

# AI for Bharat Hackathon

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Team Name : PleaseOfferMeAJob

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Problem Statement : India's rural healthcare system relies on unstructured, multilingual paper records, leading to fragmented patient histories, delayed insurance claims, and increased fraud.

## Brief About the Idea:

### The Problem:

- Rural clinics rely on handwritten, multilingual medical records
- Insurance TPAs manually verify inconsistent claim documents
- No structured patient history → delays, errors, fraud

### Our solution is an AI system that can:

- Converts English & Telugu medical documents into structured clinical events
- Builds a chronological patient health timeline
- Detects suspicious insurance claim patterns
- Runs on low-cost Docker infrastructure (cloud-scalable later)

### Vision:

Create a structured, fraud-aware digital health intelligence layer for rural India.

# Differentiation, Problem Solving & USP

## How Are We Different?

- Not just OCR or document storage
- Converts documents into structured clinical events
- Builds a longitudinal patient timeline
- Integrates fraud detection within the same pipeline
- Designed specifically for rural + multilingual India

## How We Solve the Problem

1. Extract medical entities from English & Telugu documents
2. Normalize and structure data into clinical events
3. Generate chronological patient timelines
4. Run fraud detection rules during claim validation

## USP (Unique Strengths)

- Event-based patient memory model
- Healthcare + fraud in one unified system
- Low-cost Docker deployment
- Cloud-ready, scalable architecture

# Core Capabilities

## 1. Multilingual Document Processing

- Supports English & Telugu prescriptions, lab reports, bills

## 2. Clinical Event Extraction

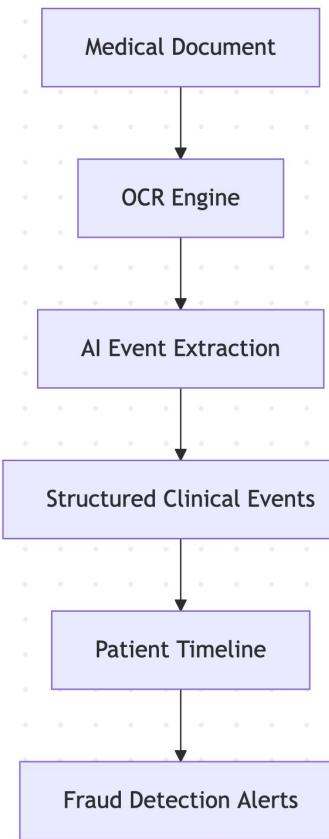
- Diagnosis
- Medication
- Lab Results
- Hospital Visits

## 3. Automated Patient Timeline

- Chronological health history
- Queryable by condition or date

## 4. Insurance Fraud Detection

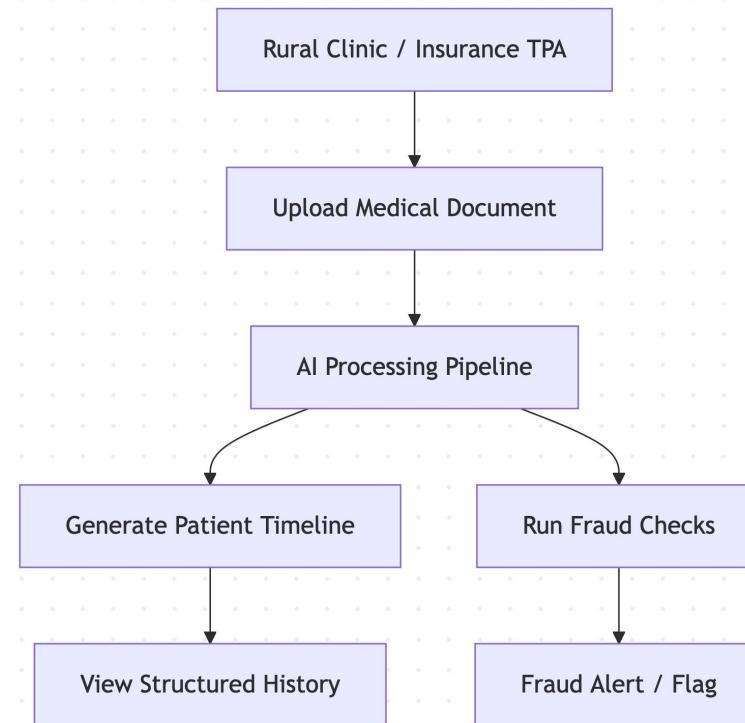
- Duplicate billing detection
- Suspicious claim pattern alerts
- Missing document flags



# Process Flow Diagram

## End-to-End Workflow:

1. Clinic / TPA uploads medical document
2. OCR extracts multilingual text (English / Telugu)
3. AI engine converts text into structured clinical events
4. Events stored in patient event database
5. Timeline generated automatically
6. Fraud rules executed during claim validation
7. Structured output + alerts displayed



## ClaimFlow

Medical Claims AI

Search claims, patients...

Quick Actions

New Claim Filter

Claims Processing

New Claim Start Here

Processing Queue 3

Verification 5

Completed 12

Analytics

Dashboard

Financial Reports

Medical Insights

Management

All Claims

Favorites

Quick Actions

Claim #CF-2024-001 | Dashboard Overview

Quick Actions   ...

