**Video and Chill**

**(V&C)**

**CS337 Software Engineering**

**Software Requirements, Software Design and Software Test Plan Document**

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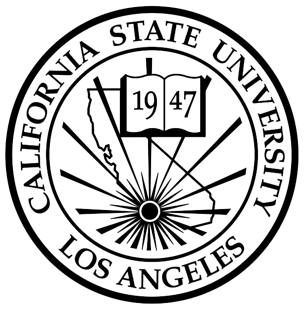
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March 25th, 2017

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**Document Change Log**

|  |  |  |
| --- | --- | --- |
| **Update** | **Date Released** | **Changes** |
| Draft #1 | 3/25/2017 | Delivery of the Software Requirements Document |
|  |  |  |
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# List of TBD Items

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| Page | **Item** | **Description** | **Status** |
| 2-3 | reqt 3.2.3-1 | the system performance max value | researching |
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**1.0 INTRODUCTION**

**1.1 Purpose**

The purpose of this document is **four-fold**:

a) Completely define a full set of requirements for Video and Chill **– Section 3.0**.

(These sections correspond to a Software Requirements Document, SRD).

b) Completely define the design for Video and Chill **– Section 4.0**.

(These sections correspond to a Software Design Document, SDD).

c) Define and partially implement feasible modules for Video and Chill **– Section 5.0**.

(These sections correspond to the Software Implementation Document, SID).

d) Completely define the Test Plan for the Video and Chill **– Section 6.0**.

(These sections correspond to a Software Test Plan, STP).

The complete definition of all Video and Chill requirements provides the source requirement inputs for the development of the subsequent supporting software subsystems documents.

**1.2 Scope**

The documentation developed as part of this cs3337 class, starts with the SRD including elements of Software Design and parts of a Test Plan.

The scope of this document includes the following:

* All functional and non-functional requirements on Video and Chill are captured. This includes Verification & Validation (V&V) requirements, as well as inter-software subsystems requirements.
* A complete set of Video and Chill Requirements. These requirements are organized by key Video and Chill functional units shown on the Level 1 DFD. The Level 1 DFD is shown on page [TBD].
* A trace matrix, relating all Video and Chill functional requirements to functional subunits as expanded in lower level DFDs. Level 2 and higher DFDs are provided on pages [TBD].
* The functional requirements defined in the Video and Chill Requirements section have been expanded to include more specific hardware requirements.

**1.2.1 Document Organization**

The organization of this document provides a natural flow or allocation of requirements to each succeeding section.

Details regarding the overall document are given in sub-section 1.5 below.

**1.2.2 Relationship to Other Documents**

The Video and Chill SRD/SDD/STP/SID is a complete self contained document. Some relationships to other documents in the literature are indicated below in sub-section 1.5.

**1.3 Video and Chill Architecture**

1.3.1 Detailed Context Diagram (DFD Level 0)

The Video and Chillarchitecture is summarized in the Context Diagram (DFD Level 0) given below. A more complete Functional Description is given in Section 2 of this document. The Context Diagram provides the overall structure of the software modules and all its inputs and outputs. The notation used corresponds to that defined for any Data Flow Diagram (DFD).

**\*\*\*⇒**  HERE YOU INCLUDE YOUR LEVEL 0 DFD.

**1.3.2** Description and major functions of the Video and Chill

**\*\*\*⇒**  INSERT HERE AN OVERALL HIGH LEVEL OVERVIEW OF YOUR PROJECT FUNCTIONS USING THE CONTEXT DIAGRAM GIVEN IN 1.3.1 AS YOUR GUIDE. THIS IS A **HIGH** LEVEL DESCRIPTION***. The next level description will be given in Chapter 2.***

**1.4 Documentation Development Process**

The Video and Chilldetailed functional description is documented in section 2.0. Basically, Section 2 is a succinct software description document. The overall detailed functional description is based on higher level DFDs (above level 1). All major functional units are described in detail in this part of the document.

In general, all requirements affecting Video and Chillare captured in Section 3.0 of this document. These requirements are a refinement and completion of requirements first collected as part of this Software Engineering project. The document is cited in Section 1.2.2. This section is the one worked in most detail to become a reasonably complete Software Requirements Document (SRD). It includes both functional and non-functional software requirements together with several detailed “rational” paragraphs whenever necessary to complete the understanding of each requirement.

Section 4 is the detailed Video and ChillSoftware Design Description Document (SDD). This part of the document includes all higher level DFDs as described in section 2 plus all interface units. The document is highly technical and it is based on section 2 descriptions. An important component is the addition of a SIS (software interface specification) document in sub-section 4.2.

Section 5 includes elements of a partial implementation of Video and Chill. This section includes the various constraints that effectively limit the implementation as well as the sub-units that will be coded. The implementation goals are defined and the code and pseudo code are included as an attachment to this section.

Section 6 is the last major section in this document and includes the overall Test Plan (TP) of theVideo and Chill. The test plan details the various techniques used to test the requirements and it also includes a Validation Matrix where each requirement specified in section 3 is listed with its corresponding validation method. The validation methods may include Testing, Analysis and Demonstration, and possible other V&V methods. In addition, the TP specifies the mandated peer reviews needed to validate the stakeholders part of the requirements.

**1.5 References**

All references used in the creation of this document are listed below.

**1.5.1 Controlling Documents**

1) There is no document controlling this document.

**1.5.2 Applicable Documents**

1) No additional applicable document has been used in the production of this document.

**1.5.3 Standards**

No Standard has been used in the creation of this document. However, some Standards described in textbooks have been examined as a reference. In particular, the IEEE standard has been briefly discussed in class.

