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AI Government Assistant

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ABSTRACT

AI Government Assistant is proposed as a single digital platform that helps citizens find and understand government schemes and services without having to move between multiple service portals. In practice, people may know that a particular benefit or service exists but still struggle to identify the right scheme, understand its eligibility conditions, follow an application, raise a grievance, or determine which documents are required. The proposed platform brings these activities together through scheme discovery, eligibility checking, application-status tracking, grievance management, document analysis, a government-services directory, and an AI-based chat assistant.

The system combines a React-based frontend with a FastAPI backend. A structured knowledge base stores scheme and service information, while rule-based processing is used for structured eligibility conditions. The AI assistant provides a conversational way to ask questions and reach the appropriate service. Rather than replacing official government systems or making final decisions, the platform is designed to act as an assistance layer that makes government information easier to find and understand. The architecture separates the user interface, backend services, assistance modules, and data sources so that additional schemes, services, and languages can be introduced over time.

Keywords: Artificial Intelligence, Government Services, Scheme Recommendation, Eligibility Verification, Knowledge Base, Rule-Based Processing, Grievance Management, Document Analysis, AI Chatbot, Citizen Portal

1. INTRODUCTION

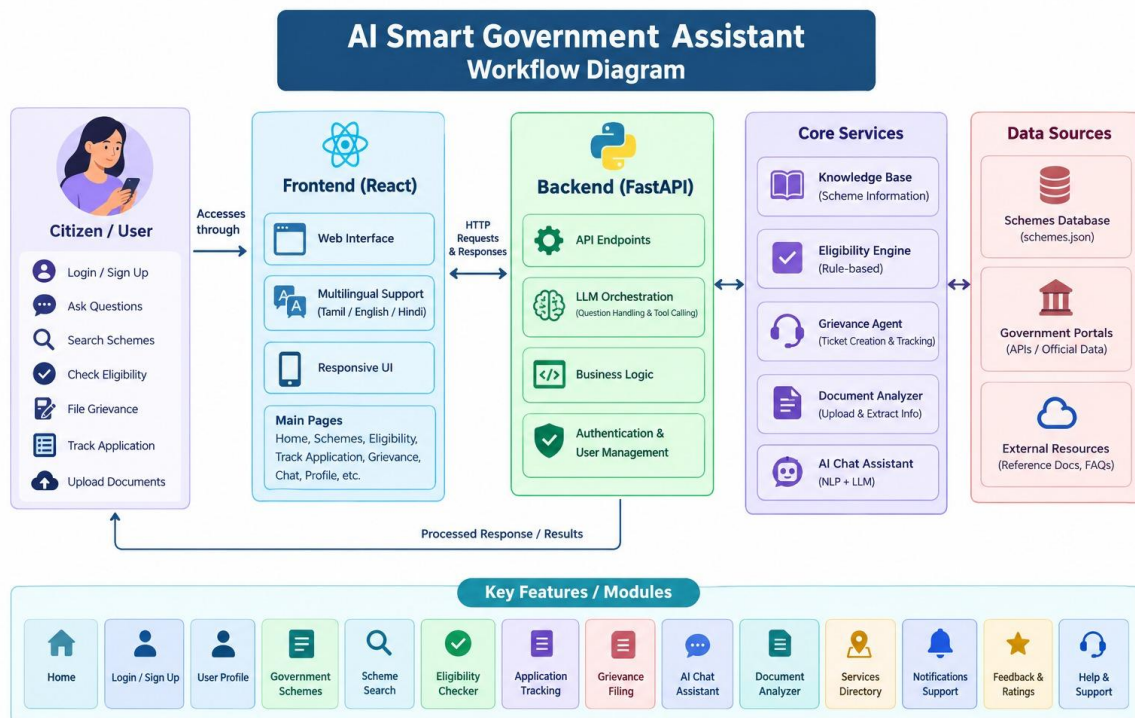
Government schemes and digital public services are created to make welfare, administrative, and citizen-support services more accessible. Even so, accessing the right service is not always straightforward. Citizens may have to visit different websites, read separate guidelines, complete different forms, and understand unfamiliar procedures before they can determine which scheme or service is suitable for them. Simply making information available does not guarantee that people will be able to identify the relevant service, understand its eligibility requirements, or complete the required steps with confidence.

