**Software Requirements Specification**

**for**

**<ChemXplosion>**

**Version 0.3**

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**Revision History**

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| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Brendon Serrano | 11/27/2017 | Game setup has changed | .2 |
| Michael Lopez | 04/28/2018 | Game has been Updated | .3 |

# **Introduction**

## **Purpose**

* The purpose of this project is to design a 3D based learning module that will be both fun and educational for Chemistry students beginning to learn chemical reactions.

## **Project Scope**

* This learning module/game is intended for anyone looking to learn chemical reactions through a fun user-friendly game. The user will start the game within a sci fi spaceship. In order to escape the spaceship, the user will need to learn specific chemical reactions, apply critical thinking, problem solving, and situational awareness to help them through each level.

# **Overall Description**

## **Product Features**

* The client will need to be able to maneuver through a set of levels that will test what they learned from surrounding monitors in each room.

## **Operating Environment**

* The software will run through Windows or any platform that supports an executable game file.

## **Design and Implementation Constraints**

* This program must be in accordance with all Requirements and coding standards.  Any deviation from either Requirements or coding standards without consent from an authority figure on the project may result in lost points.

## **User Documentation**

* There will be a small “thought” box that will appear listing locations (monitors) to look into to find answers to problems.

# **System Features**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Subsystem | Title | Tracking ID | Priority | Status |
| Main Instance Subsystem | Start New Game | MI01 | High | Complete |
| Resume Game | MI02 | High | Not Complete |
| Quit Game | MI03 | High | Complete |
| In game Instance Subsystem | Resume Game | II01 | High | Complete |
| Restart Game | II02 | High | Complete |
| Video | II03 | High | Not Complete |
| Audio | II04 | High | Complete |
| Quit | II05 | High | Complete |
| Chemical Puzzle Subsystem | Solve Puzzle | PZ01 | High | Complete |
| Fail Puzzle | PZ02 | High | Work In Prog |
| Game Attribute Subsystem | Change Location | GA01 | High | Work In Prog |
| Show Score | GA02 | Low | Not Complete |
| Request Hint | GA03 | Low | Not Complete |
| Save Game | GA04 | High | Not Complete |
| Load Game | GA05 | High | Not Complete |
| Game Over | GA06 | High | Not Complete |

## **Functional Requirements:**

**3.1 Level Design:**

* The Levels will contain a large enough map to include at a minimum of 5 separate rooms. Each room will have a distinctly different puzzle that must be solved in order to progress into the next room. There must be at least 4 working puzzles within the first level. The final room must be the starting room which will have a teleporter in order to progress to the next level.

**3.2 How To**

* How to start a New Game
  + Once game is loaded in browser. User may choose from the Start Menu to:
    - Start Game, Help (for controls), Options, or Exit the game.
  + Once User begins game the menu will change Slightly:
    - Resume Game, Restart Game, Video Settings, Audio Settings, or Quit
* How to play Game
  + Common Commands
    - Uni-directional Movement - forward (w), left (a), right(d), backward (s), up (space)
    - Interact with stationary objects - (E button)
    - Picking/Dropping objects - (Left Click)
    - Storing Objects To Inventory – (Right Click)
    - Open/Close Inventory - i
    - Interacting with Menu System - (Esc to Menu)
  + To progress through game there will be puzzles revolving around chemical reactions displayed upon certain monitors. Each reaction must be completed in order to complete each puzzle.
* How to Win
  + All Puzzles must be completed within the current level. Once first level puzzles are completed the player may step on a “teleporter” that is accessible in the beginning room. Teleporter will send player to level two. Currently as project stands, completing level one will win the game.

1. **External Interface Requirements (Non-Functional Requirements)**

## **User Interfaces**

Minimum requirements: a text console above a textbox so the user can enter commands and read the returned input in a confined area.  A list of common commands to the right or left would be helpful to get new users playing.

## **Hardware Interfaces**

* *Desktop:*
  + *OS: Windows XP SP2+, Mac OS X 10.9+, Ubuntu 12.04+, SteamOS+.*
  + *Graphics card: DX9 (shader model 3.0) or DX11 with feature level 9.3 capabilities.*
  + *CPU: SSE2 instruction set support.*