configure application, functionalities of the application and outputs of the application.

Ultimate outcome of Intelligent SPM is making the work done by software project manager automated.

Outcome of the system is , all the decisions taken by a software project manager will be automated.

1.3 Definitions, Acronyms, and Abbreviations

Acronyms and Abbreviations	**Denotation**
SPMS	Software Project Management System
SPT	Software Project Team

1.4 Overview

In this System Overview it provides a brief, high level description of the Braille recognition system including its definition, business goals, business objectives, intendent users, and capabilities.

Users

The users of the Intelliigent SPM System can be categorised basically in to three main users.

1. SPT Members
2. Client
3. Senior Management

Using the system the above three users can access the system with different permission levels and get the outputs according to the user levels.

Task

For the considered research component which is "Information Analyzing and Summarising" any user input will be taken to the system in text format and will be stored in a data repository and whenever the information is requested by other subsequent systems those information has to be provided to those systems and while providing those information have to be stored in a database precisely.

Goal

Goal of the research team is to provide an accurate Intelligent Software Management System to automate the role of the software project manager and the goal of the research component discussing in this document is analyzing and summarizing of information and providing those analyzed information to the subsequent systems accurately.

Flow of the Document

In this document, 1st chapter will describe the purpose of the research project, scope of this project to be covered in first release, and overview of project. 2nd chapter will describe user requirements in detailed manner. Product perspective, proposed user interfaces, hardware and software interfaces, communication interfaces and memory constraints of proposed product, and operations it may carry on after finishing. And also product functions will be described in detail using use case and also 2nd chapter include detail about intendant users characteristics.
3rd chapter includes specific user requirements. More detail on interfaces in 2nd chapter is available in 3rd chapter. Other performance requirements, design constraints on designers and also software system attributes like reliability, maintainability, availability described under the 3rd chapter.
Any other related documents, references are available in 4th chapter under appendixes

2 Overall Descriptions

2.1 Product perspective

Different types of software companies use various types of SPM systems to increase the efficiency and accuracy of the their software product. Most of the SPM systems are working in manual way. As the example '**Wrike**' , '**Huddle**' , '**Podio**' , '**goplan**' are the main SPM systems. Most of these are provide manual operation of SPM system. In a particular company run a set of software projects at a time and needs inputs from teams or group of individuals for a multilevel development plan. Hence a good automated project management system is needed.

This automated SPM system will enter a major role in a large number of companies. Therefore automated SPM system gives high quality application for customers and it will helps ensure the durability too. Developing a web based automated project management system helps users to handle projects in a convenient way without the help of any project manager. That is the main goal of this research.

As we discuss earlier ,there are lot of SPM systems which are handle in manually. As the result of that we have do lots of data entries, project manger have to learn how to use those program features and ensure that team members learn to use those components they needs to manage their works, have to define milestone ,enter everything to the system, allocate tasks to each and every team members and developers, cost handling and risk management ,tracking budget are done by in manually .not only that project manager have to maintain effective communication with sponsors, consumers, other stakeholders to manage each and every task. A software project manager is act as the head of a project who is willing to track , control and oversee the operations with the project.it means he is the responsible for the control of the each project and he has to conduct an active role in coordinating and organizing the team members, project resources and other processes which are involved in a software development project.

Most of the time software project manager has to organize meetings, read emails , inform each and every team members and developers ,gather the proper requirements, determine the review the progress reports, meet and brief the sponsors and having better communication with the customers. Managing these each and every task manually can be cumbersome and those result flaws in communication and operation of a project.

Intelligent SPM system is some kind of a tool of assistance which is very useful for organizations and companies to perform the responsibilities of the software project manger. No need any software project manager. .Automated SPM system offers lots of advantages to the users who willing to use our product. Our system will preform a variety of task like documentation, provide better communication, finalize unambiguous user requirements, arranging each tasks lists, sending email notifications, arrange to-dos, highlight the milestones, risk managements, make better predictions for each and every software project. This tool will become extremely useful tools in managing software projects without having a software project manager. .This automated SPM

system has been developed which highly meets the standard and requirements set by the user. In here customer needs are basically the most important to understand, how analyze the requirements produce a design and go about development and testing so that the system you deliver is a high and does what client wants it to do. In this case we grab the user requirements or user can easily add the requirements what they need.at the knowledge base system those requirements will be finalize in to unique an unambiguous way.

