**MARKING SCHEDULE FOR THE PROJECT MANAGEMENT PLAN**

1. Overall presentation 5 marks
2. Executive summary 6 marks
3. Introduction 5 marks
4. Project integration management 10 marks
5. Project scope management 10 marks
6. Project time management 10 marks
7. Project quality management 10 marks
8. Project communications management 10 marks
9. Project human resources management 5 marks
10. Project risk management 5 marks
11. Project cost management 2 marks
12. Project procurement management 2 marks
13. Conclusion 5 marks
14. Appendices 15 marks

* Appendix A – Deliverable Task Breakdown Statement
* Appendix B – Work Breakdown Structure (WBS) and Project Schedule (Gantt Chart)
* Appendix C – Project/Team charter
* Appendix D – Glossary of terms
* Appendix E – Agenda and minutes of all client meetings
* Appendix F – Agenda and minutes of all supervisor meetings

Total 100 marks

ICT313 Natural User Interfaces

Tempest

Project Management Plan



# Title Page



**Project name:**

Virtual Recovery System/Environment/Trainer

Rehabilitation

Virtual Neuroplasticity Therapy

Rewrire

Neuropy

**Client/organisation:** Fairuz Shiratuddin

**Supervisor:** Sri Rai

**Team members:**

|  |
| --- |
| Ary Bizar |
| Anopan Kandiah |
| Hannah Klinac |
| Alex Mlodawski |
| Bryan Yu |

**Date of document:** 20/08/2014

**Version of document:** 1

# Contents Page



[Title Page 2](#_Toc395696680)

[Contents Page 3](#_Toc395696681)

[Executive Summary 4](#_Toc395696682)

[Introduction 5](#_Toc395696683)

[Project Management Knowledge Areas 6](#_Toc395696684)

[Project Integration Management 7](#_Toc395696685)

[Project Scope Management 8](#_Toc395696686)

[Project Time Management 9](#_Toc395696687)

[Project Quality Management 10](#_Toc395696688)

[Project Communications Management 11](#_Toc395696689)

[Project Human Resources Management 12](#_Toc395696690)

[Project Risk Management 13](#_Toc395696691)

[Project Cost Management 14](#_Toc395696692)

[Project Procurement Management 15](#_Toc395696693)

[Conclusion 16](#_Toc395696694)

[Appendices 17](#_Toc395696695)

# Executive Summary



Purpose of the document:

Organizational and process-related information

A summary of the whole document; that is, what is presented in each section below.

# Introduction



Introduce the document, explaining its purpose. Also introduce the project and your information system (be sure to point out the difference between them). A section describing your information system should be included.

The purpose of this document is to explain the entire project covering all project phases from initiation through planning, executing and final product release.

The purpose of the project is to create a virtual environment complete with three levels that will fully immerse users both mentally and physically. The ultimate aim is to design the levels in such a way that targets the rehabilitation of stroke patients who have lost some form of motor control. The virtual environment should help the patients rewire their brains to hopefully regain some motor control ability by exercising the affected areas of the brain in the virtual environment. Patient profiles should be stored in a database which includes progress scores from the system at each use. Patient confidentiality is kept by each patient having an ID number and their names not being stored. The database should be accessible remotely and not restricted to the system.

There is room for expansion of this project, for example speech therapy or other devices may be able to be incorporated at a later date.

# Project Management Knowledge Areas

The following sections will address all of the project management knowledge areas (scope, time, quality, communications, integration, human resources, risk, cost, and procurement). You should refer to the lecture material to identify what needs to go into each of these areas.



All of the sections below need an introduction. So for each section (5-13), discuss the following points as part of the introduction to the section:

* Describe the knowledge area and why it is necessary
* Describe what you will be discussing in that section

For example:

The SCOPE will clearly define the project in terms of the product that will be produced. The scope will describe the project goals, benefits as well as the deliverables due during the course of the project. These will include client and team deliverables as well as requirements due for completion of the unit. Finally the scope statement will define the boundaries of the project.

