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| HDCLOUD |
| Requirements Specification (RS) |
| CADCloud |

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| Leszek Dubicki  29/06/2015 |

Requirements Specification (RS)

Document Control

Revision History

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| **Date** | **Version** | **Scope of Activity** | **Prepared** | **Reviewed** | **Approved** |
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Distribution List

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| **Title** | **Comments** |
| Title of Use Case Model |  |
| Title of Use Case Description |  |

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1. Introduction
   1. Purpose

The purpose of this document is to set out the requirements for the development of CADCloud software system

The intended customers are engineering and manufacturing companies operating within mechanical engineering industry.

* 1. Project Scop

The scope of the project is to develop a set of components to allow sharing data between CAD systems (for purpose of this project Freecad will be used). The system shall have the following components:

* Embedded into a CAD file scripted object
* Local middleware process running on client operating system
* CADCloud server running on the server
* Shaft loads and deformation component that will be connected to CC server and will process data on client requests.
  1. Definitions, Acronyms, and Abbreviations

CAD Computer Aided Design

CC Abbreviation for CADCloud

CAD application – Program with powerful modeling tools which functionality will be extended by CC

……..

1. User Requirements Definition

The main requirement is to have feature (in this case FreeCad scripted object) which could be easily added and configured by designer. Such feature will allow to send data (sketch) to external web application which would calculate shaft loads and deformation based on provided sketch, store results in a database and return some data (maximum stresses and deformation) to the client.

1. Requirements Specification

All requirements should be verifiable. For example, experienced controllers shall be able to use all the system functions after a total of two hours training. After this training, the average number of errors made by experienced users shall not exceed two per day.

* 1. Functional requirements

This section lists the functional requirements in **ranked order**. Functional requirements describe the possible effects of a software system, in other words, what the system must accomplish. Other kinds of requirements (such as interface requirements, performance requirements, or reliability requirements) describe how the system accomplishes its functional requirements. Each functional requirement should be specified in a format similar to the following:

Short, imperative sentence stating highest ranked functional requirement.

* + 1. Use Case Diagram

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

The Use Case Diagram provides an overview of all functional requirements.

* + 1. Requirement 1 <name of requirement in a few words>

The heading of this section should read, e.g., “Requirement 1: User registration” or “Requirements 1: Participant takes test”

* + - 1. Description & Priority

A description of the requirement and its priority. Describes how essential this requirement is to the overall system.

* + - 1. Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

**Scope**

The scope of this use case is to …….

**Description**

This use case describes the ………..

**Flow Description**

**Precondition**

The system is in initialisation mode……..

**Activation**

This use case starts when an <Actor>…………

**Main flow**

1. The system identifies the ………….
2. The <Actor> …………...(See A1)
3. The system …………..(See E1)
4. The <Actor> ………….

**Alternate flow**

A1 : <title of A1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 3 of the main flow

**Exceptional flow**

E1 : <title of E1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 4 of the main flow

**Termination**

The system presents the next ……….

**Post condition**

The system goes into a wait state

* + 1. Requirement 2 <name of requirement in a few words>
       1. Description & Priority

A description of the requirement and its priority. Describes how essential this requirement is to the overall system.

* + - 1. Use Case

Each requirement should be uniquely identified with a sequence number or a meaningful tag of some kind.

**Scope**

The scope of this use case is to …….

**Description**

This use case describes the ………..

**Flow Description**

**Precondition**

The system is in initialisation mode……..

**Activation**

This use case starts when an <Actor>…………

**Main flow**

1. The system identifies the ………….
2. The <Actor> …………...(See A1)
3. The system …………..(See E1)
4. The <Actor> ………….

**Alternate flow**

A1 : <title of A1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 3 of the main flow

**Exceptional flow**

E1 : <title of E1>

1. The system …………..
2. The <Actor> ………….
3. The use case continues at position 4 of the main flow

**Termination**

The system presents the next ……….

**Post condition**

The system goes into a wait state

**List further functional requirements here, using the same structure as for Requirements 1 & 2. Most systems would have at least five main requirements.**

* 1. Non-Functional Requirements

Specifies any other particular non-functional attributes required by the system. Examples are provided below. **Remove the requirement headings that are not appropriate to your project.**

* + 1. Performance/Response time requirement
    2. Availability requirement
    3. Recover requirement
    4. Robustness requirement
    5. Security requirement
    6. Reliability requirement
    7. Maintainability requirement
    8. Portability requirement
    9. Extendibility requirement
    10. Reusability requirement
    11. Resource utilization requirement

1. GUI

Include mock-ups of the key pages or stages of the system. Explain how they are linked. Explain how you addressed above requirements in the design. It is important that the mock-ups are in line with the functional requirements above, e.g., if one of your requirements is “user registration” then one of the screens listed in this section should show a registration page.

1. System Architecture

Use a class diagram to outline the structure of the system. Explain briefly why you have chosen this architecture. You might want to use Visio or Rational Rose to create these.

1. System Evolution

This section describes how the system could evolve over time.