

Sampat AI: An Intelligent Platform for Personalized Government Scheme Recommendation and Application Assistance

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Abstract:

India offers numerous government welfare schemes aimed at supporting various sections of society, including students, farmers, and small business owners. However, many eligible citizens are unable to benefit from these schemes due to lack of awareness, fragmented information across multiple platforms, complex eligibility criteria, and time-consuming application procedures. These challenges often result in underutilization of available government resources. This paper proposes Sampat AI, an intelligent AI-based platform designed to simplify the discovery and application of government schemes. The system provides personalized recommendations based on user profile attributes such as age, income, occupation, education, and location. It also presents detailed information about schemes, including eligibility criteria, benefits, and required documents, along with step-by-step guidance for the application process. To further enhance usability, the platform incorporates document automation, multilingual support, and an AI-powered chatbot using Natural Language Processing. Additionally, a notification system alerts users about important deadlines to prevent missed opportunities. Overall, Sampat AI offers a centralized, user-friendly, and efficient solution to improve accessibility, awareness, and utilization of government welfare schemes.

Keywords — Artificial Intelligence, Recommendation System, Government Welfare Schemes, Natural Language Processing, Document Automation, Digital Governance, User Personalization

I. INTRODUCTION

India offers a wide range of government welfare schemes aimed at supporting various sections of

society, including students, farmers, women entrepreneurs, senior citizens, and small business owners. These schemes provide benefits such as scholarships, financial assistance, healthcare services, subsidies, and employment

opportunities. Despite the availability of these initiatives, a significant portion of the population remains unable to fully utilize them due to multiple challenges in accessibility and awareness. One of the primary issues is the lack of a centralized platform for accessing information about government schemes. Currently, scheme-related information is scattered across multiple government portals and departmental websites, making it difficult for users to navigate and identify relevant schemes. Citizens are often required to manually search through different sources, which is time-consuming and inefficient. Additionally, most existing systems do not provide personalized recommendations, forcing users to independently determine their eligibility for each scheme. Another major challenge lies in the complexity of eligibility criteria. Many schemes have detailed and technical requirements that are difficult for users to understand, especially for individuals with limited digital literacy. This complexity often discourages potential applicants from applying. Furthermore, the application process itself is complicated, requiring multiple documents such as identity proofs, income certificates, and other records. Users frequently need to upload the same documents repeatedly for different schemes, increasing the overall effort and time required. Language barriers and lack of user-friendly interfaces further limit accessibility, particularly for rural populations and non-English-speaking users. Many platforms provide information only in limited languages and lack interactive support systems to guide users effectively. Moreover, the absence of notification mechanisms results in users missing important deadlines for scheme applications, leading to underutilization of available government resources. To address these challenges, this paper proposes Sampat AI, an intelligent AI-based platform designed to simplify the discovery, understanding, and application of government welfare schemes. The proposed system leverages Artificial Intelligence techniques to analyze user profile information such as age, income, occupation, education, and location, and provides

personalized recommendations of relevant schemes. In addition to recommendation capabilities, the system offers detailed scheme information, including eligibility criteria, benefits, and required documentation. It incorporates step-by-step guidance to assist users throughout the application process. The platform also integrates document automation features, enabling users to securely manage and reuse verified documents, thereby reducing redundancy and manual effort. Furthermore, Sampat AI includes a multilingual interface and an AI-powered chatbot based on Natural Language Processing (NLP), allowing users to interact with the system in multiple languages. A notification system is also implemented to alert users about upcoming deadlines, ensuring timely application submissions. The primary objective of this work is to develop a centralized, intelligent, and user-friendly platform that enhances accessibility, improves awareness, and increases the utilization of government welfare schemes. By bridging the gap between citizens and government services, the proposed system aims to contribute toward inclusive digital governance and efficient resource utilization.

II. LITERATURE SURVEY

In recent years, several digital platforms and systems have been developed to provide information about government welfare schemes. While these systems aim to improve accessibility and awareness, they still face significant limitations in terms of usability, personalization, and automation. This section reviews the existing approaches and highlights their shortcomings.

A. Government Scheme Portals

Government portals such as the National Portal of India and various state-level websites serve as official sources of information for welfare schemes. These platforms provide detailed descriptions of schemes, eligibility criteria, and application procedures. However, the information is often distributed across multiple pages and portals, making navigation difficult for users. Additionally, these platforms are largely static and do not offer personalized recommendations. Users must

manually search and analyze multiple schemes to determine their eligibility, which is time-consuming and inefficient.