## Dashboard

Overview of your medical claims processing

New Claim  New Claim

Total Claims   1,247   +12% from last month  12%

Approval Rate   87.3%   +2.1% from last month  2.1%

Avg Processing Time   2.4 min   -15s from last month  8%

Total Savings   \$2.4M   +18% from last month  18%

Processing Status

Category	Progress (%)
Upload Queue	15%
Processing	45%
Verification	75%
Completed	90%

Recent Claims

- CF-2024-001 John Smith - Appendectomy \$10,075
- CF-2024-002 Sarah Johnson - MRI Scan \$2,500
- CF-2024-003 Mike Davis - Surgery \$15,000

Claim Processing Timeline

0% Complete

Document Upload completed   Document Upload  completed

Medical documents received and validated

View >

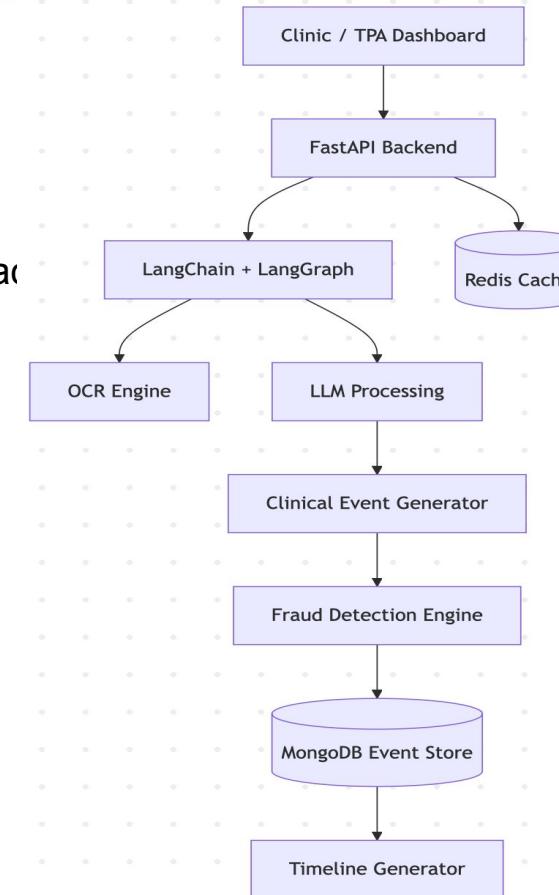
System Performance

Real-time processing metrics

AI Accuracy  Built with  98.5%

# High-Level Architecture Overview

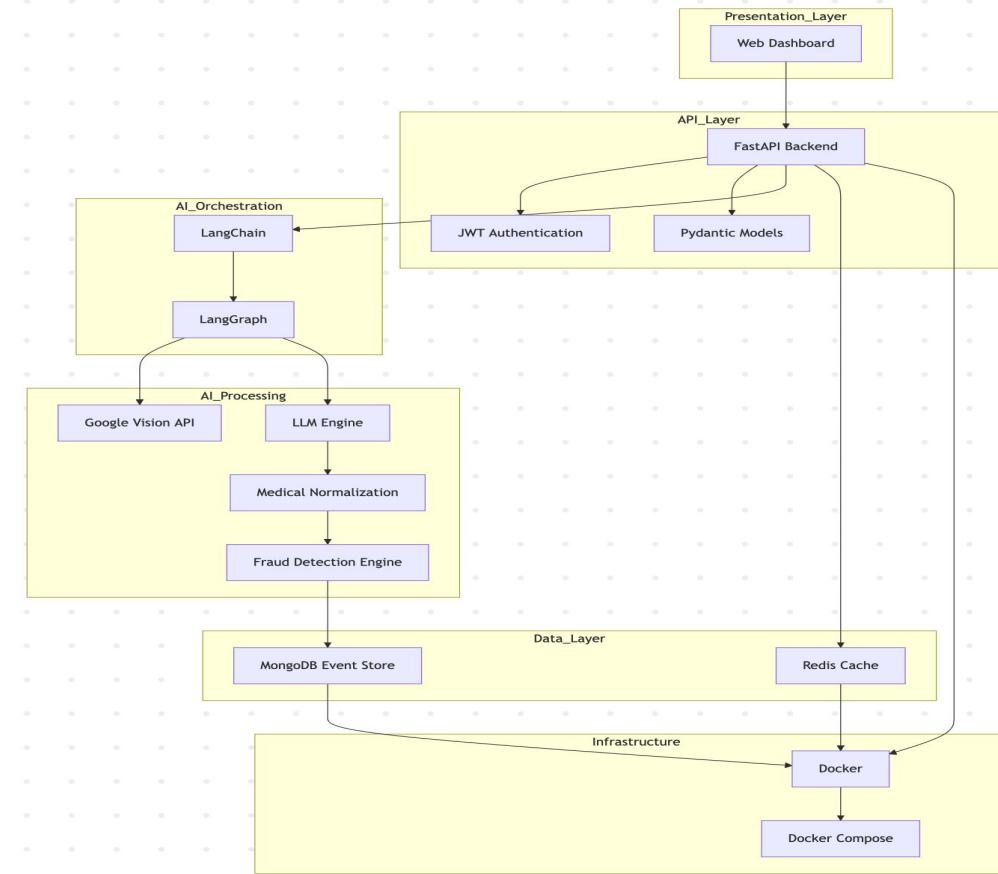
- Frontend Dashboard (Clinic / TPA Interface)
- FastAPI Backend (API Layer)
- LangChain + LangGraph (AI Orchestration)
- OCR Engine (Google Vision – Replaceable with AWS Textract)
- LLM Engine (OpenAI / Bedrock / Local LLM)
- MongoDB (Event Store)
- Redis (Caching / Task Handling)
- Docker Compose Deployment



# Technologies Used

## Why This Stack?

- Fast to build within 48 hours
- Cost-efficient for MVP
- Modular and cloud-replaceable
- Scalable to AWS when required



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Thank You

