10,000

Patients/day throughput scale

Full-Stack Engineering, Applied AI Systems & Product Design.

2026, India.

AutoFlow

The Operating System for Hospital OPDs.

AutoFlow is the real-time operational layer for Indian hospital OPDs—bringing mission-control precision to the front door of healthcare.

India’s OPD Bottleneck

2–4+ hours

Wait time for 3-minute consult

VOLUME

Tertiary government hospitals process **3,000–10,000 outpatients daily.**

FRICTION

Patients wait **2–4+ hours** for a **3–5 minute consultation.**

BLINDSPOTS

Administrators lack **real-time visibility into flow, stuck patients, or revenue leaks.**

COMPLEXITY

Ayushman Bharat claims add **complexity that paper-based systems fail to process.**

CONSTRAINT

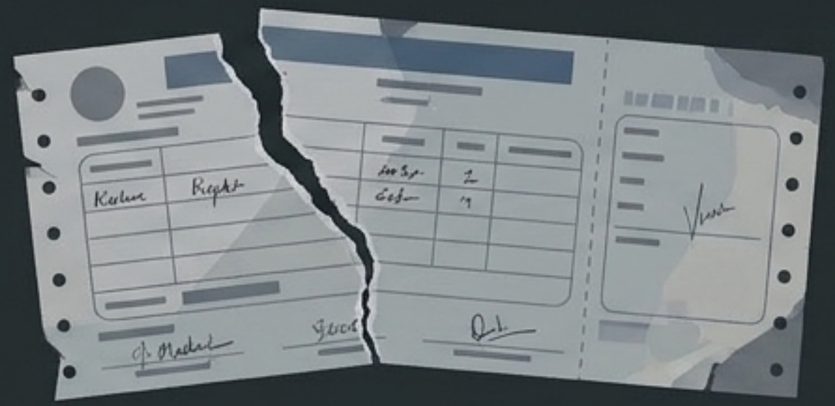
Throughput, not clinical skill, is the binding constraint on the floor.

The outpatient floor is blind; administrators cannot see the airspace, and throughput degrades into noise.

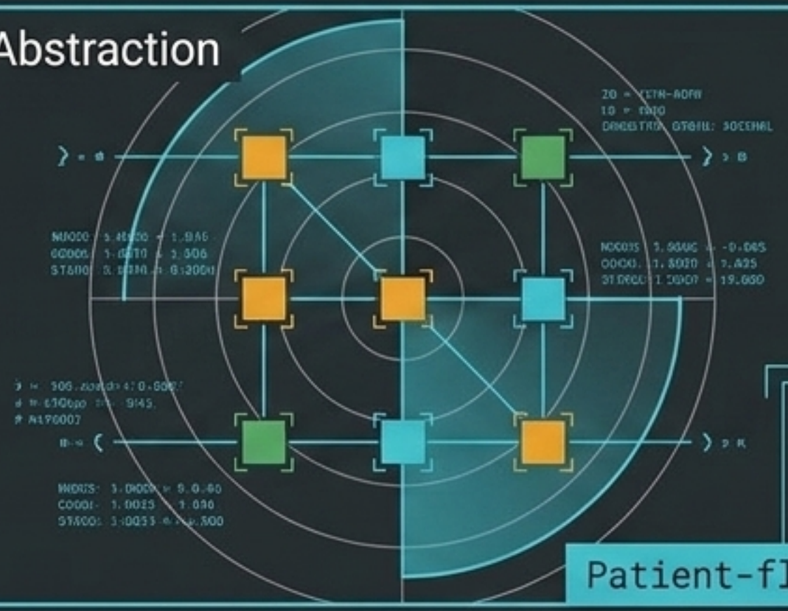
OPDs Are Distributed Systems

CORE IDENTITY	An outpatient department is a real-time distributed system.
LEGACY STATE	Currently, it pretends to run on paper tokens and manual shouting.
SYSTEM REQUIREMENT	It requires real-time measurement, rigid orchestration, and high legibility.
THE PIVOT	Paper tokens are offline data; they must become live state.

Analog Reality



Digital Abstraction



10

Patient-flow states

We treat a chaotic 9am hospital floor the way an F1 team treats a race: a live system that must be measured and orchestrated.

One Live Source of Truth

9

Role-based consoles

STATE MACHINE

Models the entire OPD as an event-sourced finite state machine.

TOKEN TRACKING

Tracks patients as live tokens moving across ten strict states.

SYNCED INFRASTRUCTURE

Deploys nine role-based consoles synchronized via WebSockets.

TRAFFIC CONTROL

Routes clinical load using a fairness-aware scheduling engine.