To address this practical difficulty, the AI Government Assistant is proposed as a unified citizen-service platform. It brings together government-scheme search, benefit and eligibility information, application tracking, grievance submission, document assistance, a government-services directory, and an AI chat interface. React is used to build the frontend, while FastAPI provides the backend APIs through which the different services communicate.

The main aim is to make government information easier to navigate by connecting a citizen's requirement with the relevant service. A knowledge base provides structured information about schemes and services, while a rule-based eligibility engine compares user-provided details with defined scheme conditions. The AI assistant adds a natural-language interface through which users can ask questions in a more conversational way and receive guidance about where to go next.

The proposed platform is not intended to replace official government portals or make legally binding eligibility or approval decisions. Its role is to assist citizens in discovering services, understanding requirements, organizing documents, and navigating the available processes. Final approvals, official application status, payments, and other authoritative decisions remain with the appropriate government department or official portal.

2. DIAGRAM



3. LITERATURE REVIEW

Recent research and policy work on artificial intelligence in government shows a clear movement toward using AI to support public-sector services, while also stressing the importance of transparency, accountability, reliability, and responsible deployment. The OECD's work on governing with artificial intelligence examines how AI is being introduced into core government functions and highlights the institutional requirements that accompany such systems [1]. The OECD Digital Government Outlook also describes the shift from basic digital infrastructure toward more integrated and transformative digital public services [2]. Together, these developments support the use of intelligent interfaces that can make public services easier for citizens to discover and use.

The National Institute of Standards and Technology (NIST) Artificial Intelligence Risk Management Framework provides guidance for identifying and managing risks in AI systems [3]. This is particularly relevant to a citizen-facing assistant because the platform may handle questions, documents, and eligibility-related information. A practical system therefore needs to distinguish clearly between AI-generated guidance and an official government decision. Information should be presented in an understandable form, while uncertain or generated responses should not be treated as authoritative decisions.

Work on responsible and human-centred AI in public services also emphasizes appropriate data handling, human oversight, transparency, and safeguards. Although the World Health Organization's guidance focuses on AI in healthcare, its broader principles around ethical use and governance are relevant to systems that process sensitive or consequential information [4]. These principles are useful when designing an assistant that may handle personal information or guide users through important government services.

Government-oriented conversational systems are also appearing in practical settings. Material published by the Press Information Bureau on Nyaya Setu and the DISHIKA AI chatbot illustrates how conversational AI can be used to support access to public information and services [7]. In addition, recent work on agentic AI for government explores how systems may progress from NLP-supported workflows toward applications capable of coordinating several public-sector tasks [8]. These developments show the usefulness of conversational interfaces, but they also make controlled workflows and clearly defined system responsibilities increasingly important.

Across the reviewed sources, a common direction can be seen: government services are becoming more integrated, digital, and AI-assisted. However, citizens may still need to perform several connected tasks, such as finding a scheme, checking eligibility, preparing documents, tracking an application, and raising a grievance. The proposed AI Government Assistant focuses on this integration gap by bringing these activities into a common workflow. Its main contribution is therefore the combination of a structured knowledge base, rule-based eligibility checking, AI chat support, document analysis, and citizen-service modules within one interface.

3. PROPOSED SOLUTION

The AI Government Assistant is designed as a modular web application in which the citizen-facing interface communicates with backend services that manage the application's processing and coordination. The proposed architecture is divided into four broad layers: the citizen interface, application and backend services, core assistance modules, and data sources. Keeping these layers separate makes the system easier to maintain and allows individual services to be improved without having to redesign the complete platform.

Figure 1. AI Smart Government Assistant workflow architecture.

3.1 FRONTEND LAYER

The frontend is developed with React and provides the main web interface for citizens. It includes functions such as home, login or sign-up, profile management, government-scheme browsing and search, eligibility checking, application tracking, grievance filing, AI chat, document analysis, a services directory, notifications, feedback, and help or support. The intention is to keep these related functions within a consistent interface so that citizens do not have to repeatedly switch between separate platforms.

3.2 BACKEND LAYER

FastAPI is used to implement the backend. It exposes API endpoints through which the frontend sends requests and receives processed results. The backend is responsible for business logic, authentication and user management, service coordination, and AI-related processing. By separating the presentation layer from the application logic, the architecture also provides a clearer path for connecting additional government services in future versions.

