**Design Report Concept**

**1. Application**

**Procreate** (Category: Creation), a professional digital illustration and painting application.

**2. User Tasks and Goals**

1. Immersive Drawing Experience

*Goal:* Create freely on an expandable canvas without being restricted by screen size.

*Task:* Use controllers or hand gestures to zoom, rotate, and move the canvas in space.

1. Layered Drawing

*Goal:* Manage and refine complex artworks through separate editable layers.

*Task:* Switch between layers, show/hide them, and edit each individually for detailed adjustments.

1. Real-world Preview

*Goal:* Place and view the artwork in realistic environments for evaluation and presentation.

*Task:* Adjust scale and position to preview artwork on billboards, posters, products, or street walls.

1. Projection Assistance

*Goal:* Simulate projecting a sketch or artwork onto real-world surfaces such as walls or tables to replace physical projectors.

*Task:* Adjust transparency and scale through controllers, align the projection to the surface, and use it as a guide for large-scale real-world painting or mural work.

**3. Idea development process**

1. A collage of a paper with a drawing of a tree

   Description automatically generatedAdapt Procreate for XR to allow drawing in a large, freeform canvas and added multi-layer functionality for better control over complex artworks (Initial idea)
2. A collage of a paper with a drawing of a tree

   Description automatically generatedAdded real-world preview to help artists evaluate and present designs in realistic locations (Based on a review of existing products)
3. Introduced projection assistance to support real-world mural and wall art creation without physical projectors (Based on week 2 studio lo-fi prototype test feedback)

**4. Define the concept of Procreate in XR**

**Procreate XR** will provide a fully spatial experience for digital art creation in a mixed reality environment, merging the physical environment with a virtual canvas. Users can create on an infinite canvas, take advantage of XR’s capabilities for more intuitive and efficient layer management, use virtual projection to assist real-world painting, and place their artwork directly into real-world contexts for preview and presentation. **Procreate XR will support the following interactions:**

1. **Free Canvas**

Adjust and navigate the canvas using pinch, drag, and rotate gestures (or controllers).

1. **Floating Layer Panel**

A floating menu that allows users to select, reorder, and toggle the visibility of layers.

1. **Real-world Preview Mode**

A cartoon character standing next to a bench

Description automatically generatedChoose from preset scenes (billboards, posters, street walls, product packaging) or scan the real environment to anchor the artwork onto physical objects.

1. **Projection Mode**

A person painting a picture

Description automatically generatedOverlay a semi-transparent version of the artwork onto any real-world surface, with adjustable scale, position, and opacity.

**5. Initial testing plans**

1. Interactions and features to test

* Canvas zoom/rotate/move gestures (or controllers).
* Layer management (switching, editing, hiding).
* Projection mode’s accuracy, opacity control, and usability for real-world painting.
* Real-world preview placement accuracy and realism.

1. Assumptions

* Users can intuitively navigate a spatial canvas with gestures or controllers.
* Projection assistance will be more practical and precise than traditional projectors.
* Real-world preview will improve creative decision-making and client presentations.

1. Data collection and validation need
   * Record Task completion time and error rates to validate the functionality is easy to use and supports efficient task performance.
   * Record Usability ratings (e.g., SUS score) to validate whether the interactions are smooth, intuitive, and align with user expectations.
   * Collect Qualitative user feedback on workflow and overall satisfaction to identify opportunities for improvement.