	Features	Current Applications	Our application
I.	System runs without having a software project manager	**X**	✓
II.	User can provide the requirements to the system easily.	**X**	✓
III.	Scanning and extract user requirements.	**X**	✓
IV.	Maintain the knowledge based system for extracting appropriate data.	**X**	✓
V.	Identify and avoiding the similar user requirements. Finalize the unambiguous user requirements.	**X**	✓
VI.	Estimate budget, risk analysis, duration to complete, success rate of the project.	**X**	✓
VII.	Defining the milestones for each and every tasks and visualize the progress of each and every tasks.	**X**	✓
VIII.	Sending emails, notifications to the users. Provide user friendly and attractive environment.	✓	✓
IX.	Users (sponsors, client, developers) can access to the system and gain the progress of the each and every tasks.	✓	✓

Table 2.1.1

2.1.1 System interfaces

The System will not interact with API's like facebook, but will interact with Google API.

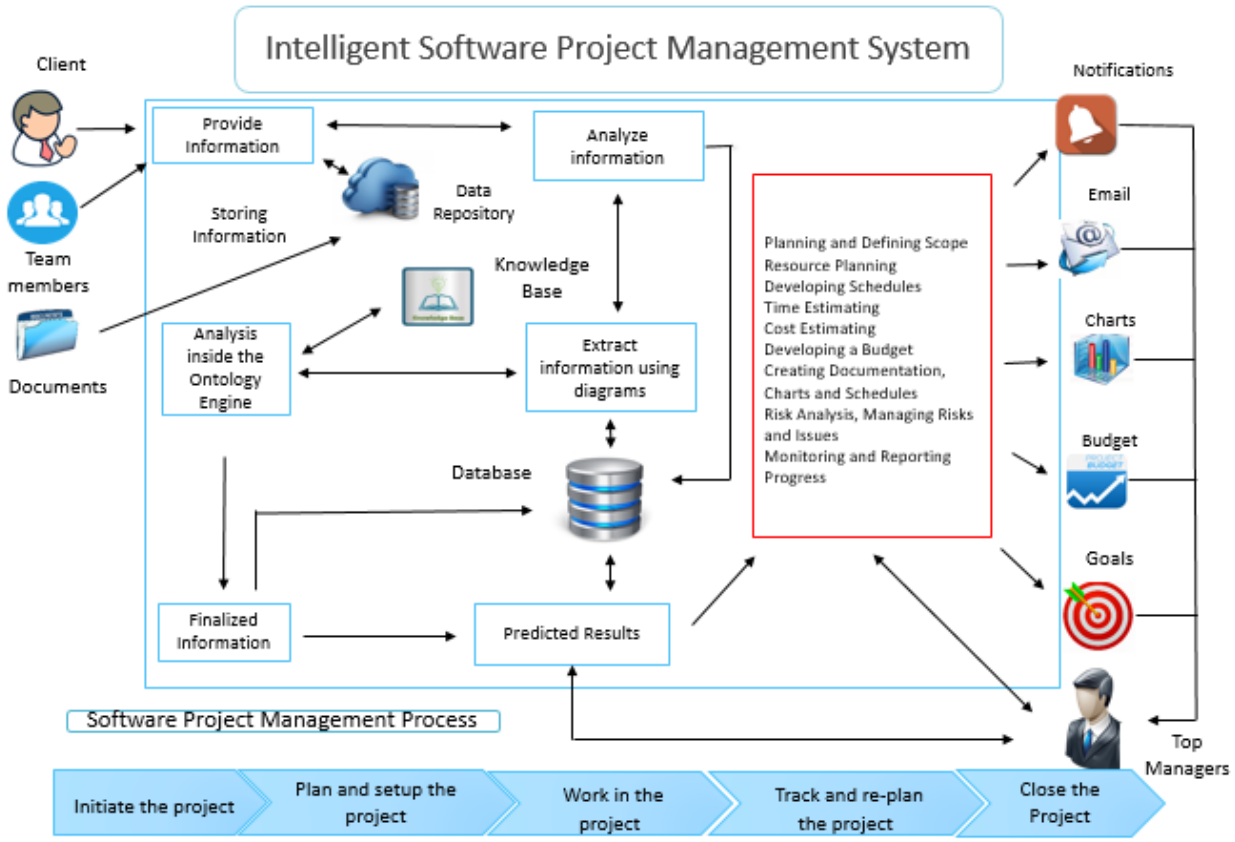

Figure 2.1.1.1 – Main System

2.1.2 User Interfaces

For the research component of information analyzing and summarizing it has 2 interfaces as shown below in the figures 2.1.2.1 and figure 2.1.2.2