**2.0 DETAILED FUNCTIONAL DESCRIPTION OF THE VIDEO AND CHILL**

2.1 Detailed Video and ChillFunctional Description.

The major tool used to design Video and Chill is the Data Flow Diagram, DFD. The rational behind the selection of DFDs as the preferred design tool, was their simplicity and versatility. In the future, more sophisticated tools may be used particularly if a correlation from Design to Requirement to Implementation and Testing is found to be a necessary addition.

2.1.1 Higher Level Data Flow Diagrams.

The Video and Chill major functional design components are shown in the DFDs below.

**\*\*\*⇒**  INSERT HERE YOUR LEVEL 1 DIAGRAM

**\*\*\*⇒**  INCLUDE HERE ALL HIGHER LEVEL DFDs IF ANY

2.1.2 Detailed Description of Video and Chill Major Sub-Units

The Video and Chill major functional subunits shown in the DFDs in the previous sub-section, are described in detail below.

**\*\*\*⇒**  INSERT HERE A DETAILED DESCRIPTION OF ALL YOUR PROJECT SUB-UNITS FUNCTIONS USING YOUR LEVEL 1 DFD AS YOUR GUIDE FOR DESCRIPTION OF THE SUB-UNITS. KEEP THIS DESCRIPTION AT THE LEVEL 1 DFD AND NOT ANY DEEPER.

**3.0 VIDEO AND CHILLREQUIREMENTS**

3.1 Video and Chill Functional Requirements

This Section collects all Video and Chill Functional Requirements. The Section includes the complete set of functional requirements with explanation and rational where the statement of the requirement was deemed insufficient or needing additional background/justification. All requirements relate to the design modules described in Section 2. An effort has been made to standardize the correlation between the design modules and the requirements to make their access and organization more consistent. For example, module 2.1 requirements are labeled 3.1, sub-module 2.1.1 requirements are labeled 3.1.1 and so on. The list of requirements follows.

|  |  |
| --- | --- |
| Requirements Related to Design Module 2.1 and Sub-modules 2.1.1, 2.1.2, etc… | |
| Requirement No. | Requirement Description |
| 3.1-1 |  |
|  |  |

|  |  |
| --- | --- |
| Requirements Related to Design Module 2.2 and Sub-modules 2.2.1, 2.2.2, etc… | |
| Requirement No. | Requirement Description |
| 3.2-1 |  |
|  |  |

**…………………………**

**3.2 VIDEO AND CHILL Non-Functional Requirements**

This Section collects all the V&C Non-Functional Requirements. All non-functional requirements are numbered “NF – n” where “n” indicates the nth requirement.

NF - 1 V&C requires

NF - 2 …

NF - 3 …

**3.3 VIDEO AND CHILL Hardware Requirements**

This Section collects all the V&C Hardware Requirements. All hardware requirements are numbered “H – n” where “n” indicates the nth requirement.

H - 1 …

H - 2 …

**4.0 VIDEO AND CHILLDETAILED DESIGN**

In this section the Video and Chill described in Section 2 with requirements listed in Section 3 will be designed in detail possibly including higher level DFDs. Each major module detailed design is included in correspondence with the design sections defined in Section 2 and responding to the requirements listed in its correlated sub-section in chapter 3.

**5.0 VIDEO AND CHILLELEMENTS OF IMPLEMENTATION**

In this section (some of) the modules designed in Section 4 with requirements listed in Section 3 will be implemented initially at least at the level of pseudo code. Where possible, actual code will be provided. Each module is implemented in correspondence with the design sections defined in chapter 2 and responding to the requirements listed in its correlated sub-section in chapter 3.

5.1 Video and Chill Module 2.1

This module was not implemented.

5.2 Video and Chill Module 2.2

This module has been implemented responding to its 3.2 requirements. The implementation is given below.

**…………………**

**6.1 INTRODUCTION**

In this section the testing methodology to be used to V&V each of the requirements listed in section 3.0 has been identified. At points some additional testing may be required and they shall be documented as an attachment to this document.

The methodologies and testing strategies identified at this point include four major approaches: TESTING, DEMONSTRATION, INSPECTION, and ANALYSIS with various variations to adapt to the Video and Chill characteristics:

* **Testing** using additional ad-hoc created software including a correlation testing unit.
* **Demonstration** of the specified capability
* **Inspection** of the software code possibly using additional inspection techniques
* **Analysis** of the specific code operation/algorithm to prove functionality.

**6.2 FUNCTIONAL REQUIREMENTS VALIDATION MATRIX**

The Video and Chill Functional and Performance Requirements Validation Matrix is given below.

|  |  |  |
| --- | --- | --- |
| V&V Related to Design Module 2.1 and Sub-modules 2.1.1, 2.1.2, etc… | | |
| Requirement No. | Requirement Description | V&V Methodology |
| 3.1-1 |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| V&V Related to Design Module 2.2 and Sub-modules 2.2.1, 2.2.2, etc… | | |
| Requirement No. | Requirement Description | V&V Methodology |
| 3.2-1 |  |  |
|  |  |  |

**…………………………**

**A. ACRONYMS**

**See examples below**

**CT** Computerized Tomography

**PDA** Personal Digital Assistant

**V&V** Verification and Validation

**GB** Gigabyte

…………………………………….

**B. DATA DICTIONARY**

**See examples below**

Basic Information: Basic information is defined at the level of the system administrator and it includes for instance data such as patient’s name, gender and patient number.

Level 1 Type of Information:

Level 2 Type of Information: Level 2 information is defined by ….