

1. Project Overview

Product Name: CareLink (Working Name)

Goal: A smart health monitoring & emergency response platform integrating wearable devices, AI health analytics, real-time doctor notifications, and on-demand medicine delivery (like Ola/Rapido but for healthcare).

Target Users:

- Elderly living alone
 - People living far from family
 - People with chronic conditions (heart, diabetes, respiratory)
 - Remote workers in isolated locations
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2. Objectives

1. **Continuous Health Monitoring** — Collect vitals from wearables (heart rate, oxygen saturation, ECG, temperature, movement).
 2. **Early Disease Detection** — AI models detect abnormalities or patterns.
 3. **Emergency Response** — Nearby verified doctors alerted instantly in critical cases.
 4. **Medicine Delivery** — Integration with local pharmacies & delivery services.
 5. **Privacy & Security** — HIPAA/GDPR compliant data handling.
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3. Key Features

User Side (Patient App)

- Connect wearable device (Fitbit, Apple Watch, Mi Band, etc.)
- Real-time health dashboard
- 1-tap SOS alert
- Medical history storage
- Consent management for data sharing
- Doctor feedback & prescription view
- Medicine ordering & delivery tracking

Doctor Side (Doctor App/Web)

- Patient alert dashboard (critical cases on top)
- Live vitals feed during emergency

- Option to accept/reject case
- Video consultation integration
- Digital prescription system
- AI-assisted data interpretation

Admin Panel

- Doctor onboarding & verification
 - Pharmacy & delivery partner management
 - Incident & alert logs
 - Analytics dashboard
 - Privacy compliance settings
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4. How It Works

Flow

1. Data Collection

- Wearable sends vitals → Mobile app → Secure Cloud.

2. AI Health Analysis

- Models trained to detect anomalies (e.g., low oxygen, irregular heart rate).
- Severity score calculated.

3. Doctor Alert

- If severity > threshold, nearest verified doctor notified (Uber-style availability system).
- Doctor reviews data → approves action.

4. Response Options

- Doctor sends prescription online.
- Medicine auto-ordered from nearest pharmacy & delivered (like Rapido/Ola model).
- If critical → ambulance & on-site visit triggered.

5. Follow-up

- Patient notified of next check-up.
 - Doctor submits consultation notes.
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5. Privacy & Security

Principles:

- Collect **only necessary data** (minimize risk).
 - Encrypt **in transit** (TLS/SSL) and **at rest** (AES-256).
 - Store in **HIPAA/GDPR-compliant servers**.
 - Access control:
 - **Role-based** (Patient sees their own data, Doctor sees assigned patients).
 - **Consent screen** before sharing data with a doctor.
 - **Audit logs** for every data access.
 - Anonymize data for AI training (no names, contact details).
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6. Tech Stack

- **Frontend:** React Native (cross-platform mobile app)
 - **Backend:** Python (FastAPI/Django)
 - **Database:** PostgreSQL (encrypted), Redis for real-time alerts
 - **AI Models:** TensorFlow / PyTorch
 - **Cloud:** AWS (HIPAA-compliant services)
 - **Wearable Integration:** Fitbit API, Apple HealthKit, Google Fit
 - **Delivery Integration:** Ola/Rapido API, Dunzo API
 - **Video Call:** WebRTC or Twilio
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7. Development Phases

Phase 1 (3–4 months, MVP)

- Patient app with wearable integration
- Doctor app for alert review
- Admin panel for onboarding doctors
- AI anomaly detection (basic rules-based + ML)
- Simple delivery partner API integration

Phase 2 (4–6 months)

- Advanced AI disease prediction
- Automated medicine order flow

- In-app video consultations
- Offline mode for rural areas

Phase 3 (6+ months)

- Custom wearable hardware
 - Nationwide scale with multi-language support
 - Integration with insurance providers
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8. Cost Estimate (MVP)

Item	Cost (USD)
Mobile App Development	\$8,000–10,000
Backend & AI Infrastructure	\$5,000–8,000
Wearable API Integration	\$2,000
Doctor & Delivery Partner Apps	\$4,000–6,000
Cloud Hosting & Storage (6 mo)	\$1,500–2,000
Security & Compliance Setup	\$1,500
Total (MVP)	~\$22,000–29,000

9. Risk Mitigation

- **Technical Risk:** Start with third-party wearable APIs to avoid hardware complexity.
 - **Operational Risk:** Partner with existing pharmacies & delivery networks instead of building your own.
 - **Privacy Risk:** End-to-end encryption & user consent flow in MVP.
 - **Financial Risk:** Launch pilot in 1 city → scale after proof of success.
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10. Success Metrics

- **User adoption rate** (monthly new users)
- **Number of successful emergency responses**
- **Average doctor response time**
- **User retention rate**
- **Incidents where early detection prevented hospitalization**