
Group 7

**Virtual Chat 3D
<Sprint 4> Test Plan**

Version 1.1

Virtual Chat 3D	Version: 1.2
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Test-Plan-v1.2	

Revision History

Date	Version	Description	Author
12/12/2024	1.0	Write the document.	Cao Minh Quang, Ngô Tấn Tài
15/12/2024	1.1	Fix target test item feature and area.	Châu Vĩnh Đạt
17/12/2024	1.2	Fix target test item feature and area. Update hardware requirement.	Châu Vĩnh Đạt, Cao Minh Quang

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<Sprint 4> Test Plan

I. Introduction

1. Objectives of this Document

The primary objective of this Test Plan document is to produce a structured approach for testing application. This document provides a comprehensive strategy to ensure the application meets its functional, performance, usability, and security requirements. It gives an instruction to testing activities, help stakeholders understand the testing scope, methodologies, and responsibilities.

2. Purpose of the Document

This document is designed to:

- Define the target test items, features, and areas to be tested.
- Specify the environmental requirements for testing, including hardware and software needs.
- Identify the roles and responsibilities of personnel involved in the testing process.
- Establish the tools and methodologies to support testing activities.

3. Audience for this Document

This Test Plan is intended for the following stakeholders:

- **Test Managers:** To use this document as a guide for planning and overseeing the testing process.
- **Testers:** To understand the test cases, methodologies, and expected outcomes.
- **Developers:** To gain insights into the testing focus areas and address any identified issues.
- **Project Stakeholders:** To review the testing scope and ensure it aligns with project objectives.

4. Key Features of this Document

4.1. Target Test Items:

- List of software items to be tested, including performance, usability, and security features.

4.2. Detailed Features for Testing:

- Authentication features: Login, signup, and user profile management.
- Friend features: Adding and removing friends.
- Direct messaging: Real-time and historical messaging functionalities.
- Administrative features: User management and system monitoring.
- Chatbot and chat room features: User interaction and room management.

4.3. Testing Areas:

- Performance Testing: runtime performance.
- Usability Testing: UI/UX accessibility, platform-specific features.
- Security Testing: Authentication and secure data transmission.

4.4. Environmental Needs:

- Hardware and software requirements for the test environment, including operating systems, processors, and graphics APIs.
- Key software tools for development and testing.

4.5. Roles and Responsibilities:

- Clearly defined roles for the Test Manager and Testers, including their responsibilities and resource requirements.

4.6. Support Tools:

- Productivity and defect tracking tools to facilitate communication and tracking.

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II. Target Test Items

1. Features

1.1. Chatbot features

- Chatting with the chat bot.
 - + Chat in different context with chatbot
- Chatbot emotion based on chat content.
 - + Send emotional text and see the result
- Changing the chatbot's 3D model.

1.2. Friend features

- Adding a new friend.
 - + Test with multiple IDs.
 - + Test with non-exist ID.
 - + Try sending a friend request to its own account.
 - + Try sending friend requests to friends.
 - + Accept/Refuse the requests.
- Removing a friend.

1.3. Direct message features

- Sending a message to a friend.
 - + Try sending different types of message content (length, special character, etc.).
- Receiving new messages in realtime.
- Loading chat messages when opening a chat.

1.4. Chat room

- Host a room
 - + Host with different (even invalid) ports.
- Join a chat room.
 - + Join with multiple IPs, ports
- Exiting a chat room.

1.5. Chatting in a chat room

- Send a message
 - + Try sending different types of message content (length, special character, etc.).
- Receive new messages in realtime.

2. Area

2.1. Performance Testing

- Runtime Performance: Frame rates (FPS) when using the program.
 - + Use "Game Dashboard" on Android to track FPS while running the program
 - + The program should not crash or cause unexpected errors.

2.2. Usability Testing:

- UI/UX: Accessibility for different audiences (eg: font size, button size, contrast, ...).
 - + Use various Android phones to run the program.
 - + Look for elements which display unexpectedly or are unable to display.
 - + Look for functions which are hard to use or easily be mistaken for other functions.
- Vroid Integration: User experience when importing/exporting characters
 - + Measure the time required to import, export characters.

