SYSTEMS AND SOFTWARE REQUIREMENTS SPECIFICATION (SSRS)

FOR

RuleBear
(a Google SketchUp Plugin)

Version 0.0
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Prepared by:
Jason Fletcher
Maxine Major

University of Idaho
Moscow, ID 83844-1010

RECORD OF CHANGES

Change No.	Date	Location of Change (e.g., page or figure #)	A M D	Brief Description of Change	Changed By (Initials)
1	2/9/2013	Document	A	Document Created	MM
2	2/14/2013	Document	M	Document Rev 1 completed.	MM
3	2/26/2013	3.1.5 Use Case Diagrams	A	Added first use case diagrams and table description	MM

*__A__ - ADDED __M__ – MODIFIED __D__ - DELETED

1. INTRODUCTION

1.1. IDENTIFICATION

The plugin under development is named RuleBear. The customer providing specifications for this project is Dr. Jay McCormack at the University of Idaho. The ultimate customer or end-user of the system will be the University of Idaho's Mechanical Engineering department students and/or faculty.

1.2. PURPOSE

The purpose of the plugin under development is to simplify the Google SketchUp model development experience for beginning users of SketchUp. This plugin will also provide a simplified way for an advanced user to create rules for a beginning user's modeling environment.

1.3. SCOPE

This is the pilot version of a plugin intended to be succeeded by further developments. Upon completion of this phase of this project, the plugin and all development will be delivered to Dr. McCormack for distribution and/or further development at his discretion.

This specification is intended for version 1.0.

1.4. DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

Term or Acronym	Definition
Alpha Test	Limited release(s) to selected, outside testers
Beta Test	Limited release(s) to cooperating customers wanting early access to developing systems
Final Test	Release of fully functional product to customer for approval, aka, Acceptance Test.
SSDD	System Specifications and Design Document
SSRS	System and Software Requirements Specification

1.5. REFERENCES

There are no references to be cited for the RuleBear plugin at this time.

1.6. OVERVIEW AND RESTRICTIONS

This document is for limited release only to the University of Idaho faculty and students directly affiliated with the development of this project.

Section 2 of this document describes the system under development from a holistic point of view. Functions, characteristics, constraints, assumptions, dependencies, and overall requirements are defined from the system-level perspective.

Section 3 of this document describes the specific requirements of the system being developed. Interfaces, features, and specific requirements are enumerated and described to a degree sufficient for a knowledgeable designer or coder to begin crafting an architectural solution to the proposed system.

Section 4 provides the requirements traceability information for the project. Each feature of the system is indexed by the SSRS requirement number and linked to its SDD and test references.

Sections 5 and up are appendices including original information and communications used to create this document.

2. OVERALL DESCRIPTION

2.1. PRODUCT PERSPECTIVE

This product is dependent on the Google SketchUp software, and is not designed to run independently, or in conjunction with any other software product.

2.2. PRODUCT FUNCTIONS

The product's primary function is to allow users to create rules which affect the SketchUp development environment, and to allow these rules to be turned off and on. The program will have two separate components: rule-definition, and rule application.

2.3. USER CHARACTERISTICS

The users of RuleBear will consist of two defined types. This program is intended for an advanced user and a beginning user of SketchUp, both affiliated with the Mechanical Engineering department at University of Idaho.

2.4. CONSTRAINTS

Since the RuleBear plugin project is developed for University of Idaho use, further development of this project will halt if the University of Idaho faculty overseeing this project decide that this project should to no longer continue.

2.5. ASSUMPTIONS AND DEPENDENCIES

The requirements for the RuleBear plugin were determined by Dr. Jay McCormack, and any further direction this project may take will depend on decisions made by Dr. McCormack and his team. Furthermore, should any decisions be made, for example, additional or expanded functionality, or features to be added or removed, this project could change.

2.6. SYSTEM LEVEL (NON-FUNCTIONAL) REQUIREMENTS

2.6.1. Site Dependencies

The RuleBear plugin has no dependencies on external resources, such as internet access, etc.. Any modern operating system which supports Google SketchUp is reasonably assumed to support the RuleBear plugin.

2.6.2. Safety, Security and Privacy Requirements

There are no safety, security, or privacy requirements at this time. The client has indicated that this plugin may be distributed as open source, and even the development of this plugin does not necessitate the protection of any development documentation or code.

