TactiRead App Design & Development Plan

1. Product Concept

TactiRead is an advanced Braille display that allows visually impaired users to read both text and graphics in one device. Unlike most Braille readers, which only display text, TactiRead uses a micro-actuator grid to represent diagrams, charts, and images as tactile graphics. This feature is essential for users in STEM fields who rely on diagrams for learning and professional tasks.

Key Differentiators:
- Dual Capability: Displays both text and tactile graphics.
- Affordability: More cost-effective than premium models like HumanWare Monarch.
- Connectivity: Integrates with an accessible mobile app for file upload and customization.
- Personalization: Adjustable tactile and audio settings for enhanced independence.

The mobile app serves as the primary interface for managing files, sending them to the device, and adjusting settings.

2. Purpose of the App

The app is a companion platform for the TactiRead Braille device, not a standalone reader. Its primary objectives:
- Enable users to upload content in multiple formats (PDF, PNG, JPG, DOCX).
- Provide controls for Braille dot height, tactile graphic detail, and reading speed.
- Offer audio narration as an optional feature.
- Simplify device pairing and management.

The app must prioritize accessibility, usability, and simplicity, incorporating voice commands, audio guidance, and large touch-friendly elements.

3. Core Features Overview

- Onboarding & Device Pairing: Accessibility setup and quick tutorial.
- Library & File Management: Upload, organize, and search documents.
- Reading Control: Start/stop reading, page navigation, tactile settings, audio toggles.
- Customization: Display adjustments, audio preferences, and connectivity.
- Help & Support: FAQs, troubleshooting, voice-assisted support.

4. App Structure and Navigation Flow

Navigation Overview:
- Bottom Navigation Bar (persistent): Home | Reading | Settings | Help

Flow Diagram:
Onboarding:
[Welcome] → [Accessibility Setup] → [Device Pairing] → [Tutorial]

Main Screens:
[Home / Library]
  ├── Upload File → [Upload Screen] → [File Details]
  ├── Open File → [Reading / Device Control]
  ├── Settings
  └── Help & Support

5. Detailed Page-by-Page Wireframe Plan

Onboarding:
1. Welcome Screen: App name, tagline, Sign In/Create Account, Audio Assist toggle.
2. Accessibility Setup: Voice guidance toggle, font size slider, audio preview.
3. Device Pairing: Bluetooth scan animation, list of devices, connected status.
4. Tutorial: Audio walkthrough, Skip/Start Tutorial.

Home / Library:
- Greeting message, voice assist icon.
- Search bar with voice input.
- Document list view with tabs: All | Favorites | Folders.
- Floating Upload Button.
- Bottom Nav: Home | Reading | Settings | Help.

Upload & File Management:
- Drag-and-drop upload area.
- Buttons: Upload from Device | Import from Cloud.
- Supported formats: PDF, PNG, DOCX.
- File Details: Rename, Delete, Assign to Folder, Enable Audio Narration.

Reading / Device Control:
- File title, device status.
- Start Reading button.
- Navigation: Next | Previous page.
- Settings Panel: Dot height slider, reading speed slider, graphics toggle.
- Voice command tips: “Say ‘Next Page’ to continue”.

Settings:
- Display: Dot height, graphics detail.

- Audio: Narration voice, speed.
- Connectivity: Device pairing.
- Account: Profile and logout.

Help & Support:
- Search bar with voice support.
- Expandable FAQ.
- Contact Support: Call, Email.
- Community resources section.

6. Design Components & Accessibility Guidelines

- Contrast Ratio: 4.5:1 or higher.
- Minimum Font Size: 16px.
- Touch Targets: 44px minimum.
- Color Palette: High contrast background and text colors.
- Reusable Components: Navigation bar, buttons, toggles, sliders, document cards.

7. Development Notes

- Connectivity: Bluetooth pairing required.
- Offline Upload: Upload files offline and sync later.
- Audio Options: Multiple languages for narration and guidance.
- File Support: PDF, PNG, JPG, DOCX.

8. Deliverables for Mentor

- Create a mobile app interface in Figma based on this plan.
- Include wireframes for all pages and reusable UI components.