

Floating Dock Implementation

Overview

The loomOS floating dock is a webOS-inspired quick launch bar that provides easy access to essential applications. It features a modern glassmorphism design with smooth animations and intelligent auto-hide behavior.

Features

1. Floating Appearance

- The dock floats at the bottom of the screen with a glassmorphism effect
- Uses CSS variables for consistent styling:
 - `--glass-bg` : Semi-transparent background
 - `--glass-blur` : Backdrop blur effect
 - `--glass-border` : Subtle border
 - `--shadow-dock` : Multi-layered shadow for depth

2. Default App Configuration

The dock displays 6 items in the following order:

1. **Home** - Navigate to the main dashboard
2. **Browser** - Browse apps and content
3. **Mail** - Access email functionality
4. **Calendar** - Manage schedule and events
5. **Settings** - Configure system preferences
6. **App Launcher** (fixed) - Open the app grid to access all apps

3. Customization

- First 5 positions are customizable (can be replaced with other apps)
- 6th position (App Launcher) is fixed and cannot be changed
- Users can:
 - Right-click on any dock item to see options
 - Replace apps in positions 1-5
 - Unpin apps from the dock
 - Close running apps directly from the dock

4. Visual States

Each dock item displays different visual indicators:

- **Active**: White pulsing dot below the icon
- **Running**: Small white dot (60% opacity)
- **Minimized**: Yellow/warning colored dot with minimize icon badge
- **Hover**: Icon scales up (1.2x) and moves up 8px with spring animation

5. Auto-Hide Behavior

Desktop ($\geq 768\text{px}$ width):

- **On Home/Dashboard:** Always visible
- **In Apps:** Auto-hides after 1 second of inactivity
- **Show Trigger:** Mouse within 100px of bottom edge
- **Hover Protection:** Won't hide while hovering over dock

Mobile ($< 768\text{px}$ width):

- **On Home/Dashboard:** Always visible
- **In Apps:** Hidden by default
- **Show Trigger:** Swipe up from bottom gesture area ($> 50\text{px}$ movement, $< 500\text{ms}$ duration)
- **Hide Trigger:** Swipe down gesture

6. Glassmorphism Design

The dock uses modern glassmorphism effects:

```
background: var(--glass-bg)          /* rgba(255, 255, 255, 0.8) */
backdrop-filter: var(--glass-blur)    /* blur(10px) */
border: 1px solid var(--glass-border) /* rgba(255, 255, 255, 0.3) */
box-shadow: var(--shadow-dock)       /* Multi-layered shadow */
```

7. Animations

Powered by Framer Motion for smooth, spring-based animations:

- **Dock Entry:** Slides up from bottom with fade-in
- **Item Hover:** Scale + translate with spring physics
- **Drag Over:** Dock scales up to 1.05x when dragging looms
- **App Launcher:** Rotates 180° when app grid is open

8. Loom Integration

- Supports drag-and-drop to create “looms” (pinned activity contexts)
- Pinned looms appear in the dock between regular apps and the app launcher
- Right-click looms for AI-powered actions:
 - Analyze loom context
 - Create task lists
 - Draft summary emails

9. Keyboard Shortcuts

- **Cmd/Ctrl + Space :** Toggle app grid launcher
- **Esc :** Close app grid

10. Accessibility

- All dock items have proper ARIA labels
- Keyboard navigation support
- Focus indicators with ring styling
- Minimum touch target size (44px+)

Technical Implementation

Component Structure

```
components/webos/app-dock.tsx
└── DockItem (memoized component)
    ├── Icon with gradient background
    ├── Status indicators (running/active/minimized)
    └── Context menu with actions
    └── Loom Icons (pinned activities)
    └── Separator
    └── App Grid Launcher (fixed position)
```

State Management

- **App Preferences Store** (`lib/app-preferences-store.ts`):
- Manages dock app IDs
- Tracks app usage
- Handles customization
- **Card Manager Store**:
- Tracks running apps
- Manages minimized state
- Handles app launching/closing

Configuration Files

1. lib/app-preferences-store.ts

- Default dock configuration: `['home', 'browser', 'mail', 'calendar', 'settings']`
- Maximum 5 customizable positions

2. lib/enhanced-app-registry.ts

- App definitions with icons, paths, and metadata
- All dock apps have `canPinToDock: true`

3. design-tokens/core.css

- Glassmorphism CSS variables
- Shadow definitions
- Spacing and sizing tokens

Styling Guidelines

Dock Container

- Position: `fixed bottom-0 left-0 right-0`
- Z-index: `9999` (highest layer)
- Padding: Responsive (4px mobile, 6px tablet, 8px desktop)
- Pointer events: None on container, auto on dock itself

Dock Items

- Size: 56px (mobile) / 64px (desktop)
- Border radius: `1rem` (16px)

- Gap: 8px (mobile) / 12px (desktop)
- Gradient backgrounds from app definitions

Hover Effects

```
whileHover={{ scale: 1.2, y: -8 }}
whileTap={{ scale: 1.05 }}
transition={{ type: 'spring', stiffness: 500, damping: 30 }}
```

Browser Compatibility

- Modern browsers with backdrop-filter support
- Fallback: Semi-transparent background without blur
- WebKit prefix included for Safari

Performance Optimizations

1. **Memoized Components:** DockItem uses React.memo
2. **useCallback Hooks:** Event handlers are memoized
3. **Debounced Auto-Hide:** 1 second delay before hiding
4. **Conditional Rendering:** Only renders visible elements
5. **CSS Variables:** Efficient style updates

Future Enhancements

- [] Drag-and-drop reordering of dock items
- [] Custom icon upload for apps
- [] Dock position customization (left/right/bottom)
- [] Multiple dock profiles
- [] Dock size adjustment
- [] Badge notifications on dock icons

Testing Checklist

- [x] Dock appears at bottom of screen
- [x] All 5 default apps + launcher are visible
- [x] Glassmorphism effects render correctly
- [x] Hover animations work smoothly
- [x] Auto-hide works on desktop
- [x] Swipe gestures work on mobile
- [x] Context menus function properly
- [x] Running/minimized indicators display correctly
- [x] App launching works from dock
- [x] Keyboard shortcuts function
- [x] Responsive design adapts to screen sizes

Related Files

- `components/webos/app-dock.tsx` - Main dock component
- `components/webos/app-grid-launcher.tsx` - App grid overlay
- `components/webos/enhanced-dock-item.tsx` - Enhanced dock item variant
- `components/webos/loom-icon.tsx` - Loom icon component
- `lib/app-preferences-store.ts` - Dock configuration store
- `lib/enhanced-app-registry.ts` - App definitions
- `design-tokens/core.css` - Design system tokens

Support

For issues or questions about the dock implementation, please refer to:

- Design system documentation in `/design-tokens/`
- Component documentation in `/components/webos/README.md`
- App registry documentation in `/lib/enhanced-app-registry.ts`