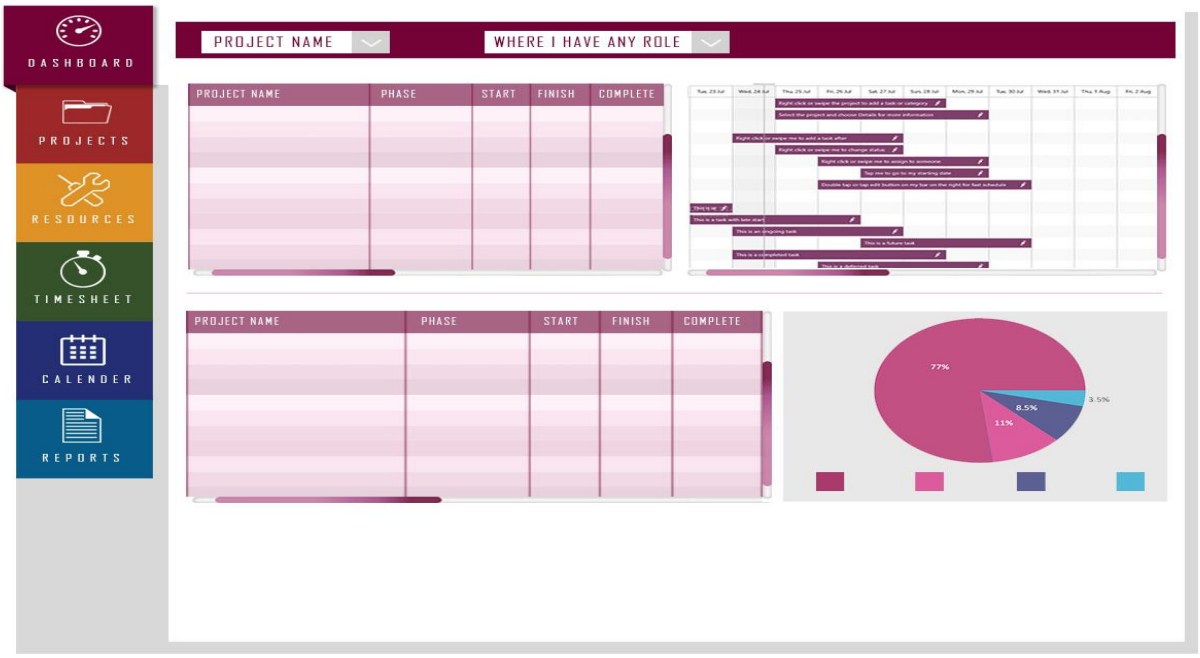

Figure 2.1.2.1

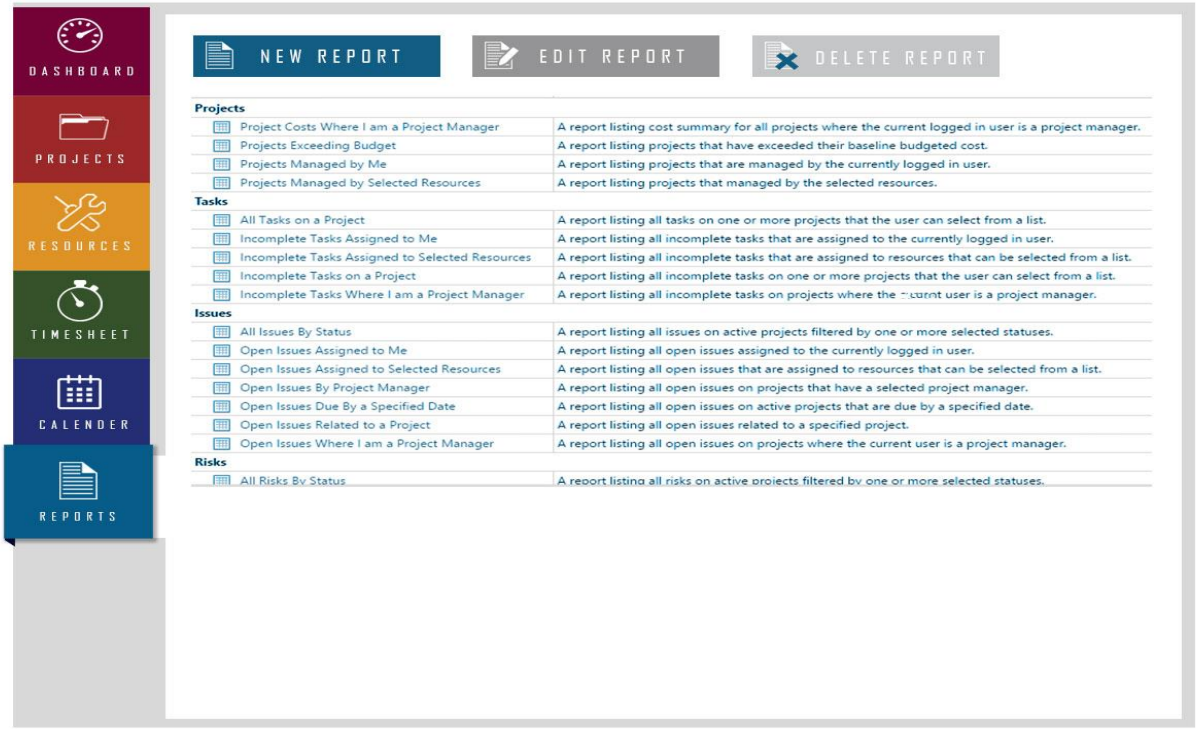

Figure 2.1.2.2

2.1.3 Hardware Interfaces

According to the research component there is no hardware interface associated with the "Informaion analysis and summarization"

2.1.4 Software Interfaces

Java development Platform

For developing Braille recognition system Java is selected as the developing language. Because of its platform neutrality, threaded and dynamic programming features. Java provided with high performance and it is interpreted.
Latest JDK version is used (JDK 8.1).

Classifier4J

Classifier4J is a Java library designed to do text classification. It comes with an implementation of a Bayesian classifier, and now has some other features, including a text summary facility.

Apache Lucene

Apache Lucene is a high-performance, full-featured text search engine library written entirely in Java. It is a technology suitable for nearly any application that requires full-text search, especially cross-platform

JCR API

Jackrabbit is a complete, and fully compliant implementation of the Content Repository API for Java Technology (JCR) and therefore its primary API is defined by JCR. For a developer this means that most operations required are defined by the JCR API. The classes and interfaces within Apache Jackrabbit are only needed when accessing functionality that is not specified in JCR.

MySQL

MySQL is the database we are going to use to store the images , information etc.

2.1.5 Memory Constraints.

For the Intelligent Software Management System it requires a huge database since it has to store lots of data of pevious projects

2.1.6 Operations

The process of Information analyzing and summarizing can be explained as follows.

There are basically three users who are accessing the system.

1. SPT.
2. Client
3. Senior Management.