# Project Integration Management



Paragraph describing how you are going to manage the project overall – diagrams might be helpful

Discuss change management

Project management methodology - project strategy /approach

Project Integration Management is a very important part of any project. If the management of the project is not up kept, then risks are at hand and the project may fail. Project integration management is the coordination of the combined areas of all the elements of the project’s management components throughout the projects life cycle for successful completion of the project.

Change management is a process where if changes to the scope are desired, they must be formally introduced and approved by the team and possibly the stakeholders depending on the immensity of the change.

Team charter is necessary for the start of any project; it is a formal document created at the creation of a project that outlines the conditions of the team’s interactions and processes for completing the project. The team charter outlines the purpose of the project, background/scope, team composition, meeting schedule, team operations (how the team should interact and conduct in certain situations such as conflict etc), coding standards, software being used, and the schedule and milestones. This provides direction on the project’s objectives and management and is strictly followed and is signed by all members upon agreement before the project commences.

Time methodologies should be used to keep track of the projects deliverables, progress, and scope. For this project we are using SCRUM which is a methodology of weekly briefings and deliverables. At the end of each week the project should be in working condition, with the next week being planned for the next step for the project.

We have a supervisor who has an unbiased way of monitoring the team and our progress on the project. We have weekly meetings with our supervisor which coincides with our SCRUM, to discuss what we have completed, what needs to be done, and what we will be working on next. The supervisor is a good source to go to when we need to discuss anything to do with scope to keep scope creep at bay.

The quality of the project is the main goal of the project; producing an accurate project based on requirements that is of high quality. Scope, time and cost are the three areas that need to be kept in check to be able to produce a high quality product.

\*diagram

If changes need to be

# Project Scope Management



**PROJECT SCOPE**

Project goals: academic & business – from your team goals

Project benefits: team & client

Project deliverables: documentation/project components

Scope statement: use the requirements and analysis document to describe the major deliverables of product to be developed, and include the defined boundaries. That is, what will be included and what will not be included in the product development.

**Project Scope Management**

Provide a Work Breakdown Structure (WBS) and a description of the how it will be used to ensure that you do not waste time on tasks that are outside the PROJECT SCOPE. If you intend importing this into the Gantt chart, you can use Microsoft Project. Otherwise, use another method to clearly show the hierarchical structure of the breakdown of all tasks to be performed. The WBS should be inserted in Appendix B, but also needs to be discussed here.

# Project Time Management



Project schedule derived from the WBS. This can be done using a Gantt chart or similar scheduling software. If you used network diagrams, include them. The schedule should be inserted in Appendix B, but also needs to be discussed here.

# Project Quality Management



An explanation about how quality is to be ensured:

* A check list of each component of the product
* How quality will be tested/ensured
  + What metrics you will be used to ensure integrity of each component

That is, how will you determine the successful development of each component? Discuss the acceptance criteria, and any other critical factors.

Ensuring the quality of the product and each of its components will be an ongoing endeavour through the development phase of the project. The main objective is to ensure everything functions as intended with written specifications being implemented to the highest degree possible.

As the code base is developed, each author is expected to perform the basic unit and boundary and integration tests to identify where possible and resolve any errors - discrepancy in computed and actual values, faults - incorrect steps or processes or failures – unable to perform services as in written performance specifications, before integrating it with the system to confirm that the component/s work individually and when collaborating with each other where applicable.

When the system is being integrated at the end of each phase, system testing will be conducted in which will put the system through a series of verification and validation tests to ensure that all functional and non-functional requirements are being satisfied. The aim of this to not only ensure that the system meets specifications and intended purpose, but also raise the questions of whether or not we are building the right product and if it’s being built correctly.

Hence the integrity or success of the complete system is measured where applicable ranging from system outputs, the ease to which end product maintenance can be carried out where needed which is also a measure of how modular the code structure is, the ability to perform the service on par with the standards of the client’s expectations, how appealing the features are to outside users and how well it performs under normal conditions over an extended period of time.