3.3 KNOWLEDGE BASE

The knowledge base acts as the factual foundation of the assistant. It contains structured information about government schemes and related services, including scheme names, descriptions, benefits, eligibility requirements, required documents, application guidance, and references to relevant services. Since government information can change over time, the knowledge base needs to be reviewed and updated using appropriate official sources before information is presented to citizens.

3.4 ELIGIBILITY ENGINE

The eligibility engine checks user-provided information against the defined conditions of a selected scheme. Rule-based processing is used for structured requirements such as age, income category, occupation, location, and other scheme-specific conditions. The system can explain which conditions appear to be satisfied and which details may still be required. The output is intended only as guidance; the final eligibility decision remains with the responsible government authority.

3.5 AI CHAT ASSISTANT

The AI chat assistant provides a conversational way for users to ask questions about schemes, services, documents, or the operation of the platform. It can interpret the user's intent and direct the request to the relevant service module. When a response depends on authoritative government information, the assistant should use the available knowledge base and make a clear distinction between informational guidance and an official government decision.

3.6 GRIEVANCE MANAGEMENT

The grievance module gives citizens a structured way to submit service-related complaints and follow their progress. A grievance record can contain the complaint description, category, supporting information, reference number, and current status. The proposed architecture also includes a grievance agent for creating and tracking tickets. Where an authorized official portal or department API is available, future versions can connect the module directly to that source.

3.7 DOCUMENT ANALYZER

The document-analysis module is intended to help citizens prepare documents for government services. Uploaded files can be processed to extract relevant information and identify whether expected details are present. Because automated extraction can make mistakes, the module is designed as an assistance tool rather than a replacement for the original document or the official verification process.

3.8 GOVERNMENT SERVICES DIRECTORY

The services directory provides a searchable starting point for commonly used government services. Services can be organized into categories and linked to the relevant official department or portal. This broadens the platform beyond welfare-scheme discovery and gives citizens a common place to locate different types of government services.

4. FUNCTIONAL WORKFLOW

The workflow begins when a citizen opens the application and selects the type of help required. The user may search for a scheme, ask a question through the AI assistant, check eligibility, track an application, or use another available service. The frontend sends the request to the FastAPI backend through an API, after which the backend identifies the appropriate service and passes the request to the relevant module, such as the knowledge base, eligibility engine, document analyzer, grievance workflow, or AI assistant.

For scheme discovery, the system searches the available scheme information and presents relevant results. For eligibility checking, it collects the required user details and applies the predefined rules. Application or grievance tracking can retrieve status information when an authorized data source is available. For document analysis, an uploaded file is processed to identify relevant information. Once processing is complete, the result is returned to the frontend and displayed to the citizen in a readable form.

5. MAJOR MODULES

No.	Module	Purpose
1	User Authentication and Profile	Provides login/sign-up and profile functions needed for personalized services.
2	Government Scheme Search	Helps citizens search and filter schemes and view their benefits and requirements.
3	Eligibility Checker	Evaluates structured eligibility conditions using rule-based processing.
4	Application Tracking	Provides a way to monitor application progress when status information is available.
5	Grievance Filing and Tracking	Supports complaint submission, reference handling, and grievance-status tracking.
6	AI Chat Assistant	Provides natural-language assistance and directs users to relevant services.
7	Document Analyzer	Assists in extracting and checking information from uploaded documents.
8	Services Directory	Organizes government services and references to the appropriate official sources.
9	Notifications and Feedback	Supports service notifications, feedback, ratings, and help functions.

Table 1. Major functional modules of the proposed system.

6. IMPLEMENTATION APPROACH

The proposed implementation follows a client-server architecture. React handles the presentation layer, navigation, forms, and citizen interaction, while FastAPI provides the backend API layer and coordinates the application's services. The backend can connect the interface with structured scheme data, eligibility rules, grievance records, document-processing components, and AI assistance.

Each major function can be exposed through its own service-specific API endpoints. For instance, scheme search can have separate routes from eligibility verification, while application tracking and grievance tracking can use their respective service routes. This modular organization makes the system easier to develop incrementally and allows individual functions to be tested independently.

For AI-assisted responses, the proposed design favours a controlled workflow rather than unrestricted text generation. A user's question can first be interpreted, relevant information can then be retrieved from the available knowledge base, and the retrieved information can finally be presented in a conversational form. This approach is intended to reduce unsupported answers and keep the assistant grounded in the information available to the application.

