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AI for Impact Hackathon

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Team Name : **INSIDER**

Team Leader Name : **Manthan Belani**

Which domain does your idea address? (Agriculture / Healthcare / Skilling / Education): **Healthcare**

What is the problem you are solving? (50 words max)

Lack of Awareness & Access to Healthcare Schemes

- Many citizens, especially in rural and underserved communities, are unaware of available healthcare schemes.
- Complex eligibility criteria make it difficult for individuals to determine which schemes they qualify for.
- Lengthy and bureaucratic application processes discourage participation.
- Lack of interoperability across various Digital Public Infrastructures (DPIs) makes access and verification cumbersome.

Describe your solution. How different is it from any of the other existing ideas? How will it be able to solve the problem? USP of the proposed solution? What is the intended impact of your solution (max 350 words).

AI-Powered Healthcare Scheme Awareness & Accessibility Platform

Our platform leverages AI to enhance access to healthcare schemes through:

Automated Eligibility Mapping: Uses AI to assess user eligibility based on demographics, income, health conditions, and other factors.

Increased Awareness: Provides personalized recommendations for Central & State government healthcare schemes.

Simplified Application Process: AI-powered automation assists users in completing and submitting applications.

Interoperability with DPIs: Integrates with existing public infrastructure to enable seamless document verification and access.

Who is the primary user of your solution, and explain how your solution will leverage open-source AI to address the aspects mentioned in the [Key Design Guidelines](#) (max 200 words).

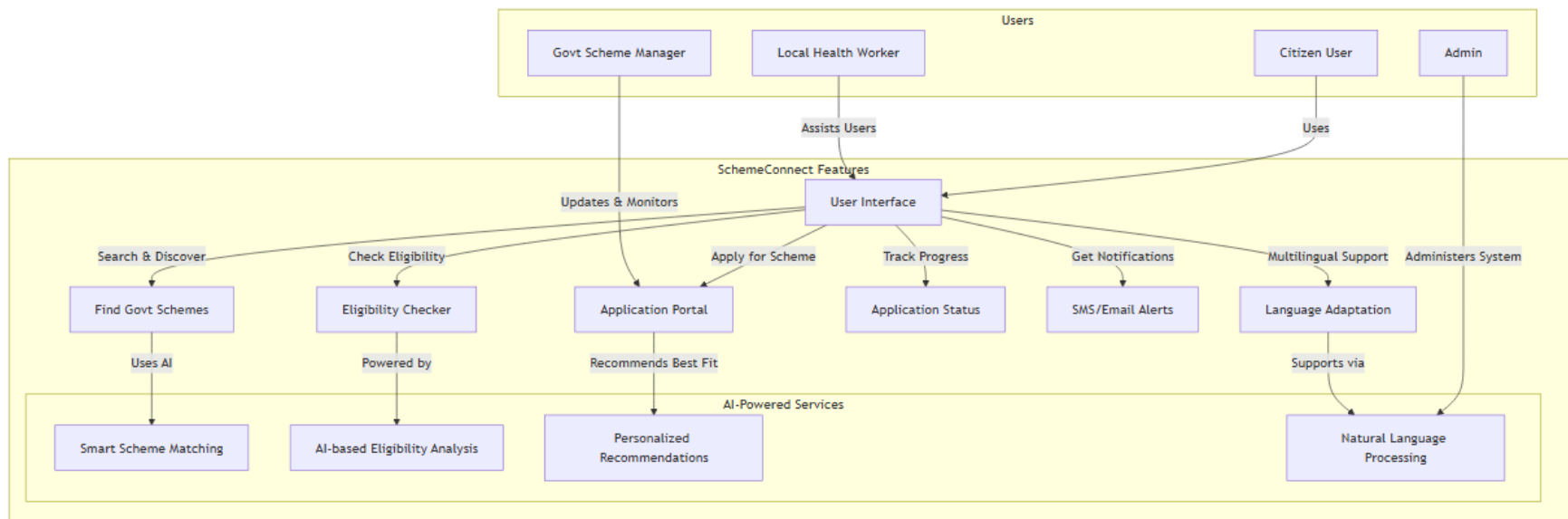
Our solution's primary user are the citizens which are resides in the rural area which doesn't have the access of the all latest schemes of government for healthcare and their awareness related to that. Also the healthcare workers can use it for the register citizen who doesn't have mobile devices or internet connectivity, they also use our solution to educate about the health related schemes and some tips to complete registration of users.

