**MARKING SCHEDULE**

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| Total marks | 100 |

ICT313 Neuromend

Tempest

Design Document



# Title Page



**Project name:**

Neuromend

**Client/organisation:**

Shri Rai

**Supervisor:**

Fairuz Shiratuddin

**Tempest team members:**

Ary Bizar

Anopan Kandiah

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1.0

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# Executive Summary



Purpose of the document is to provide a blueprint for building the system Neuromend and to provide a clear picture of the software. This document acts as a reference for the system, and will aid in the distribution of development among the development team. If the system is destroyed, it should be able to be rebuilt using this document.

This document is going to discuss data design, process design, architecture/infrastructure design, and interface design for the system.

# Introduction



The purpose of this document is to provide an outline for building the system Neuromend and to provide a clear picture of the software.

The intended audience for this document is the stakeholders associated with the project. This includes the client, supervisor and team members.

This system is the first designed and implemented product and it is called Neuromend.

Related documents:

* Requirements document
* Project management plan
* Final documentation

The above requirements document and project management plan are prerequisite documents, and provide background and context for this document and the system. Final documentation is the final document that results from this document as well as the prerequisites.

Size of the system to be implemented: 4 versions of the software simulation, each functioning with a different set of devices; Oculus Rift + Kinect, Oculus Rift + Leap Motion, Oculus Rift + Razor Hydra, Mouse + keyboard. The simulation has 3 levels. The simulation must have a networked database.

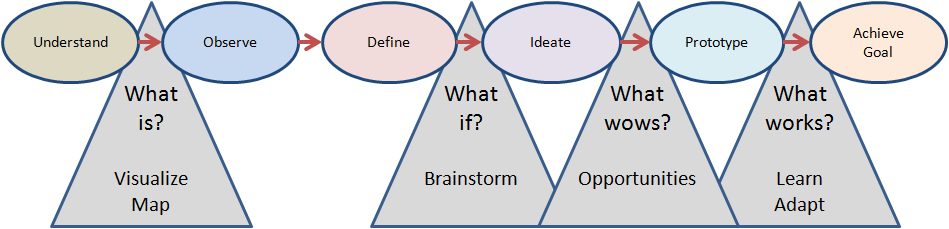
Complexity of the system: Each version of the simulation should be specific for the attached set of devices. The simulation should have a menu system. Each level should have a training stage and an execution stage. The time score for the execution stage should be stored on the user’s profile. The database is used to store user’s profiles with time scores for each level.

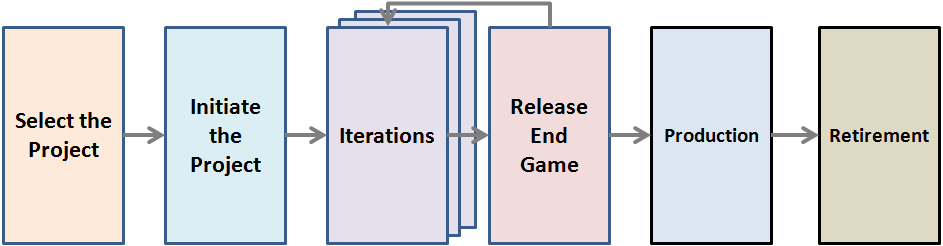
Arrangement of the design and implementation teams: 5 major areas of the system, each team member is responsible for one major area as follows:

* Level designer: Ary
* Oculus Rift + Kinect: Alex
* Oculus Rift + Leap Motion: Hannah
* Oculus Rift + Razor Hydra: Bryan
* Mouse + keyboard: Anopan

Chosen design methodology: Design Thinking. This methodology applies critical and creative thinking to understand, visualise, and develop approaches to solve the problem. Agile design is also used to break tasks into smaller increments of short time frames to deliver small working iterations to the system. The system itself has a design goal which uses design thinking, but agile design is used in smaller iterations to achieve that goal.

1. Define the problem: understand the problem, observe and understand to correctly define the right problem to be solved.
2. Create and consider options: come up with solutions to solve the problem.
3. Refine selected directions: adapt to dynamic conditions by prototyping.
4. Execute: achieve the designated goals.

Design thinking: 

Agile design:

# Data Design



Review and develop data objects, relationships, data flow and content

Bryan also done ERD

Identify all data structures and the operations performed on them

Create the data dictionary to represent the relationships among data objects and the constraints on the elements of the data structure

If using a database, perform database design

Data-to-Process CRUD Matrix if applicable

# Process Design



Detailed description of each software component:

* Process models, either traditional (DFDs & all required levels) or event-driven (decomposition diagram, event response diagrams and use case lists etc.
* Process descriptions (using structured English), expanded use-case narratives (if not already done), possibly decision tables

Address processing controls

Include algorithms, as well as an overview of the components using structure charts, hierarchy charts, etc.

If using OOM/P you will need class diagrams and sequence diagrams, either high-level with a data dictionary, or low-level which includes all the definitions.

# Architecture/Infrastructure Design



Define the architecture of the system

Provide an architectural diagram if applicable (this can include the structure of static web pages, a guide to navigation).

Additional software components as necessary

Infrastructure requirements: capacity, performance, integration & compatibility, platform strategy, security, back-up & recovery, scalability, future proofing

Discuss alternative designs

Infrastructure requirements:

* Capacity: one user at a time.
* Performance: speed of each level completion is timed.
* Integration and compatibility: new system. Requires compatibility between Oculus Rift + Razer Hydra, Oculus Rift + Leap Motion, Oculus Rift + Kinect, or a keyboard + mouse.
* Platform strategy: PC Windows 7.
* Security: Confidentiality for the user; storing ID instead of names and having data protected in the database.
* Back-up & recovery:
* Scalability:
* Future proofing:

# Interface Design



The design of the interfaces between software modules:

* The design of interfaces between software and non-human (external) entities.
* The design of the interface between human and computer (HCI)

You should provide mock screen-shots of the interfaces of the system you intend to create.

Interface specifications: input/output controls, formatting, etc.

# Appendices



Appendix A: Deliverable Task Breakdown Statement: completed, signed, scanned and copied into document

Appendix B: Glossary/data dictionary

Appendix C: Glossary of terms and definitions and acronyms

Appendix D: Any other information you consider necessary to include

References:

http://www.nwlink.com/~donclark/design/design\_models.html