# Project Communications Management



Communication management plan consisting of:

* A stakeholder analysis
* How communications are to be carried out during the semester (include what information goes to whom, when, and how, method of communications, frequency of communications, responding to communications, tone of communications, etc.)
* Documentation formatting used for all documents and code - format, content, and level of detail of key project information
* Regularity for each member to check the agreed upon team communication method
* Technologies and access methods
* Collection and filing structure for gathering and storing project information
  + Where and how all documentation is stored, including versioning system
* Method for updating the communications management plan

**Communications Management Plan**

**Prepared by: Bryan Yu Date: 21/8/14**

**Introduction**

The purpose of this document is to specify content, use and frequency of use of the selected communication methods for information distribution between team members and stakeholders.

**Persons responsible for producing project information**

All members of the team - Bryan, Alex, Anopan and Hannah are responsible for producing project information to stakeholders per request.

**Collection and filing structure for gathering and storing project information, including nominated storage repository and suggested version control system.**

Git-Hub is the version control software nominated by the team and supervisor to be used for storage repository and source code management.

**Distribution structure (what information is to be distributed, to whom and when)**

Information on the current scope, state, completed objectives and tasks expected to be completed are distributed to client/supervisor on a weekly basis.

**Suggested methods or technologies for distributing information**

Social media – Facebook chat and Skype is used for keeping all team members briefly posted on progress or updates to schedules or project.

In the event of any urgency that requires the presence of team members, text/phone calls will be used.

Emails are the main form of communication with client and supervisor stakeholders when organizing meetings or making queries.

On campus face to face meetings with client/supervisor.

GitHub maintains all latest changes or revisions to the code and any documentation items that is shared amongst team members and client.

**Format, content, and level of detail of key project information**

Status, progress and forecast reports are distributed by means of verbal communication or any written documentation (i.e. Gantt charts) or functioning bare-bones product prototypes to client/supervisor to inform them of any obstacles or continuing and fulfilled objectives in the course of a week.

**Frequency of general communications, responding to communications (including the regularity for team members to check their agreed upon communication method)**

It is agreed upon that each team member should regularly check their emails, Facebook chat or Skype to keep up to date with any latest discussions.

Meetings with supervisor/client are held once per week for progress reporting or more frequently if there are any other urgent issues.

Commits to GitHub is done whenever there is an approved change to documentation items or updates to code. Each team member is accountable for informing others about any of their latest pushes to the repository so others can retrieve and merge with the most recent.

**Tone of communications**

Emails to and on campus meetings with supervisor/client are straight to point and formal.

Social media discussions with other team members are relaxed and informal.

**Method for updating the communications management plan**

Any updates to the communications plan will be first approved by all members of the team and including stakeholders whom it may concern.

**Escalation procedures**

In the event of an emergency or conflict amongst team members, the project is always valued as the highest priority and should come first. However majority vote will determine the resolution of conflicting ideas for example.

If there are any immediate problems or grey areas just regarding the project requirements or deliverables, the client/supervisor will be contacted as soon as possible via email with the problem statement.

**Stakeholder communications analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Stakeholders** | **Document Name** | **Document Format** | **Contact Person** | **Due Date** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| **Comments:** | | | | |

**12. Glossary of terms**

# Project Human Resources Management



Organizational chart: who is involved in the project?

Project roles and responsibilities: include deadlines/schedule (basically a Responsibility Assignment Matrix)

Describe any work/things/procedures that your team plans to do to develop the team camaraderie. For example: social gatherings (have a meal or drinks alongside your meetings), organise meeting times to accommodate one member, etc.

Also, discuss procedures to resolve conflicts within the team.

**Project roles and responsibilities**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Client** | **Supervisor** | **Team Manager** | **Programmer** | **Level Designer** |
| Requirements and analysis by 22/08/14 | C | I | R | R | R |
| Project management plan by 22/08/14 | - | I | R | R | R |
| Design document by 05/09/14 | - | I | R | R | R |
| Final project submission document by 17/10/14 | - | I | R | R | R |
| Initial device setup and testing. By 19/08/14 | - | I | R | R | R |
| Devices working in combination. By 02/09/14 | - | I | R | R | - |
| Develop level prototypes by 09/09/14 | - | I | A | - | R |
| Game world prototype working with devices by 02/09/14 | - | I | A | R | R |
| Develop level prototype for object interaction by 09/09/14 | - | I | A | - | R |
| Develop level prototype for object avoidance by 16/09/14 | - | I | A | - | R |
| Develop level prototype for way finding by 23/09/14 | - | I | A | - | R |
| Level tasks functioning with devices by 23/09/14 | - | I | A | R | R |
| Menu setup by 30/09/14 | - | I | A | R | R |
| Profile system by 30/09/14 | - | I | A | R | - |
| Networked database by 07/10/14 | - | I | A | R | - |
| Prototype 14/10/14 | - | I | A | R | R |
| Full Release by 17/10/14 | I | I | A | A | A |
| Presentation 28/10/14 | I | I | R | R | R |
| Oversee the project to ensure it is completed on schedule | I | R | A | A | A |