How is this solution scalable? (100 words max)

- **Cloud-Based & Mobile-Friendly:** Ensures accessibility on smartphones and web browsers.
- **Modular Design:** Can be expanded to include other social welfare schemes (e.g., food security, education).
- **APIs for Integration:** Can integrate with state and central government databases.

List of features offered by the solution

It is always better to add a few visual representations (drawings/sketches/illustrations etc.) to your presentation, it adds to the power through which it reaches the audience.



What open-source AI tools and technologies will you use to design the solution?
(Please list all.)

- **BERT / GPT Models** – For Natural Language Processing (NLP) in multiple languages.
- **ML-Based Recommendation Engine** – To suggest the most relevant schemes.
- **OCR & Document Verification** – For extracting and verifying documents.
- **Chatbot (Rasa/Google Dialogflow)** – To assist users in their local language.
- **Frontend-** Next.js with PWA capabilities for server-side rendering and enhanced performance.
- **Backend-** Python with FastAPI for high-performance API development.
- **AI Agents-** LangChain framework for orchestrating AI workflows.
- **LLM Integration-** Gemini 2.0 for natural language understanding and generation.
- **Database-** PostgreSQL for structured data with JSON support for scheme details
- **Vector Database-** FAISS for efficient similarity search of scheme information
- **Authentication-** OAuth2 with JWT for secure user authentication
- **Containerization-** Docker for consistent deployment
- **Cloud Hosting-** Azure App Service for scalable web hosting
- **Offline Support-** Next.js PWA plugin with service workers for offline functionality

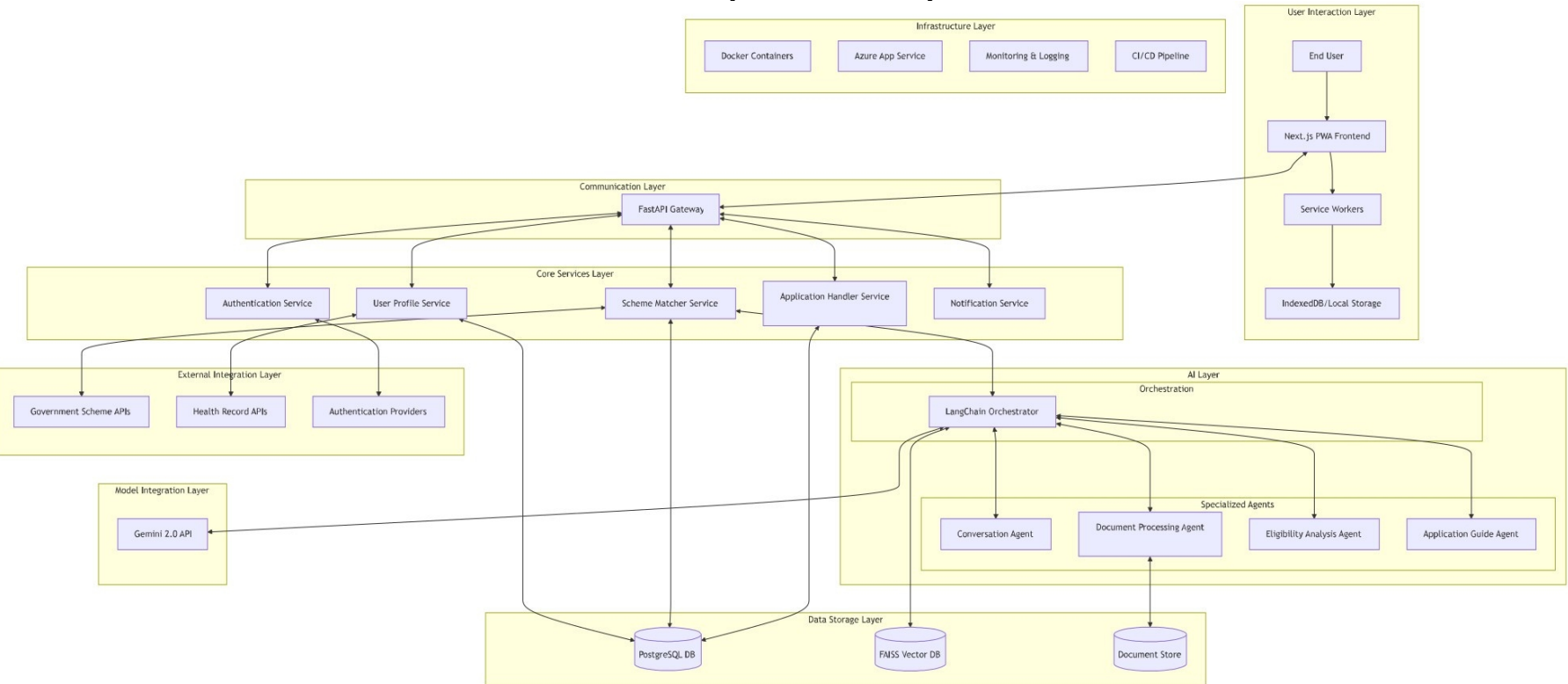
- **Voice Interface-** Web Speech API for multilingual voice interactions.
- **Analytics-** Mixpanel for user journey tracking and optimization.
- **Multi-language Support-** next-i18next for localization.
- **Document Processing-** PyTesseract for document scanning and verification.