B. Departmental Websites

Individual government departments maintain their own web sites to publish scheme-related information. For example, departments related to agriculture, education, and social welfare independently manage their scheme databases. While these websites provide accurate and domain-specific information, they lack integration with other departments. As a result, users are required to visit multiple websites to gather complete information. This fragmented approach increases complexity and reduces user convenience.

C. Online Search Platforms

Many users rely on general search engines and third-party websites to find information about government schemes. These platforms aggregate data from various sources and provide basic information about schemes. However, these systems do not offer personalized filtering based on user profiles. The results are often generic and may not be relevant to individual users. Moreover, the credibility and accuracy of information on third-party platforms may vary, leading to confusion and misinformation.

D. Digital Public Service Platforms

Recent initiatives in digital governance have led to the development of integrated service platforms that attempt to centralize access to government services. These platforms aim to improve user experience by providing a single interface for multiple services. Despite these advancements, most existing systems lack intelligent automation features such as AI-based recommendations, document integration, and interactive guidance. Users still need to manually understand eligibility criteria and complete application processes without sufficient assistance.

E. Limitations of Existing Systems

From the analysis of existing platforms, several key limitations can be identified:

- Lack of a centralized and unified platform for all schemes

- Absence of personalized recommendations based on user data
- Complex and difficult-to-understand eligibility criteria
- Manual and repetitive document submission processes
- Lack of real-time notifications for scheme deadlines
- Limited support for regional languages and user interaction

These limitations highlight the need for a more intelligent, automated, and user-centric solution.

F. Research Gap

Based on the literature review, it is evident that existing systems fail to provide an integrated solution that combines personalization, automation, and accessibility. There is a clear need for a platform that can intelligently recommend schemes, simplify the application process, and enhance user experience. The proposed system, Sampat AI, addresses these gaps by incorporating Artificial Intelligence for personalized recommendations, Natural Language Processing for user interaction, and document automation for reducing manual effort. This approach aims to provide a comprehensive and efficient solution for accessing government welfare schemes.

III. PROPOSED SYSTEM

To overcome the limitations of existing platforms, this paper proposes Sampat AI, an intelligent and user-centric system designed to simplify the discovery, understanding, and application of government welfare schemes. The system leverages Artificial Intelligence (AI), Natural Language Processing (NLP), and modern web technologies to provide a centralized and automated solution.

A. System Overview

Sampat AI is designed as a web-based platform where users can create a profile by entering basic information such as age, income, occupation, education level, gender, and geographic location. Based on this data, the system analyzes user eligibility and provides personalized recommendations of government schemes. The

platform acts as a unified interface that integrates multiple functionalities including scheme discovery, eligibility analysis, document handling, and application guidance. The goal is to reduce manual effort and improve accessibility for users across different backgrounds.

B. User Profile Management

The system begins with user profile creation, which serves as the foundation for personalized recommendations. The user provides relevant details, which are securely stored in the database. These attributes are used by the recommendation engine to match users with suitable schemes. The system ensures data privacy and allows users to update their profile information as needed.

C. AI-Based Recommendation Engine

The core component of Sampat AI is the AI-based recommendation engine. This module processes user profile data and compares it with scheme eligibility criteria stored in the database. A rule-based and machine learning approach is used to filter and rank schemes according to relevance. The system prioritizes schemes that closely match user attributes, ensuring accurate and meaningful recommendations. This eliminates the need for users to manually search through multiple portals and significantly improves efficiency.

D. Scheme Information and Guidance

For each recommended scheme, the platform provides detailed information including:

- Eligibility criteria
- Benefits offered
- Required documents
- Official application procedure

Additionally, the system provides step-by-step guidance to assist users in completing the application process. This guidance may include simplified instructions and visual tutorials to improve user understanding.

E. Document Automation and Integration

One of the key features of the proposed system is document automation. Users are often required to submit multiple documents for different schemes, which leads to redundancy and increased effort.

Sampat AI integrates with digital document services such as DigiLocker to securely access verified user documents. With user permission, the system can automatically fetch and populate required documents in application forms, reducing manual input and improving accuracy.