Where possible team members will remain together in the same physical location, or maintain communication via email, Skype, Facebook, or phone while working on the project. Regular weekly team meetings will also be held to ensure the project does not fall behind at any time; this is the weekly SCRUM meeting involving the supervisor. These meetings as well as occasionally having lunch, drinks, and participating in other non-project related activities together, will hopefully help strengthen the team and ultimately lead to a successful outcome for the project.

Concerning conflicts, whatever is deemed to be best for the project should come first, but if conflict still ensues then majority vote wins. Care for all team members’ wellbeing is to be put ahead of any project task.

Ultimately any conflict will be brought to the supervisor and/or unit coordinator.

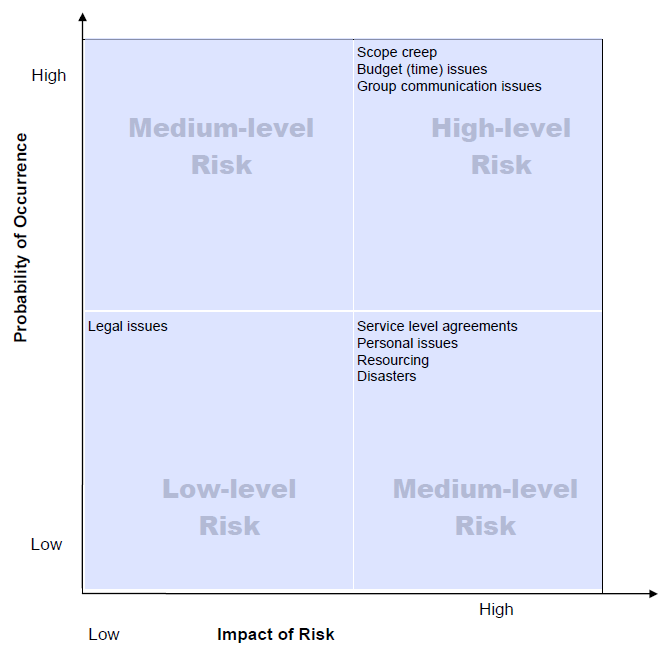
# Project Risk Management



* List of possible risk events, including a number for each risk event, name of each risk event, description of each risk event, category under which each risk event falls (if applicable), potential responses to each risk, person responsible for responding to each risk event.
* Possibly a probability/impact matrix

A risk is the exposing of someone or something to danger. More specifically, project risk is an uncertainty that can have a negative or positive affect on meeting project objectives. The goal of project risk management is to minimize negative risks while maximising potential positive risks, which is done by identifying, analysing, and responding to risk throughout the life of the project. The decisions made should always be in the best interests of meeting project objectives.

The following probability/impact matrix allows the visual measure of potential risks. The probability that a risk will occur is represented on the vertical axis, while the impact of the risk if it should occur is on the horizontal axis. This matrix shows which risks need most attention.



