Software Design Specifications

Coping with Anxiety Using VR (PC Edition) – Version 1.0

Prepared by:

Team VRWellness

Document Information

Title	Coping with Anxiety Using VR (PC Edition) – Software Design Specification
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1 Introduction

1.1 Purpose

This Software Design Specification (SDD) provides an in-depth overview of the Coping with Anxiety Using VR (PC Edition) system's architecture and design. Its aim is to describe how software components, modules, and interfaces collaborate to fulfill the functional and non-functional requirements outlined in the project's SRS.

1.2 Scope

This SDD addresses the software components and design of a PC-based VR application intended to deliver immersive therapeutic experiences to help users manage anxiety. It includes the design decisions, constraints, module decomposition, and external interfaces necessary for a successful implementation.

1.3 Definitions, Acronyms, and Abbreviations

VR: Virtual Reality
PC VR: VR platform running on a desktop or laptop computer
Unity: A cross-platform game engine used for VR development
SRS: Software Requirements Specification
UML: Unified Modeling Language
PMR: Progressive Muscle Relaxation

1.4 References

Software Requirements Specification: Coping with Anxiety Using VR (PC Edition)
Unity Documentation: https://docs.unity3d.com/

SteamVR Developer Docs: https://steamvr.studio/
UML 2.5 Specification: OMG (Object Management Group)

2 Design Overview

2.1 Design Goals and Constraints

Goals:

- Provide smooth VR experiences (≥80 FPS) to reduce motion sickness.
- Ensure modular design to easily add or update therapeutic content.
- Maintain scalability for potential multi-user or online expansions.

Constraints:

- PC VR platform (SteamVR, Oculus, etc.).
- Must support Unity as the primary game engine.
- High reliability in sensor/tracking integration.

3 Exception Handling

- Missing Asset Error: Logs error and loads fallback environment.
- Tracking Error: Pauses session if VR tracking is lost.
- Low Frame Rate Alert: Prompts the user if FPS dips below 60.

4 Quality of Service

4.1 Availability

Designed to run locally on a user's PC. No mandatory online functionality, availability
depends primarily on the stability of the user's PC environment.

4.2 Security and Authorization

Minimal data collected; stored locally. No external servers used.

4.3 Load and Performance Implications

Optimized rendering to maintain ~80-90 FPS; lightweight scenes for sub-5-second
environment load times on typical VR-ready PCs.