F. Multilingual Support and Chatbot

To enhance accessibility, the platform supports multiple languages and includes an AI-powered chatbot. The chatbot uses Natural Language Processing (NLP) to understand user queries and provide instant assistance. Users can interact with the system through text or voice input, making it suitable for individuals with limited digital literacy. This feature ensures inclusivity, especially for rural and non-English-speaking users.

G. Notification and Alert System

Many users miss opportunities due to a lack of awareness about application deadlines. To address this issue, Sampat AI includes a notification system that tracks scheme timelines. The system sends alerts and reminders to users before the expiry of application deadlines. This ensures that users can take timely action and do not miss important opportunities.

H. System Architecture

The proposed system follows a modular architecture consisting of the following components:

- **Frontend Layer:** Developed using React.js to provide an interactive and user-friendly interface.
- **Backend Layer:** Built using Node.js and Express.js to handle application logic and API requests.
- **Database Layer:** MongoDB is used to store user data and scheme information.
- **AI Module:** Implemented using Python for recommendation algorithms and NLP processing. This architecture ensures scalability, flexibility, and efficient system performance.

I. Advantages of the Proposed System

The proposed system offers several advantages over existing platforms:

- Centralized access to government schemes

- Personalized recommendations based on user data
- Simplified understanding of eligibility criteria
- Reduced manual effort through document automation
- Improved accessibility with multilingual support
- Timely notifications to prevent missed opportunities

Overall, Sampat AI provides a comprehensive and intelligent solution that enhances user experience and promotes effective utilization of government welfare schemes.

IV. EXPECTED RESULTS AND ANALYSIS

The proposed system, Sampat AI, is expected to significantly improve the accessibility, efficiency, and usability of government welfare schemes for citizens. By integrating Artificial Intelligence, automation, and user-friendly design, the system addresses the major limitations of existing platforms.

A. Expected Results

The primary expected outcome of the system is the delivery of personalized government scheme recommendations based on user profile attributes such as age, income, occupation, education, and location. This ensures that users are presented only with relevant schemes, thereby reducing the effort required to search and analyze multiple options. The system is also expected to simplify the understanding of eligibility criteria by presenting information in a structured and easy-to-understand format. Users will be able to view detailed scheme descriptions, benefits, required documents, and application procedures in a single interface. Another key result is the reduction of manual effort in the application process. Through document automation and integration with digital services, users can reuse verified documents without repeatedly uploading them. This improves efficiency and minimizes errors during form submission. The multilingual interface and AI-powered chatbot are expected to enhance accessibility, especially for rural users and individuals with limited digital literacy. Users will be able to interact with the system in their preferred language and receive real-time assistance.

Additionally, the notification system will ensure that users are informed about upcoming deadlines for scheme applications. This will help in reducing missed opportunities and increase the overall participation rate in government programs.

B. Performance Analysis

The performance of the proposed system can be analyzed based on several parameters:

1) Accuracy of Recommendations: The effectiveness of the AI-based recommendation engine is measured by its ability to correctly match users with relevant schemes. Higher accuracy indicates better alignment between user profiles and scheme eligibility criteria.

2) Time Efficiency: Compared to traditional methods, the system significantly reduces the time required to discover and apply for schemes. Users no longer need to browse multiple websites or manually verify eligibility, leading to faster decision-making.

3) User Experience: The system is designed with a user friendly interface and guided workflow, which enhances overall user satisfaction. Features such as step-by-step guidance, chatbot assistance, and multilingual support contribute to a smoother user experience.

4) Reduction in Manual Effort: Document automation and integration reduce repetitive tasks such as uploading documents and filling forms. This minimizes user effort and improves application accuracy.

5) Accessibility and Inclusivity: The inclusion of multilingual support and voice-enabled chatbot improves accessibility for users from diverse backgrounds. This ensures that the system can be used by a wider population, including those with limited technical knowledge.