1. Scope creep: when the original goals have expanded while in progress.
   1. Response: reanalyse main goals and refine scope.
   2. Person responsible for response: everyone.
2. Budget (time) issues: not being able to complete the project on time.
   1. Response: reanalyse what can be finished and work towards a stable solution that may miss some requirements.
   2. Person responsible for response: everyone.
3. Group communication issues: team members not checking group chat, missing emails, or not being informed.
   1. Response: analyse the problem and what communication methods can be changed to suit.
   2. Person responsible for response: group.
4. Legal issues: possible with profile data.
   1. Response: amend to not cause legal issues.
   2. Person responsible for response: everyone.
5. Service level agreements: discrepancies or expectation difference on what has been agreed upon between stakeholders and the team without negotiation.
   1. Response: re-negotiation.
   2. Person responsible for response: everyone.
6. Disasters: Rare but disastrous events such as source code gets destroyed, devices breaking, personal issues, anything that may jeopardise the project.
   1. Response: whatever can be done to salvage the project.
   2. Person responsible for response: everyone.
7. Personal issues amongst group/individuals: if it affects work or morale.
   1. Response: try to amend the rift, otherwise sort out a way the team member(s) do not have to interact so that the project can be least affected.
   2. Person responsible for response: members involved and supervisor.
8. Resourcing: not enough people with adequate skills for certain tasks, devices not working etc.
   1. Response: analyse what can be amended, everything else should be dropped and a reanalysis of the requirements for the project initiated.
   2. Person responsible for response: everyone.

One of the main risks in this project is the merging of project files on the git version control. The several different devices do not always communicate with one another can cause driver collisions. This means that they cannot all be installed and used on the same computer device without compromising the system.

The driver risk of the hardware's software drivers that we install. By installing the device drivers we open up risk possibilities of compromising our own computer devices to errors and unresponsive situations. As the devices being used are still in development they are not perfect and are prone to bugs and errors. This is a risk with the hardware which correlates to software issues.

Every computer is also different so every computer must be configured slightly differently to get the devices in functioning order.

The use of the devices can cause motion sickness. The aspect of what we are doing requires some movement of the user which could cause them to fall over and injure themselves.

# Project Cost Management



Budget: resources needed and associated costs (if any)

Budget: labour costs (if any)

The resources required to do this project include two categories; the devices and the software.

The Devices:

* Oculus VR or Oculus Rift
* Leap Motion
* Razer Hydra
* Kinect (Windows)

The software:

* Unity PRO

The unity pro software is required to be bought by the university for this project so that the requirements can be met. The main reason is that the device Oculus VR does not work without being integrated into Unity PRO. Standard Unity does not support the Oculus VR.

All of the devices have been supplied by the university, supervisor and client for use in this project.

# Project Procurement Management



Hardware/software requirements needed for the project (if any)

Who is responsible for assessing available products?

The process for procurement

Project procurement refers to the acquisition of goods or services from an external source. At the outset, procurement management activities usually include defining what goods or services the organisation could itself provide and which on the other hand require finding and contacting sellers that can provide the goods or service at some cost.

The hardware required for the project is supplied by the client/supervisor and which includes the Oculus Rift head mounted display and other motion sensing devices including Microsoft Kinect, Leap Motion and Razor Hydra. Mouse and keyboard are also a part of the hardware requirements but as development is via PC, those resources are adequate.

Software development kits for the head mounted display and motion sensing devices are also a core requirement for building and developing the product. The SDKs are also supplied by the client/supervisor together with the devices.

Unity is a cross-platform game engine and integrated development environment that will be installed from the official website and used to run the demos provided with the SDKs and thus commence development of the main product. However Unity’s pro license subscription will also be a necessity for the devices to execute properly with the engine. The pro-license will be acquired from the client/supervisor.

The version control tool used throughout the lifetime of the project is the web-based hosting service Git-Hub which provides open source project management tools for code development.

The client/supervisor is in charge of assessing the availability of any requisite hardware and software fundamental to implementation of the project requirements.

Obtaining the required hardware components and each of the SDKs is via the client/supervisor in which will be expected to supply at minimum one of each device. Requests for Unity pro license, group or individual is done similarly and approval will be requested from the client/supervisor for the acquisition and monthly funding of the pro licenses.

In the event that procurement of Unity pro licenses may take several weeks, each team member will register for the one month trial of Unity Pro until the resource is acquired.

GitHub is attainable by creating an account from the official website and setting up repositories for team members to commit and update.

# Conclusion



Restate the purpose of the document

What the document discussed

# Appendices



Appendix A: Deliverable Task Breakdown Statement

Appendix B: Work Breakdown Structure and Schedule

Appendix C: Project/Team charter

Appendix D: Glossary of terms

Appendix E: Agenda and minutes of all client meetings

Appendix F: Agenda and minutes of all supervisor meetings