III. Environmental Needs

1. Hardware Requirements

- Requirements on PC / Laptop to build the product and test the application on Unity Editor (minimum requirements)

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ref: <https://docs.unity3d.com/2023.1/Documentation/Manual/system-requirements.html#editor>

Minimum requirements	Windows	macOS	Linux
Operating system version	<ul style="list-style-type: none"> Windows 10 version 21H1 (build 19043) or newer (x64 versions only) 	<ul style="list-style-type: none"> Big Sur 11.0 	<ul style="list-style-type: none"> Ubuntu 20.04 and Ubuntu 22.04
CPU	<ul style="list-style-type: none"> X64 architecture with SSE2 instruction set support 	<ul style="list-style-type: none"> X64 architecture with SSE2 instruction set support (Intel processors) Apple M1 or above (Apple silicon-based processors) 	<ul style="list-style-type: none"> X64 architecture with SSE2 instruction set support
Graphics API	<ul style="list-style-type: none"> DX10, DX11, and DX12-capable GPUs 	<ul style="list-style-type: none"> Metal-capable Intel and AMD GPUs 	<ul style="list-style-type: none"> OpenGL 3.2+ or Vulkan-capable, Nvidia and AMD GPUs
Additional requirements	<ul style="list-style-type: none"> Hardware vendor officially supported drivers 	<ul style="list-style-type: none"> Apple officially supported drivers (Intel processor) Rosetta 2 is required for Apple silicon devices running on either Apple silicon or Intel versions of the Unity Editor 	<ul style="list-style-type: none"> Gnome desktop environment running on top of X11 windowing system, Nvidia official proprietary graphics driver or AMD Mesa graphics driver. Other configuration and user environments have provided stock with the supported distribution (Kernel, Compositor, etc.)

- Requirements on Mobile devices to test application (minimum requirements):

ref: <https://docs.unity3d.com/2023.1/Documentation/Manual/system-requirements.html#mobile>

Minimum requirements	Android	IOS
Operating system version	<ul style="list-style-type: none"> Android 7.0 (API 24)+ (Customized versions of Android must include all supported Google standard APIs) 	<ul style="list-style-type: none"> 13+
CPU	<ul style="list-style-type: none"> ARM64 (Armv8-a or Armv9-a) 	<ul style="list-style-type: none"> A7 SoC+

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Graphics API	<ul style="list-style-type: none"> OpenGL ES 3.0+, Vulkan 	<ul style="list-style-type: none"> Metal
Additional requirements	<ul style="list-style-type: none"> 1GB+ RAM Supported hardware devices must meet or exceed Google's Android Compatibility Definition (Version 9.0). Hardware must be running Android OS natively. Android within a container or emulator isn't supported. 	

- The app was built in minimum API: Level 24 (Android 7) and target API: Level 34 (Android 14) (due to requirement of Firebase SDK) by Unity Editor 2023.2.5f1 in Windows 11 23H2.
- The app was tested in Android 14 (Xiaomi HyperOS 1.0.14 Global).

2. Software in the Test Environment

The following base software elements are required in the test environment for this *Test Plan*.

Software Name	Purpose	Version	Type and Other Notes
Unity Engine	Game Development and cross-Platform Deployment	2023.2.5f1	Include: - Android Build Support (API Level 34) - iOS Build Support - Windows Build Support (IL2CPP)
Vroid Studio	Custom 3D character modeling for testing customization of 3D character models	2.0.2	Designed for importing and managing VRM-format 3D models
ADB	Send apk, install app, get debug log in android device.	1.0.41	Android Debug Bridge
NodeJS	Facilitates server-side communication between clients and the database	22.12.9	Provides backend functionality for handling requests and data synchronization
Firebase Console	Interface to monitor Realtime Database and Authentication	-	https://console.firebase.google.com/

3. Productivity and Support Tools

The following tools will be employed to support the test process for this *Test Plan*.

Tool Category or Type	Tool Brand Name	Vendor or In-house	Version
Defect Tracking and Report	MS Excel	MS	Excel 365
Track testing progress	Jira	Vendor (Atlassian)	Latest Cloud/Server

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Tool Category or Type	Tool Brand Name	Vendor or In-house	Version
Communicate between members while testing	Messenger	Vendor (Meta)	Latest Version

IV. Responsibilities, Staffing, and Training Needs

1. People and Roles

This table shows the staffing assumptions for the test effort.

Human Resources		
Role	Minimum Resources Recommended (number of full-time roles allocated)	Specific Responsibilities or Comments
Test Manager	Cao Minh Quang	Provides management oversight. Responsibilities include: <ul style="list-style-type: none"> planning and logistics agree mission identify motivators acquire appropriate resources present management reporting evaluate effectiveness of test effort
Tester	Châu Vĩnh Đạt, Ngô Tấn Tài	Implements and executes the tests. Responsibilities include: <ul style="list-style-type: none"> implement tests and test cases execute test cases log results analyze and recover from test failures document incidents