Project Blueprint: FormFlux

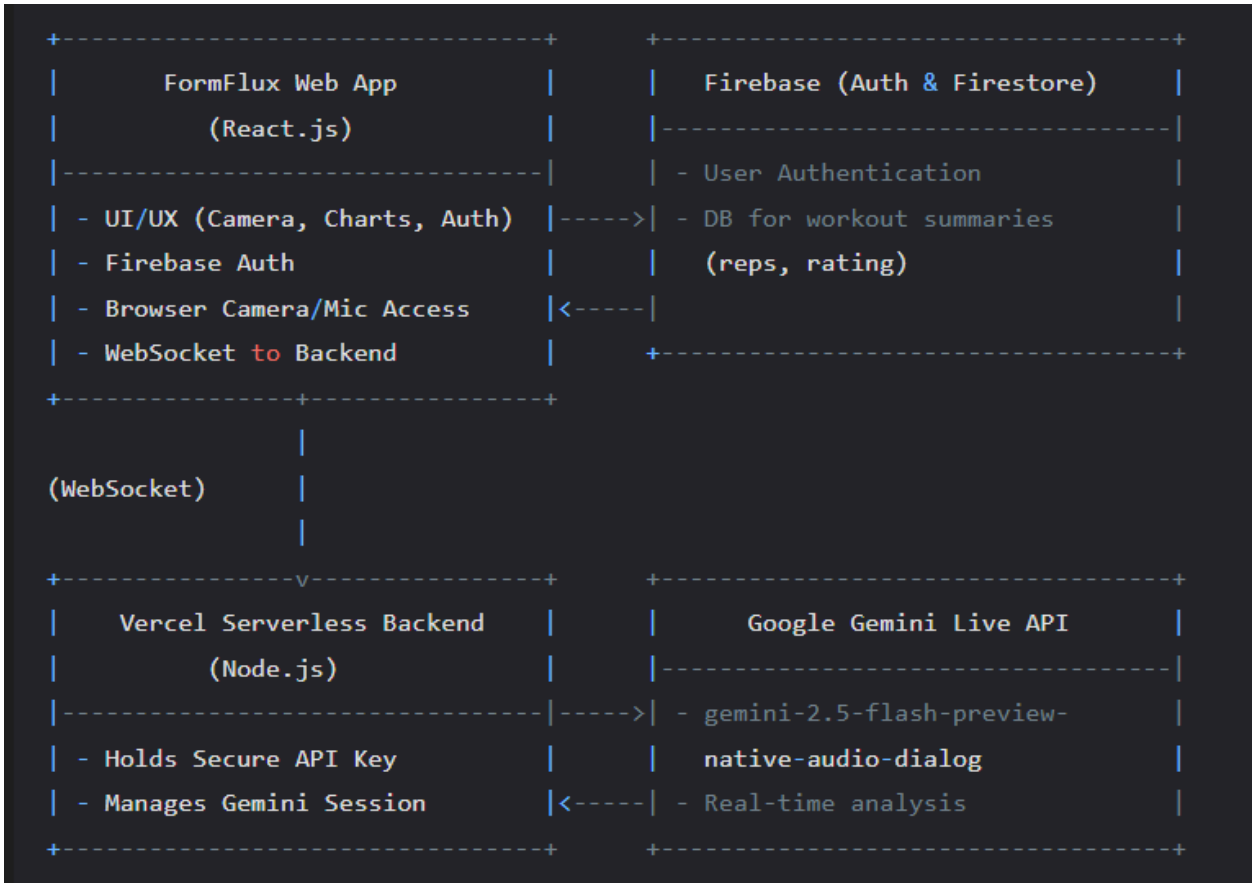
Version: 1.0
Date: June 15, 2025

1.0 Vision

To be the leading AI-powered fitness coach, providing real-time, personalized form correction and performance tracking. We will launch first as a web application to perfect the core experience, with a clear path to a native mobile app.

2.0 Core Architecture (Web-First)

The architecture remains fundamentally the same, with the client changing from a mobile app to a web app.



3.0 Technology Stack

- Web Client: React.js
- Authentication: Firebase Authentication
- Database: Google Firestore
- Backend Server: Node.js hosted on Vercel

- AI Model: gemini-2.5-flash-preview-native-audio-dialog
- Real-time Communication: WebSockets

4.0 Feature Phasing (Revised)

This revised plan prioritizes speed to market with a web app, deferring mobile and monetization until the core product is proven.

Version 1.0 (MVP) - The Core Web Experience

The goal is to deliver the core value proposition quickly on the most accessible platform: the web.

- Platform: A web application built with React.js. Responsive for desktop and mobile.
- User Authentication: Full login with google flow using Firebase Auth.
- Basic Exercise Selection: A simple list of initial exercises (e.g., Push-ups, Squats).
- Live Workout Session:
    - Camera view within the browser.
    - Secure, real-time streaming to the Vercel backend.
    - AI-driven audio feedback only (form correction, rep counting, motivation).
- Post-Workout Summary & Tracking:
    - Summary screen with AI-generated text, form rating, and rep count.
    - Workout data is saved to Firestore.
    - The summary screen displays results and a simple line chart with historical data for that exercise.

Version 2.0 - Enhanced Web Coaching

The goal is to enrich the user experience on the web platform with more advanced features.

- Platform: Continue building on the React.js web application.
- MediaPipe Integration: The web app will use the MediaPipe.js library to perform pose estimation in the browser, sending more precise data to the AI for analysis.
- Visual Feedback Overlays: The AI will trigger visual aids (arrows, highlights) on the web interface via tool use.
- Audio on/off: Users might only want the visuals and no audio in some cases. This should be a clear switch button. When off, don't generate audio only have AI make tool calls.
- Expanded Exercise Library & User History: Add more exercises and a dedicated "Progress" dashboard.

Version 3.0 - Mobile & Monetization

The goal is to expand reach to mobile platforms and introduce a business model, based on the learnings from V1 and V2.

- Onboarding features: Ask questions when a new account is created to collect information that may be useful for personalization and save info to firestore. When sending AI calls, send this info along also.
- React Native Mobile App: Develop and launch a native mobile application using React Native, porting the proven features from the V2 web app.

- Payment & Subscription System:
    - Integrate a payment processor (e.g., Stripe).
    - Introduce subscription tiers (e.g., a limited free tier and an unlimited premium tier).
    - Implement backend logic to enforce usage limits based on a user's subscription status.