2.6.3. Performance Requirements

RuleBear is required to perform as an extension to SketchUp's normal functionality, and except where the plugin is designed to specifically place constraints on the SketchUp development environment, it shall not limit any functionality of SketchUp.

2.6.4. System and Software Quality

RuleBear should be easy to install, be immediately available for use, and reliably handle all requests 98 percent of the time. RuleBear is not being optimized or designed for any

level of flexibility at this time, but a future release may permit integration with other plugins and development environments.

2.6.5. Packaging and Delivery Requirements

The most current versions of the plugin and all associated files are stored on the repository at http://code.google.com/p/rulebear/. At the completion of this project, the most current working code and all associated documentation will be available for download for our client and any other interested parties.
Upon request, if the client should so desire, we may also distribute the RuleBear plugin and documentation via CD, email, or any other reasonable method.

2.6.6. Personnel-related Requirements

The system under development has no personnel-related requirements at this time.

2.6.7. Training-related Requirements

Minimal training will be required for users to create rules and use the rules the plugin provides. A user manual will be developed to walk users through the process step-by-step. Initial launch may involve in-person training meetings, but as a general rule, the user manual should be sufficient for untrained users to learn how to effectively use RuleBear.

2.6.8. Logistics-related Requirements

No special logistics need to be addressed in regards to the RuleBear plugin.
RuleBear is limited to work only on systems which support SketchUp, in the same capacity in which SketchUp may be used.

2.6.9. Precedence and Criticality of Requirements

All requirements have equal weight.

3. SPECIFIC REQUIREMENTS

3.1. EXTERNAL HARDWARE INTERFACE REQUIREMENTS

3.1.1. Hardware Interfaces

- Operating system and environment capable of running Google SketchUp.
- Sufficient memory to store Google SketchUp creations.

3.1.2. Software Interfaces

- Google SketchUp 8

Additional information regarding hardware and software requirements for Google SketchUp for individual systems may be found at:
http://support.google.com/sketchup/bin/answer.py?hl=en&answer=36208

3.1.3. User Interfaces

RuleBear does not require any additional user interfaces than those which are standard to modern computing systems:

- Keyboard
- Monitor
- Mouse

None of these items are required to be different or of higher quality than industry standard for personal use.

3.1.4. Other Communication Interfaces

No other interfaces are required.

SYSTEM FEATURES

3.1.5. Use Case Diagrams

The features detailed in the following use cases deal specifically with the RuleBear plugin and ignore any use cases that may apply to the SketchUp development environment. These cases cover rule creation (definition), and rule application.

3.1.5.1. Rule Definition

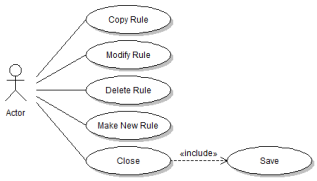
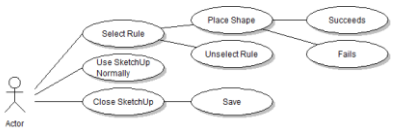


Figure 1: Define a Rule

Use Case Name	**Define a Rule**
Participating Actor	User
Flow of Events	1. User may perform any of the following: a. Copy existing rule to make changes b. Modify existing rule c. Delete existing rule d. Make new rule (not recommended /supported) 2. User closes rules.txt file. a. Save and close b. Close without save (System discards changes)
Entry Condition	User has access to rules.txt file and has opened it.
Exit Condition	User has completed making changes to rules.txt.
Quality Requirements	Upon completion, rules.txt must be formatted properly and able to be understood by the RuleBear plugin and SketchUp.

3.1.5.2. Rule Application



Use Case Name	**Apply a Rule**
Participating Actor	User
Flow of Events	1. User may perform the following repeatedly in any order: a. Select a rule i. User may place a shape 1. RuleBear accepts valid placement per current rule. or 1. RuleBear rejects invalid placement per current rule. ii. User may unselect the rule. b. Use SketchUp without an applicable rule. 2. User closes SketchUp. c. Save and close d. Close without save (System discards changes)
Entry Condition	User has loaded SketchUp and has activated the RuleBear extension
Exit Condition	User is finished with editing.
Quality Requirements	The RuleBear plugin cannot cause SketchUp to crash.

3.1.6. System Feature Description

3.1.6.1. Introduction/Purpose of this Feature

3.1.6.2. Input/Output Sequence for this Feature

4. REQUIREMENTS TRACEABILITY

None developed at this time.