To increase the User friendliness and simplicity. system interfaces provide less user interaction for the system while providing advance internal system functionalities.

Operation 01 – User Input Information

In here the information provided by the client via textform are stored in a repository precisely. The users may be either client or the software team members. The information could be in the form of documents , feedbacks etc [1].

Operation 02 – Analyze Information

Stored information in the repository will be analyzed in order to output as inputs to the other subsequent systems. Information have to be analyzed in order to generate relevant predictions, analyzed information will be taken as inputs to the ontology engine. Information have to be analyzed inorder to differentiate diagrams form the text for the future use [3].

Operation 03 – Generate Summaries

Whenever a user request a summary of a report or a summary of a feedback given by the client, using this operation the requested summaries have to be provided[2].

Operation 04 – Find Relevant Documents and Information

When a user request a certain document , using this operation the requested document has to be provided quickly and if a user request a certain text area, using this operation quickly that requested text area has to be extracted from the document and provide.

2.1.7 Site Adaptation Requirements

This system is used to automate the role of the software project manager , so the predicting data should be efficient and accurate and also the interfaces have to be user friendly since there are three main users who are accessing the system such as, client, team and senior managers, so if the interfaces are complex then the users will be demotivated. The efficiency and the accuracy of the information the system will output have to be high since the system is dealing with software projects.

2.2 Product Function

This usecase demonstrates the basic operations of the proposed Information analysis and summarizing system.

