Solution Deck

Initiators

FLEX IT OUT

Problem Statement:

Staying fit while managing a packed schedule is tough. Most people struggle to find time and motivation for exercise, and even when they do, they often lack proper guidance and engagement.

Key Issues:

- People lose motivation due to repetitive workouts.

- Fitness solutions are not always accessible or beginner-friendly.

- There is no real-time feedback on exercise accuracy.

- A lack of social engagement makes it easy to quit.

Solution:

FLEX-IT-OUT is an AI-powered fitness platform that makes working out fun and interactive by using computer vision, gamification, and community engagement.

Our Solution to These Problems:

Lack of Motivation

- Gamified Scoring System: Users earn points and unlock achievements based on workout accuracy and consistency.

- Leaderboards & Challenges: Compete with friends and join fitness communities to stay engaged.

Limited Accessibility & Guidance

- AI-Powered Guided Workouts: Real-time feedback on posture and movement ensures users exercise correctly.

- Beginner-Friendly Tutorials: Step-by-step video and AI-driven instruction for every fitness level.

  No Real-Time Feedback

- Computer Vision Analysis: Uses OpenCV and MediaPipe to analyze movements and provide corrections.

- Instant Visual & Audio Cues: Helps users adjust form on the spot, reducing injury risk.

  Lack of Social Engagement

- Community Features: Users can form groups, share progress, and celebrate milestones.

- Live Challenges & Reactions: Compete in real-time fitness battles with friends and react to progress.

Solution Architecture Tech Stack & Justification:

Frontend: Next.js (React) - Fast, SEO-friendly, and great for server-side rendering (SSR).

Backend: Express.js - Lightweight, flexible, and handles API requests efficiently.

Database: MongoDB - Scalable NoSQL database that easily manages user and leaderboard data.

AI Processing: OpenCV, MediaPipe - Provides accurate real-time activity recognition.

Authentication: JWT-based Auth - Secure login and session management.

Deployment: AWS - Scalable, reliable, and cost-effective cloud hosting.

Key Features

- Real-time AI workout tracking

- Instant feedback to correct form

- Gamified scoring & progress tracking

- Leaderboards & group challenges

- Beginner-friendly guided workouts

- Daily challenges & streaks

- Scores & Levels

- Multi-device compatibility

- Live reactions, voice chat & sleek UI

- New Shuffled Workouts Everyday

- Sharable Stats (Viral factor)

User Experience:

- User signs up and creates a profile.

- Selects an exercise (e.g., Squats, Push-ups).

- Camera captures movement & AI tracks accuracy.

- User gets instant feedback & score updates.

- Joins leaderboard and competes with friends.

- Unlocks rewards, achievements, and social engagement.

- Data is stored to track long-term progress.

Deployment Strategy:

- Frontend: Hosted on Vercel for fast, hassle-free deployment.

- Backend: Runs on AWS, ensuring reliability and scalability.

- Database: Uses MongoDB Atlas for seamless data storage.

- Authentication: Secured with JWT-based authentication.

- AI Processing: Optimized to run efficiently on client devices.

Future Enhancements:

- Integration with Wearable Devices (Apple Watch, Fitbit)

- AI-Powered Personalized Fitness Plans

- New Exercise Categories & Workouts

- Virtual Reality-Based Workouts

- Syncing with Google Fit & Apple Health