

## **LEVL - Longevity Protocols App - Core Platform**

### **Company Description:**

LEVL is an AI longevity startup targeting the biology of aging to create novel nutraceutical formulations and personalized protocols to help people live longer, healthier lives.

By leveraging the tools of AI drug discovery to identify synergistic combinations of naturally derived ingredients, certain formulations are emerging that rival the potency of comparable pharmaceuticals without the side effects and regulatory timelines of traditional drug development. Our first Patented formulation using this process mimics fasting-induced cellular rejuvenation without the need for caloric restriction, and in our testing is comparable to the leading anti-aging pharmaceutical, Rapamycin.

We are commercializing these breakthroughs under the LIFESPAN+ brand to deliver foundational cellular support, tackling the root causes of age-related decline while providing immediate functional benefits of Energy, Sleep, Focus, Calm, etc.

Our companion app dynamically optimizes personalized longevity protocols based on users' biomarkers and qualitative feedback, effectively slowing their pace of aging.

Students will directly contribute to developing our open-source longevity knowledge graph, powered by the frontier of aging research and anonymized user data, to democratize anti-aging research in pursuit of LEVL's ultimate mission: Achieve Longevity Escape Velocity, and eliminate age-related disease.

**Preferred Team Size:** 4-5

**Location:** Remote - With virtual access to the team throughout the entire program

### **Project Summary:**

Objective:

Deliver the privacy-first data backbone of LEVL. The platform must (1) offer a seamless calendar-style workflow that motivates daily adherence, (2) guarantee that every raw signal remains encrypted on-device, and (3) stream only de-identified, research-grade features to downstream engines (Synergy, Matching, Pace-of-Aging, Modality SDK, DCT). Your work sets the reliability ceiling for every scientific claim LEVL makes.

Core Deliverable: Develop LEVL Protocol app Architectural Foundations and UI/UX

- **Modern, Intuitive Design Standard:** implement a clean, minimal visual language—consistent typography, ample white-space, adaptive dark/light themes, and micro-interactions—that renders seamlessly across web and mobile, and is documented in a shared design-token system (i.e. Figma+code) so every team can reuse the same UI primitives. (In Collaboration with LEVL Design team)

- Modular UI/UX Framework: responsive component library for web + mobile with accessible styling and motion guidelines
- Interactive Day-View Gestures: horizontal “now” timeline with pinch-zoom (hour → year) for a birds eye view and an in the moment look at users protocols
- Intuitive and fast protocol adherence verification: tap modality = done, double-tap logs “did now,” edit UI for back-dating; swipe-forward reschedule, swipe-up reject, long-press detail/edit; 3s after modality is deleted, undo option is visible.
- Customizable Calendar Integration: render modality events, auto-scroll to “now,” drag-and-drop rescheduling
- End-of-Day Review: checklist screen to confirm completions, annotate skipped items, reset daily state
- Custom Notification System: modality-aware reminders (push/e-mail/SMS) respecting quiet hours and local timezone
- Wearable & Sensor Integrations: ingest Apple Health, Google Fit, Oura, Garmin plus CSV fallback for CGM, EEG, Eight Sleep, Whoop, Strava, BP, light sensors
- Raw Sensor Data Handler: normalize disparate CSV headers/units to a unified, versioned schema
- Referral-Enabled Stack Links: generate sharable protocol URLs that append a referral code, track clicks → installs, and post referral events to the Monetization API.
- Influencer-Verified Stacks: add a “verified” badge and featured placement for curator-approved stacks pulled from an admin list.
- End-of-Day Feel Capture: extend the daily review screen with a single 1-to-10 overall-feeling slider stored alongside adherence data.
- Pre/Post Modality Prompt Flow: before and after scheduled modalities, prompt the user for 1-to-10 ratings on up to two auto-suggested metrics (e.g., energy, focus), with the option to add or customize additional metrics.

