Product Requirements Document (PRD)

Product Name: CareLink
Version: 1.0 (MVP)
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Date: 11 Aug 2025

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1. Overview

Purpose
CareLink is a real-time, AI-powered health monitoring and emergency response platform, designed for vulnerable individuals living alone, away from family, or without immediate caregivers. By integrating wearable devices (like smartwatches), AI-driven health analytics, geo-location-based doctor dispatch, and on-demand medicine delivery, CareLink ensures that critical health events are detected early, verified by licensed doctors, and acted upon instantly.

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2. Problem Statement

Millions of elderly, single, or remote-working individuals experience medical emergencies without timely intervention. Traditional wearables only **collect data**, but do not **automate intervention**. Telemedicine platforms require manual engagement by the patient — not possible during critical events.

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3. Goals & Objectives

- **Goal 1:** Detect early signs of medical emergencies using AI-based vital monitoring.
- **Goal 2:** Notify and connect with nearby verified doctors automatically.
- **Goal 3:** Enable real-time remote doctor assessment and prescription.
- **Goal 4:** Arrange instant medicine delivery or emergency visits via local healthcare professionals.
- **Goal 5:** Maintain **patient privacy** using **Edge + Cloud hybrid AI**.

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4. Target Users

- **Primary:**
    - Elderly individuals living alone.
    - Remote workers away from families.
    - People with chronic diseases (e.g., heart disease, diabetes).

- **Secondary:**
    - Freelance doctors, paramedics, and pharmacists.
    - Healthcare delivery agents.

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5. Core Features

5.1 AI Vitals Monitoring

- Continuous real-time monitoring via smartwatch sensors (heart rate, SpO2, ECG, temperature, etc.).
- AI-based risk grading: **Green** (Normal), **Yellow** (Warning), **Red** (Critical).
- Adaptive health baseline per user.

5.2 Doctor Verification Workflow

- Automatic doctor assignment based on geo-location and specialization.
- Doctor receives real-time vitals dashboard.
- Doctor confirms diagnosis and prescribes next steps.

5.3 Emergency Response

- Auto-trigger ambulance or freelance doctor dispatch (like Ola/Rapido model).
- Medicine delivery linked to doctor's prescription.

5.4 Privacy & Security

- **Edge AI:** Most processing on the device.
- **Cloud AI:** Advanced analysis without exposing raw data.
- GDPR/HIPAA compliance.

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6. Competitive Analysis

Feature	CareLink	Apple Watch + Health Apps	Practo / MFine	Apollo / Netmeds	Ola / Rapido Model
Continuous AI vitals monitoring	✅ Yes	⚠️ Partial	❌ No	❌ No	❌ No
AI risk grading (Yellow/Orange/Red)	✅ Yes	❌ No	❌ No	❌ No	❌ No
Doctor verification before treatment	✅ Yes	❌ No	✅ Yes	✅ Yes	❌ No
Geo-based freelance doctor dispatch	✅ Yes	❌ No	❌ No	❌ No	✅ Yes (rides only)

Feature	CareLink	Apple Watch + Health Apps	Practo / MFine	Apollo / Netmeds	Ola / Rapido Model
Medicine delivery linked to doctor approval	✅ Yes	❌ No	⚠️ Partial	✅ Yes	❌ No
Edge + Cloud AI for privacy	✅ Yes	❌ No (Cloud only)	❌ No	❌ No	❌ No
Self-updating health baseline	✅ Yes	⚠️ Limited	❌ No	❌ No	❌ No
Silent health check-in for vulnerable users	✅ Yes	❌ No	❌ No	❌ No	❌ No
One app → detection to delivery	✅ Yes	❌ No	❌ No	❌ No	❌ No

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7. Unique Value Proposition (UVP)

"CareLink is the only platform that can detect, verify, and act on medical emergencies automatically — from AI health tracking to verified doctor intervention and medicine delivery — all in one seamless ecosystem."

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8. Technical Architecture (High-Level)

Front-End:

- React Native (Mobile App for Patients & Doctors)
- Progressive Web App for desktop access

Back-End:

- Python (FastAPI / Django) for API services
- WebSockets for real-time updates
- AI Engine (TensorFlow Lite for Edge, PyTorch for Cloud)

Hardware:

- Compatible smartwatches with health sensors
- BLE for data sync

Database:

- PostgreSQL (user & medical records)
- TimescaleDB (time-series vitals data)

Third-Party Integrations:

- Google Maps API (Doctor geo-location)
- Payment Gateway (Medicine purchase)

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9. Risks & Mitigation

Risk	Impact	Mitigation
False positives in AI alerts	Medium	Continuous AI model tuning with large datasets
Data privacy breach	High	End-to-end encryption + Edge AI processing
Doctor availability	Medium	Maintain pool of verified freelance doctors
Hardware reliability	Medium	Partner with certified smartwatch vendors

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10. Cost Estimate (Demo MVP)

Item	Estimated Cost
Smartwatch device (Dev Kit)	₹5,000 – ₹10,000
Mobile & Web App Dev	₹1.5–2.5 Lakhs
AI Model Training	₹50,000 – ₹1 Lakh
Cloud Hosting	₹5,000 – ₹15,000 / month
Marketing & Pilot Testing	₹50,000+

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11. Roadmap (MVP)

1. **Month 1:** Hardware + sensor integration
2. **Month 2:** AI vitals tracking & risk grading
3. **Month 3:** Doctor dashboard + geo-dispatch
4. **Month 4:** Medicine ordering & delivery
5. **Month 5:** Privacy & compliance checks
6. **Month 6:** Pilot testing & feedback