7. DISCUSSION

The proposed AI Government Assistant focuses on a practical usability issue: completing a government-related task can require citizens to understand several separate processes. By bringing scheme search, eligibility checking, document assistance, application tracking, grievance management, and conversational support together, the platform can reduce the amount of navigation required to find and use relevant information.

One important feature of the proposed architecture is the balance between AI-assisted interaction and rule-based processing. Natural-language interaction allows users to describe what they need in their own words, which can make the platform easier to approach. At the same time, explicit rules provide a more predictable method for handling structured eligibility conditions. Using both approaches is therefore more controlled than relying entirely on a generative model for eligibility-related guidance.

The separation between the citizen interface, core services, and data sources also leaves room for future integration. Official government portals, APIs, and updated scheme databases can be connected without fundamentally changing the user interface. The proposed workflow allows the backend to coordinate the knowledge base, eligibility engine, grievance agent, document analyzer, and AI chat assistant as separate but connected components.

The main limitation is the dependence on accurate and up-to-date government information. Eligibility conditions, application procedures, required documents, deadlines, and service endpoints may change. A regular maintenance process is therefore necessary to review the knowledge base and verify important information. Whenever a final application, approval, payment, legal decision, or authoritative status is involved, the system should direct users to the appropriate official source.

Privacy and security are equally important because citizens may enter personal details and upload documents. A deployed system would need suitable authentication, access control, secure storage, controlled data retention, and protection for uploaded files. AI responses should also be monitored for misleading or incorrect information, particularly when users could rely on that information for important administrative decisions.

Since this paper presents a proposed platform and architecture, it does not make unsupported numerical claims about performance. Once the system is implemented and tested, a meaningful evaluation could examine scheme-search relevance, eligibility-rule accuracy, document-extraction accuracy, response time, chatbot usefulness, task-completion rate, and user satisfaction. These measures would provide evidence of how effectively the platform performs in real usage.

8. ADVANTAGES

- Provides several government-service functions through a single interface.
- Reduces the effort required to discover relevant schemes and services.
- Uses rule-based processing for structured eligibility checking.
- Allows citizens to interact with the system using natural language through an AI chat assistant.
- Provides assistance with extracting and checking information from service-related documents.
- Offers a structured process for grievance submission and tracking.
- Uses a modular React and FastAPI architecture that can be extended over time.
- Creates a foundation for multilingual interaction and additional government services in future versions.

9. LIMITATIONS

- The usefulness of scheme information depends on the accuracy and freshness of the knowledge base.
- AI-generated responses may need to be checked against authoritative government sources.
- Automated document extraction can contain errors and should not replace official document verification.
- Application and grievance tracking depend on reliable access to authorized government data sources or APIs.
- Personal information and uploaded documents require strong privacy and security controls.
- The platform is not intended to make final government approval or eligibility decisions.

10. FUTURE ENHANCEMENT

Future versions of the platform can connect with more official government APIs and verified data sources, allowing scheme information, application status, and grievance details to be updated more directly. The knowledge base can also be expanded to cover a wider range of central and state government services. Stronger multilingual support would make the assistant more accessible to citizens who prefer regional languages.

Further work can focus on improving document-processing models, retrieval and grounding methods for the AI assistant, notifications, personalized scheme recommendations, and analytics that identify common citizen-service needs. An evaluation framework can compare the assistant's responses with verified information while also measuring user satisfaction and task completion. These additions would help develop the platform from a prototype-oriented assistant into a more dependable citizen-service support system.

11. CONCLUSION

AI Government Assistant is proposed as a unified platform for making government schemes and services easier to discover and navigate. It brings scheme search, eligibility guidance, application tracking, grievance management, document analysis, a government-services directory, and AI chat assistance into a common interface. React provides the frontend, while FastAPI supports the backend, with the knowledge base, rule-based eligibility engine, and AI-assisted processing forming the main support components.

The proposed architecture shows how current AI and web technologies can be organized around practical citizen-service needs without taking the place of official government decision-making. Combining conversational assistance with explicit rule-based processing can make the platform more approachable while providing greater control over structured tasks. Future development should prioritize verified data integration, multilingual support, privacy and security, systematic evaluation, and continuous updating of government information. With these improvements, the platform could offer citizens a more organized and convenient way to discover and navigate government services.

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