RADAR ASSIST

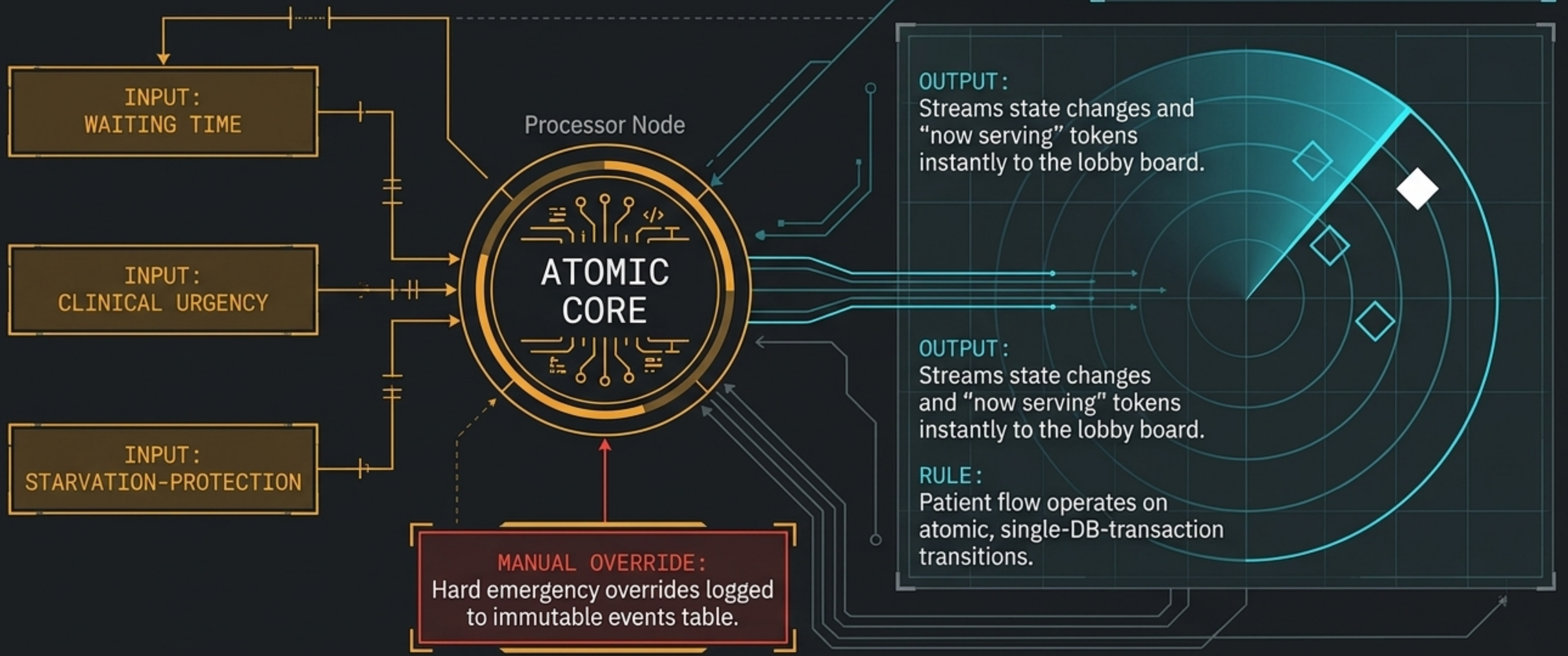
Integrates AI solely as human-confirmed augmentation.

Every patient is an inbound track on a strict state machine, visible instantly across nine synced instrument panels.

The Fairness-Aware Scheduler

Real-time

WebSocket sync across every screen



Transitions are atomic; the scheduler weighs clinical severity against wait times to prioritize the next runway clearance.

Nine Roles, One Shared Picture

1

Single source-of-truth state machine

RECEPTION & INTAKE | QR-issued multilingual chatbots pre-fill the doctor.

NURSE STATION | Records vitals, clears MEWS triage banners.

DOCTOR CONSOLE | Receives AI clinical briefs, prescribes, and issues dual summaries.

LAB & PHARMACY | Processes orders, checks deterministic safety flags, and dispenses.

ADMIN DASHBOARD | Monitors live floor flow, ghost alerts, revenue, and AI limits.

From the reception threshold to the public lobby display, every controller sees exactly their required operational slice.

Machine-Accelerated, Human-Confirmed

100%
Human-confirmed AI (zero auto-commit)

CAPABILITY SCOPE	Triage, clinical briefs, and vision OCR extract structured parameters.
OUTPUT GENERATION	Generates dual discharge summaries (clinician record + patient-friendly text).

HUMAN FIREWALL LAYER

CONSTRAINT 01 (SAFETY)

Strict rule: zero auto-commit. Output strictly requires human Accept/Override.

✓ ACCEPT ✕ OVERRIDE

CONSTRAINT 02 (AGNOSTIC)

Provider-agnostic routing (Gemini, Groq, Ollama) blocks vendor lock-in.

✓ ACCEPT ✕ OVERRIDE

CONSTRAINT 03 (PRIVACY)

Redacts PII before prompts exit the firewall; enforces per-facility kill-switches.

✓ ACCEPT ✕ OVERRIDE

The AI acts as radar assist—it proposes a routing, but the human controller always physically clears it for landing.

Real-Time Sync, Exact State

Paisa-exact

Decimal billing + Ayushman claims

[ARCHITECTURE]

FastAPI, PostgreSQL state machine, React 18 SPA, native WebSockets.