Why are these open-source technologies the most appropriate for your solution? (150 words max)

These technologies offer a **cost-effective, scalable, and secure** solution for healthcare scheme accessibility.

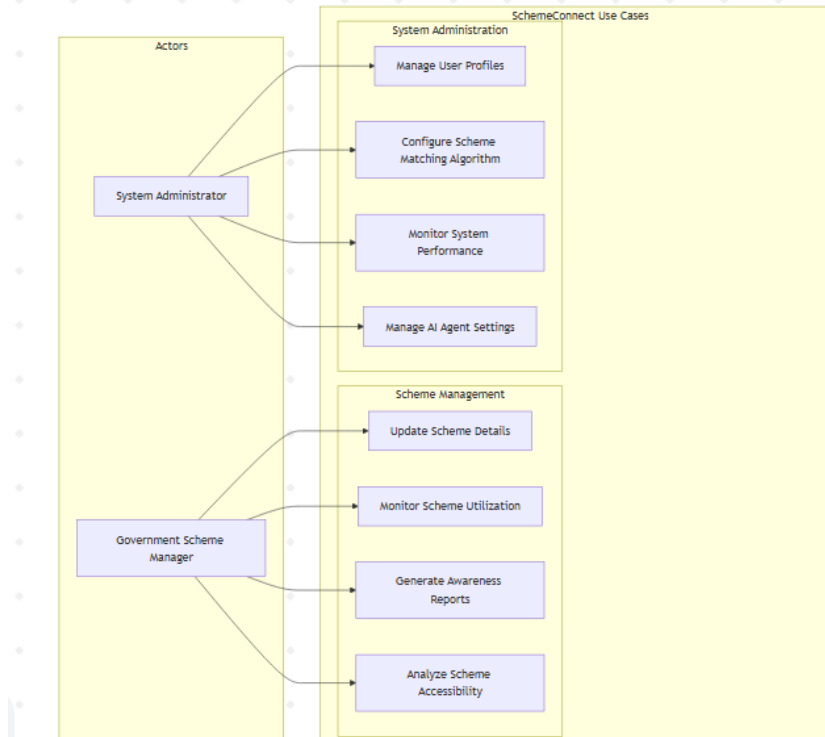
BERT and spaCy enable **smart eligibility matching**, while **Rasa** powers a **multilingual AI chatbot**. **Tesseract OCR** ensures **document verification**, and **FastAPI/OpenAPI** allow **seamless integration** with government databases. **Flutter and Django** provide a **user-friendly platform**, while **OpenSSL** ensures **data security**. Together, they create an **automated, accessible, and privacy-compliant** solution for underserved communities.