#### Data Privacy and Security:

- Secure Local Data Handling: encrypt all raw personal and health inputs at rest and keep them device-confined
- Privacy-First Cloud Ingestion: strip direct identifiers and transmit only de-identified aggregate feature vectors
- PII-Safe Pipeline: hash/salt quasi-identifiers and log every de-ID operation
- Modular Data API: expose stable, versioned endpoints for downstream engines to pull de-identified feature sets
- Model Distribution & Management: enable publication, versioning, and retrieval of biological-age / pace-of-aging models
- Plugin-Ready Connector Framework: abstract layer for adding integrations (wearables, sensors, clock models) without core rewrites
- Consent & Feature Toggles: dynamic controls for analytics opt-in, on-device/cloud sync, advanced privacy modes
- Telemetry & Auditability: capture ingest, de-ID, and model-fetch events; surface metrics in dashboards

- Future-Proof Compliance Layer: boundaries ready for federated learning or full HIPAA turn-on
- Scalable Managed Infrastructure: auto-scaling cloud primitives with minimal compliance overhead
- Automated Test Suite: unit + integration tests gating CI merges
- Protocol Stack Discoverability & Sharability: public, read-only URL for each user's stack (no raw health data).

#### Scientific Relevance:

High-integrity, de-identified longitudinal data is the limiting reagent for real-world longevity research. This platform guarantees that each downstream algorithm operates on trustworthy inputs while protecting user privacy—a prerequisite for any evidence-grade insight LEVL publishes.

#### Stretch Goals:

- Analytics & Error Telemetry: aggregate health checks and exception traces for rapid debugging
- Embed SDK for Influencer Courses: JavaScript/iFrame snippet that lets third-party course sites embed stack widgets and push adherence back to LEVL.
- Visual formulation potency throughout day: Visualize the potency half-life for supplement modalities based on opacity in the calendar, enabling informed supplement/modality stacking. Start with LIFESPAN+ formulations with known efficacy half-lives.
- Offline-first caching with conflict-free merge on reconnection
- White-label theming for external partners
- Prototype federated-learning orchestration stub
- Passes WCAG 2.1 AA accessibility,

The students will be involved in every phase of the project from design through implementation. During the design phase, the students will interact with LEVL researchers to collect requirements and scope the development effort into manageable tasks. They will also gain experience with agile product development in a fast-paced startup environment, using the RICE prioritization framework and collaborating closely with business stakeholders to guide decisions and maximize impact.

#### Desired Skill Set:

This project suits students comfortable with modern full-stack development. Front-end strength in React or React Native, competence with typed state management, and experience designing gesture-rich mobile UIs will accelerate progress. On the back end, familiarity with a Python or TypeScript API framework (e.g., FastAPI, tRPC) and schema-driven APIs (OpenAPI/GraphQL) is valuable. Skills in data-encryption practices, basic cloud-infrastructure-as-code, and automated testing (Jest, Playwright) are assets. Prior work with OAuth/OIDC and third-party health APIs (or any major OAuth-based integration) will help—but curiosity, clear code structure, and respect for privacy principles are paramount.

**Student Benefits:**

1. Students gain end-to-end experience turning high-fidelity product designs into a responsive, privacy-first health app used daily by real users—a portfolio piece that showcases both aesthetic polish and secure data engineering.
2. Gain hands-on experience with frontier models, scientific literature parsing, knowledge graph construction, and health optimization.
3. Enjoy creative freedom to design and solve open-ended, high-impact problems that push the frontiers of human life extension.
4. Each team will ship an independent, modular contribution with clear ownership and a path to public demo or open-source release.
5. Top-performing students may be invited to continue working with LEVL or be referred to partner startups in the healthtech and AI space.
6. Complimentary LIFESPAN+ products to improve sleep, boost energy & focus, and mitigate the effects of stress.

**IP Rights:**

Students will be asked to sign a proprietary information and intellectual property assignment agreement. Intellectual property rights to all code, data, and documentation will be retained by LEVL, Inc.

**Contact Information:**

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