[CONCURRENCY]

Relies on row-level locking (SELECT ... FOR UPDATE NOWAIT).

[ECONOMICS]

Handles money as exact Decimal (paisa-accurate) via PostgreSQL generated columns.

[AUDITABILITY]

Maintains an append-only audit log serving as the OPD's flight recorder.

[POSTURE]

Enforces per-facility multi-tenant data isolation and Aadhaar encryption at rest.

The backbone is an append-only event log with exact-decimal billing, engineered to prevent prevent state collisions.

Live Orchestration, Not An EMR

3

AI providers · 3 languages

PASSIVE EMR

LIGHTWEIGHT TELEHEALTH

[THE SPACE]

Operates as the active execution layer, not a static telehealth app or passive EMR.

[THE ENVIRONMENT]

Built natively for Indian public hospitals (Ayushman claims, multilingual).

[THE DEFENSE]

Human-confirmed AI logic defends against CDSCO and DPDP regulatory risks.

[THE MECHANICS]

Executes on real-time event logs, abandoning legacy batch-update architectures.

This is not a digital filing cabinet; it is the active air-traffic control layer the hospital actually runs on.

Audited, Hardened, Live Deployed

CLEAR CLEAR CLEAR CLEAR

283
Automated backend tests, green

[INFRASTRUCTURE] Deployed and verified live end-to-end on Vercel edge SPA and Render.

[VERIFICATION] Hardened via multi-agent code review for domain logic and data integrity.

[BUILD QUALITY] Frontend ships type-clean and lint-clean as a production PWA.

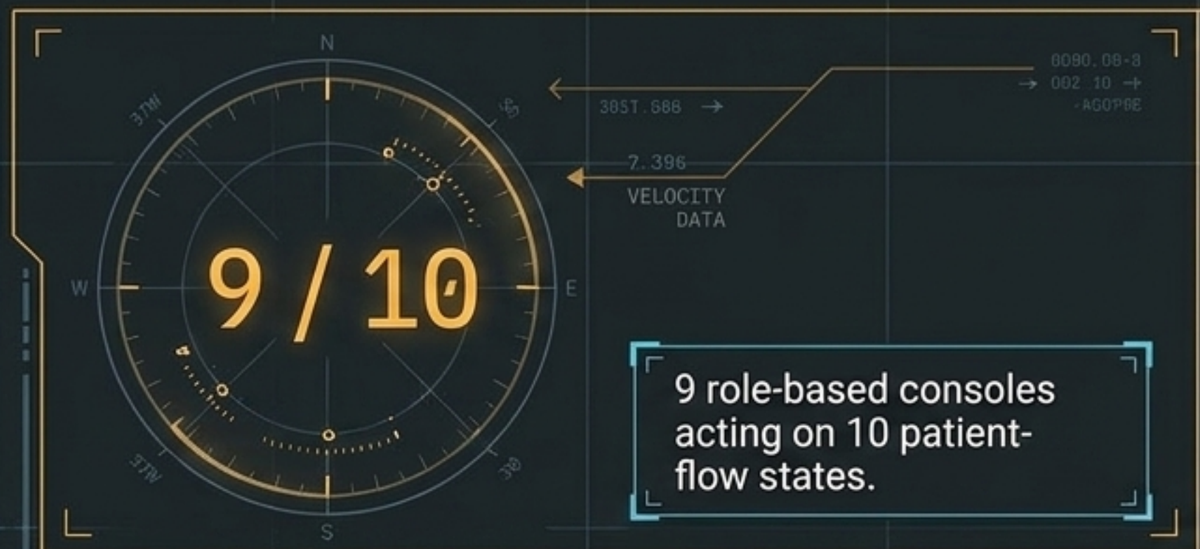
[RESILIENCE] Offline-first mutation queue via IndexedDB ensures floor resilience.

The system is fully tested, multi-agent audited, and live-deployed with an offline-first PWA fallback.

System Telemetry And Benchmarks

< 100 ms

Deterministic pharmacy safety flags



9 role-based consoles acting on 10 patient-flow states.

Deterministic pharmacy safety flags resolve in under 100 milliseconds.

100% human-confirmed AI operates securely across 3 distinct languages.

Paisa-exact decimal billing tracks Ayushman claims from draft to approval.

Telemetry confirms the speed, safety, and exactness required to run public hospital scale.

Adaptive Scheduling And On-Premises

100 Visits to activate adaptive scheduling

[MACHINE LEARNING]
Data-gated ML activates adaptive per-doctor scheduling and no-show prediction.

[SCALE]
Targeting multi-facility analytics and benchmarking.

[INTEROPERABILITY]
Integrating ABDM (national health-stack) interoperability.

[ENTERPRISE]
Expanding on-prem deployments via Ollama for localized inference.

LIVE ACCESS: URL and demo credentials ready for immediate evaluation

autoflow-opd.vercel.app

As the system accrues flight data, adaptive machine learning activates, closing the loop on hospital efficiency.