C. Comparative Analysis

When compared to existing systems, Sampat AI demonstrates several improvements:

- Provides personalized recommendations, unlike traditional portals
- Offers centralized access instead of requiring multiple websites
- Simplifies eligibility understanding through structured information

- Automates document handling to reduce redundancy
- Includes notification mechanisms for deadline tracking
- Enhances accessibility through multilingual and interactive features

I. Impact and Benefits

The implementation of Sampat AI is expected to increase awareness and participation in government welfare schemes. By simplifying the process and reducing barriers, more citizens will be able to access benefits efficiently. Furthermore, the system contributes to better utilization of government resources by ensuring that schemes reach the intended beneficiaries. It also supports the vision of digital governance by providing a scalable and intelligent solution. Overall, the proposed system delivers measurable improvements in efficiency, usability, and accessibility, making it a valuable tool for both citizens and government service delivery systems.

V. DISCUSSION

The proposed system, Sampat AI, demonstrates a significant improvement over existing government scheme platforms by addressing key challenges such as lack of awareness, fragmented information, and complex application procedures. By integrating Artificial Intelligence with modern web technologies, the system provides a more efficient, user-friendly, and accessible solution for citizens. One of the most important contributions of the system is the implementation of a personalized recommendation mechanism. Unlike traditional portals that require manual searching, Sampat AI automatically suggests relevant schemes based on user profile data. This not only reduces user effort but also increases the likelihood of citizens discovering schemes they are eligible for. The use of AI ensures that recommendations are more accurate and relevant, although the effectiveness of this component depends on the quality and completeness of the input data. The integration of document automation further enhances system efficiency. By allowing users to reuse verified documents through digital services, the system minimizes repetitive tasks and reduces the chances of errors during application submission.

However, this feature relies on secure integration with external platforms, which may introduce challenges related to data privacy, security, and system compatibility. The inclusion of multilingual support and an AI-powered chatbot plays a crucial role in improving accessibility. These features enable users from diverse linguistic and educational backgrounds to interact with the system more effectively. This is particularly beneficial for rural populations and individuals with limited digital literacy. Despite these advantages, the performance of the chatbot depends on the robustness of the Natural Language Processing model, which may require continuous training and updates to handle diverse user queries accurately. Another important aspect of the system is the notification and alert mechanism. By informing users about upcoming deadlines, the platform helps prevent missed opportunities and encourages timely application submission. This feature directly contributes to increasing the utilization of government welfare schemes. While the proposed system offers several advantages, there are certain limitations that must be considered. The accuracy of recommendations may vary depending on the availability and correctness of user data. Additionally, integration with government databases and digital services may require compliance with regulatory standards and technical constraints. Scalability and performance optimization will also be important factors when deploying the system for large-scale usage. Overall, Sampat AI provides a comprehensive and intelligent solution that enhances user experience and simplifies access to government welfare schemes. The system has the potential to bridge the gap between citizens and government services, although further improvements in AI models, data integration, and system scalability can enhance its effectiveness in real-world applications.

VI. CONCLUSION AND FUTURE WORK

A. Conclusion

This paper presented Sampat AI, an intelligent AI-based platform designed to simplify the discovery and application of government welfare schemes. The system addresses major challenges such as lack of awareness, fragmented information, complex

eligibility criteria, and time-consuming application processes. By leveraging Artificial Intelligence, the platform provides personalized scheme recommendations based on user profile attributes, enabling users to quickly identify relevant opportunities. The integration of document automation reduces manual effort, while step-by-step guidance enhances user understanding of the application process. Additionally, features such as multilingual support, AI-powered chatbot, and deadline notification system improve accessibility and user experience. The proposed system offers a centralized, efficient, and user friendly solution that bridges the gap between citizens and government services. It contributes to improving awareness, increasing participation, and ensuring better utilization of government welfare schemes.

B. Future Work

Although Sampat AI provides a comprehensive solution, there are several areas for future enhancement. One important direction is the improvement of the recommendation engine using advanced machine learning models to increase accuracy and adaptability based on user behavior and feedback. Future work can also focus on deeper integration with government databases and APIs to enable real-time updates of scheme information and seamless application submission. Enhancing data security and privacy mechanisms will be critical to ensure safe handling of user information and documents. Another potential improvement is the

expansion of multi lingual capabilities to support more regional languages and dialects, making the platform more inclusive. The chatbot can be further enhanced with advanced Natural Language Understanding techniques to provide more accurate and context aware responses. Additionally, the system can be extended to include mobile application support, offline accessibility features, and analytics dashboards for monitoring user engagement and scheme utilization trends. Overall, future developments aim to make Sampat AI more intelligent, scalable, secure, and widely accessible, thereby contributing to the vision of inclusive digital governance.

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