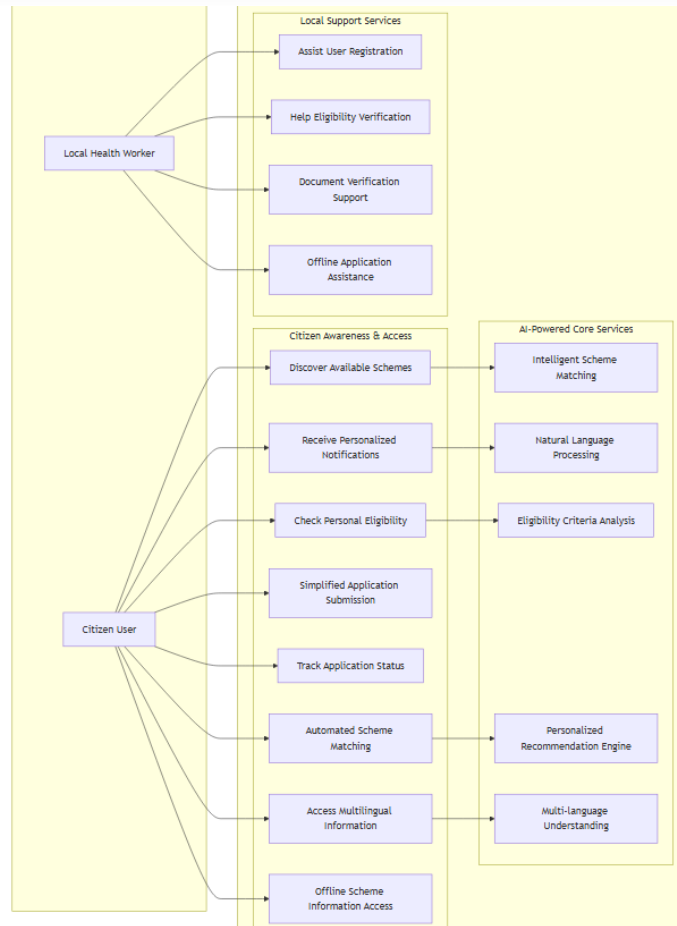
Describe the Solutions Architecture (500 words)



- **User Interaction Layer-** Where users engage with the application through the Next.js PWA frontend, with service workers enabling offline functionality.
- **Communication Layer-** The FastAPI gateway that serves as the central entry point for all client-server communications.
- **Core Services Layer-** Essential services that handle user authentication, profile management, scheme matching, application processing, and notifications.
- **AI Layer-** LangChain orchestrates specialized AI agents that handle conversations, document processing, eligibility analysis, and application guidance.
- **Model Integration Layer-** Integration with Gemini 2.0 for natural language processing capabilities.
- **Data Storage Layer-** Various data stores including PostgreSQL for structured data, FAISS for vector embeddings, and a document store.
- **External Integration Layer-** Connections to external systems like government APIs, health record systems, and authentication providers.
- **Infrastructure Layer-** The underlying technical infrastructure supporting deployment, hosting, monitoring, and continuous integration/delivery.

Provide a high-level architecture diagram or a use-case diagram of your proposed solution





What datasets will your solution use? Are they publicly available, synthetic, or user-generated?

- Publicly available government healthcare scheme databases.
- User-generated application data.
- Synthetic datasets for AI model training (privacy-preserving).

Does your solution require cloud-based computation, or can it work with on-device processing? If cloud-based, how do you plan to address connectivity challenges and cost constraints?

The **SchemeConnect** solution supports both **cloud-based computation** and **on-device processing**, depending on the use case. A cloud-based approach enables **real-time AI processing, large-scale data storage**, and **government database integration**, ensuring users get updated scheme details and AI-driven matching. Challenges like **connectivity issues** and **cost constraints** can be managed with **local caching, PWAs for offline access, and serverless architecture (AWS Lambda, Firebase)** for cost efficiency. For **remote users with limited internet**, **on-device processing** allows **basic eligibility checks** and **offline scheme access** using **lightweight AI models** (e.g., TensorFlow Lite). This ensures faster response times and reduced cloud dependency, with challenges like **storage and processing limits** addressed through periodic local updates and optimized AI models.

Brief description of your Idea (100 words)

SchemeConnect is a progressive web application that leverages AI agents to bridge the gap between citizens and healthcare schemes. Users interact with our intelligent virtual assistant powered by Gemini 2.0, which collects essential information through natural conversation, then matches them with relevant government healthcare schemes. The system generates personalized eligibility reports, provides step-by-step application guidance, and document checklists. Our AI agents continuously learn from user interactions to improve recommendations. SchemeConnect functions offline in low-connectivity areas and supports multiple Indian languages, ensuring that all citizens—regardless of digital literacy—can access healthcare benefits they're entitled to.



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