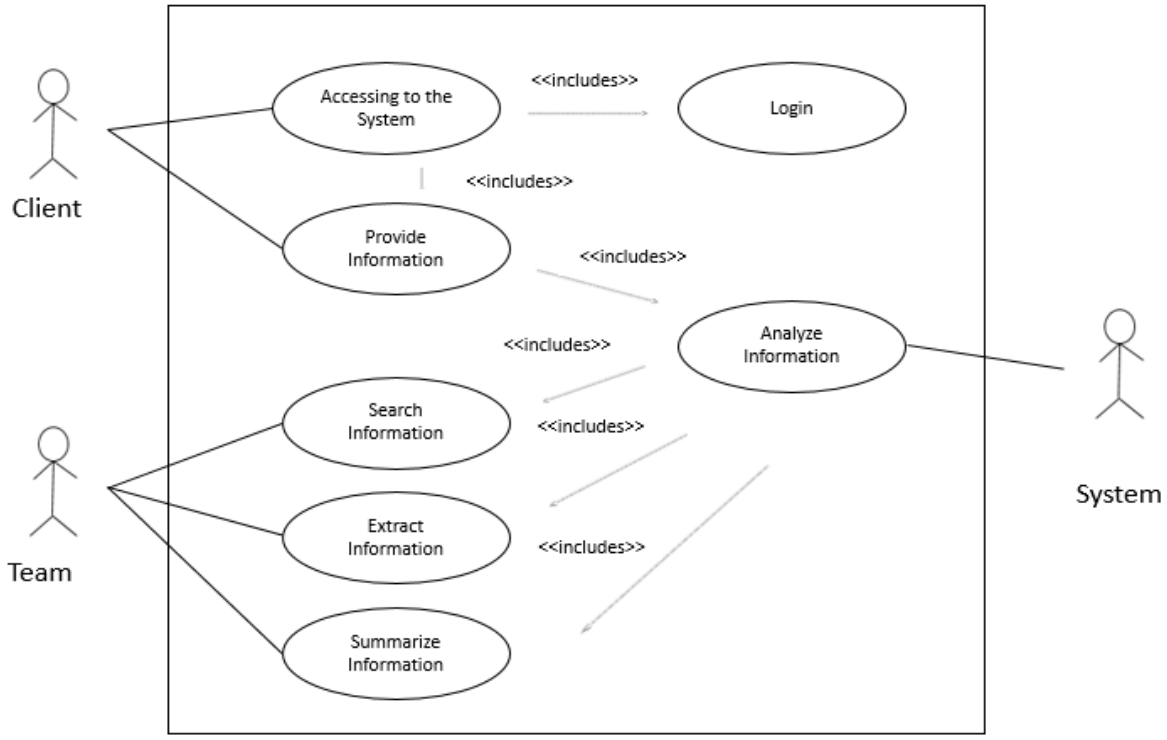

Figure 2.2.1 – Use Case diagram for the Information analysis and summarizing system.

Use Case Name	Capture Information
ID	UC01
Description	Information is taken as input
Actor	Client
Pre Conditions	Storing information in repository
Main Flow	Capture the information sent by the client in text form and storing in a repository
Extensions	If the information is in another form rather than in text form error will generate.
Post Conditions	Information moves to the repository.

Table 2.2.1 – Use Case Scenario of Capturing Information

Use Case Name	Extract Information
ID	UC02
Description	Information is analyzed using algorithms
Actor	System
Pre Conditions	Information is in repository
Main Flow	Analyze the information inside the repository to use as inputs for the future subsequent sub parts of the system.
Extensions	If the information is in another form rather than in text form error will generate.
Post Conditions	Information moves to the Ontology engine and predictions system.

Table 2.2.2 – Use Case Scenario of Extracting Information

2.3 User Characteristics

There are basically 3 users in this system.

1. SPT.
2. Client
3. Senior Management.

This final product is really intended for the software development companies which is willing develop and manage a software project without having a project manager. That is the main task of this product. Client and SPT can access to this system. Client can visualize each and every tasks which is completed by developers , milestones , time periods which are allocated for each and every task, notifications and emails. Not only that client and project team can visualize the progress of the development. Project team can identifies each and every tasks that they have to complete and allocated time duration.

2.4 Constraints

System shall run on Windows 7 or above editions with a minimum processor of 2.4 GHz. Java will be the implementation language and NetBeans 8.0.2 will be the developing IDE.

2.5 Assumptions and dependencies

the user is assumed to have a sufficient knowledge at using computers and also a sufficient knowledge in using common internet services such as email.

User is assumed to have knowledge of English, since the software is configured to recognize commands given in English.

2.6 Apportioning of requirement

The requirements described in sections 1 and 2 of this system requirement specification are referred to as primary specifications. Those in section 3 are referred to as functional requirement specifications. The two levels of requirements are intended to be consistent. Inconsistencies are to be logged as defects. In the event that a requirement is stated within both primary and functional specifications, the application will be built from functional specification since it is more detailed. The requirements declared in section 3 are to be implemented for this SPM system. Desirable requirements are to be implemented in this release if possible , but are not committed to by the developers.

