

# Testing Plan for Interactive Prototype 1

## 1 Project Background

This project is a **traditional 2D drawing app** (similar to Procreate), but redesigned in XR to create a more immersive creative environment.

In this prototype, XR interactions are **simulated with mouse and keyboard**: users can move their viewpoint, control the canvas, and interact with tool menus.

The aim is to evaluate how XR-inspired controls (spatial canvas, gesture/mouse input, and menu-based tools) improve usability and creative flow compared to flat apps.

## 2 Testing Objectives

- Test how easy and quick it is to control the **canvas** (zoom, pan, reposition) using mouse and keyboard, simulating XR gestures.
- Evaluate if the **canvas menu** (instead of wrist menu) allows users to quickly find and switch tools (e.g., pen, eraser).
- Check usability of **tool functions** such as drawing, erasing, clearing, and resetting the canvas.
- Identify any problems with navigation, canvas visibility (e.g., disappearing due to drag/zoom), or tool accessibility.

## 3 Testing Methodology

- **Think-Aloud Protocol**: Participants describe their thoughts and frustrations while using mouse/keyboard controls.
- **Task-Based Testing**: Assign 2–3 specific tasks, e.g.:
  1. Use mouse to zoom and reposition the canvas for comfortable drawing.

2. Select pen and draw a simple shape, then erase part of it with the eraser.
  3. Reset or clear the canvas when it becomes cluttered or misplaced.
- **Oral Inquiry for Menu Concept:** Since wrist menu is not implemented, participants will be asked verbally what they expect from a wrist menu in XR compared to the current canvas menu.

## 4 Prototype Description / Requirements

The prototype places the user in a first-person environment set on a small island with an ocean background. Users can move and rotate their view with the keyboard to simulate VR navigation, while the PaintCanvas can be panned and zoomed using the mouse. A canvas menu provides tool buttons including pen, eraser, close, reset, and clear, enabling basic drawing interactions. To prevent issues where the canvas becomes misplaced due to dragging or zooming, the prototype includes a forced reset function triggered by pressing “R,” which restores the canvas to its default position.

## 5 Data Collection & Success Criteria

### a) Data Collection

- *Quantitative:* Task completion time, success rate (drawing, erasing, reset), number of errors (canvas disappearing, wrong button presses).
- *Qualitative:* User comments (think-aloud), post-test short interview about tool usability and menu expectations, 1–5 satisfaction ratings.

### b) Success Criteria

- $\geq 80\%$  of participants complete all tasks successfully without external help.
- Average satisfaction rating  $\geq 4/5$ .
- Users express clear opinions about how canvas menu works and whether a wrist menu would improve workflow.

## 6 Testing Setup

- Unity prototype running on laptop with mouse and keyboard.
- Stable testing environment (quiet room, screen recording optional).
- Researcher available to explain controls and record observations.

## 7 Testing Process (5–7 min per participant)

1. **Introduction & consent** (30 sec): Explain purpose, assure participants they are testing the prototype—not themselves.
2. **Warm-up & controls demo** (30 sec): Show how to move view, zoom/pan canvas, and use menu buttons.
3. **Task execution** (3–4 min): Participants perform the three assigned tasks.
4. **Debrief & interview** (1–2 min): Ask about usability, frustrations, and whether they would prefer a wrist menu in XR.