3.Specific Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

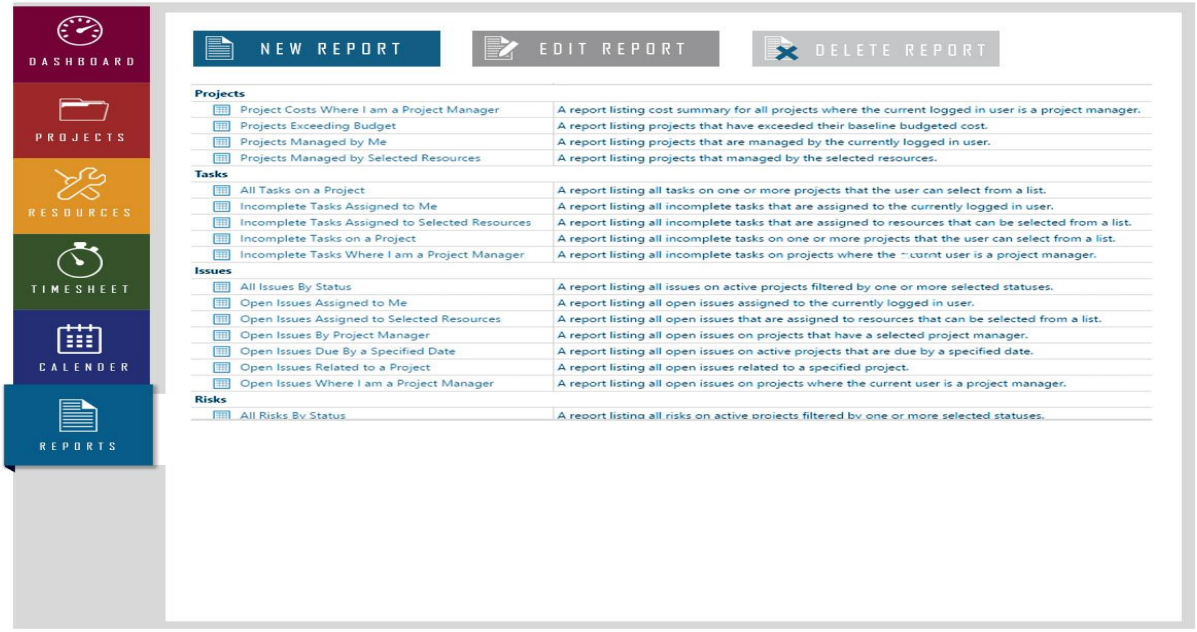

Figure 2.1.2.2

3.1.2 Hardware Interfaces

- Server
- 60 inch TV screen

3.1.3 Software Interfaces.

- **Software Interface to Develop System**

  Net beans 8.0.2 used to develop SPM System
  and Java JDK 8.1

3.2 Software System Attributes.

3.2.1 Reliability

This system is not like other systems, because this system will deal with the lot of employees and reliability should more high and advanced when dealing with the system. As people are aware of the results occur due to outputs of the system , it should maintain and build a trustful relationship with the user ..

3.2.2 Availability

System Should be available every time to fulfil user requirements.

3.2.3 Security

System should be secure.

3.2.4 Maintainability

System will be maintained by research team and new releases released with updates and new functionalities.

4.0 References

[1]Alexander Maedche , and Steffen Staab, “The TEXT-TO-ONTO Ontology Learning Environments”, http://search.easydialsearch.com/search?q=The%20Text-To-Onto%20Ontology%20Learning%20Environment, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.2.2806&rep=rep1&type=pdf .

[2] Vitaly Klyuev and Vladimir Oleshchuk, “Semantic retrieval: an approach to representing, searching and summarising text documents”, https://scholar.google.com/scholar?hl=en&q=Semantic+retrieval%3A+an+approach+to+representing%2C+searching+and+summarising+text+documents+&btnG=&as_sdt=1%2C5&as_sdtp=, https://www.researchgate.net/profile/Vladimir_Oleshchuk/publication/264817692_Semantic_retrieval_an_approach_to_representing_searching_and_summarising_text_documents/links/5409967c0cf2822fb739eadb.pdf

[3] Morten Hertzum and Annelise Mark Pejtersen, “The information-seeking practices of engineers: searching for documents as well as for people”, https://scholar.google.com/scholar?q=searching+inside+documents&btnG=&hl=en&as_sdt=0%2C5, http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.618.8660&rep=rep1&type=pdf