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AI-Powered Smart Platform for Government Scheme Eligibility Using RPA

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Abstract: The growth of digital technologies has changed the way government services given to the citizens. In India, The government's offer many welfare schemes Related to education, healthcare, agriculture, employment, etc financial support. Though these schemes They are made to help people many citizens Still searching it difficult to identify the schemes That fight their eligibility. Information Often available different websites, And the verification process can be confusing and time- consuming. Because of lack of awareness and delay manual processing, many deserving people are unable to receive. Government benefits. This survey paper AI- powered offers. Smart platform to government scheme eligibility and recommendation by using Robotic Process Automation (RPA). Proposed system user Artificial Intelligence (AI), Machine Learning (ML), Natural Language Processing (NLP), and study recommendation techniques user information and give suitable scheme suggestions I real time. RPA robots are used to automate repetitive tasks, e. Government document verification, Farm processing, and application tracking. The platform also supports secure data handling and multilingual communication to improve accessibility for users from different backgrounds. The main purpose of the proposed system to reduce manual effort, Improve and erect transparency welfare schemes easier for access to citizens.

Keywords: Government Scheme Eligibility, AI Recommendation System, Robotic Process Automation, Natural Language Processing, Decision Tree, K-Nearest Neighbour, Content-Based Filtering, Digital Governance, Machine Learning, NLP Chatbot, REST API, Web Scraping, Personalized Recommendations.

I. INTRODUCTION

Digital transformation There has been improvement the functioning of government services I recent years. Technologies such as Artificial Intelligence and automation Helping the authorities to deliver faster and more. Efficient public services. I India, Both central and government authorities offer several welfare schemes Related to education, healthcare, agriculture, employment, etc women empowerment, And financial assistance. These schemes are introduced to assist and improve the citizens. Their quality of life. Though many welfare schemes is available, a large number Of eligible citizens still face difficulties While accessing them. Most government portals Need users To search manually schemes and understand eligibility Promise about their own. This process is often comprehensive and time- consuming, especially rural citizens and people with limited digital knowledge. Seam a result, Many deserving people fail to avail it. Government welfare programs.

Another challenge I the existing system is the dependence But manual verification procedures. Public offices use. Significant time Verification of documents, verification of eligibility details and processing applications. This increases the workload and delays. Service delivery. In addition the absence Of centralized platforms And personal recommendations are rare. The efficiency Of current digital governance systems. Recent advancements Artificial Intelligence(AI), Machine Learning(ML), Natural Language Processing(NLP), And Robotic Process Automation(RPA) give effective solutions to these challenges. AI- based systems can analyze user information And recommend suitable schemes Automatic NLP techniques Improve communication through chatbots and virtual assistants, While RPA bots automatic repetitive activities such as filling in forms, document verification, and data mining. These technologies Help improve accuracy, reduce manual effort, and increase processing speed. This survey paper Conducts current AI- based studies. Government service systems and offers AI- powered recommendations. Smart platform Too automatic government scheme eligibility verification by using RPA technologies. The proposed platform aims to create welfare services easier, faster and more accessible to citizens.

II. BACKGROUND

A. Government Welfare Schemes and Existing Challenges

Government welfare schemes have been introduced for social and economic improvement. Conditions of citizens through scholarships, healthcare support, Subsidies employment opportunities, And financial assistance. India has a large number

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of welfare schemes Organized by different ministries and departments. However many citizens still face problems Under access these schemes Because the information Spread out multiple portals with different application methods and eligibility conditions.

Some common problems facing users Includes: * Lack of centralized information* Elaborate qualification procedures* Manual document verification* Delay in the approval process* Less awareness of available schemes* Limited digital competence among rural users These issues Exhibit clearly the need For intelligent and automated systems that can simplify welfare scheme access and improve the user experience.

B. Artificial Intelligence Government Services Artificial Intelligence Detection

Helps to understand the system. User data, Analysis information, and provide personal recommendations. AI technologies I am used to fasting digital governance to improve service quality and accessibility.

- **Machine learning**: Machine Learning algorithms Analyze user details such as age, income, occupation, education, location, and category to recommend suitable government schemes.
- **Natural language processing**: Natural Language Processing (NLP) Provides understanding of the system. User queries I simple language and provide support through chatbots and virtual assistants.
- **Recommendation Systems**: Recommendation systems compare user information with eligibility criteria and propose arrangements accordingly. User requirements.
- AI technologies Improve accessibility, efficiency and overall user experience across public service platforms**.**

C. Robotic Process Automation (RPA)Architectures:

Robotic Process Automation user software bots To automate repetitive and rule- based activities. I government systems, RPA can perform tasks such as:* Eligibility verification* Form processing* Document authentication* Data mining* Website Interaction* Alert generation RPA Reduces manual work, Improves accuracy and increases speed. Service delivery. Automation tools prefer UiPath and Automation Anywhere Usually used to implement RPA Solution.

III. LITERATURE SURVEY

A. Based on AI Government Scheme Recommendation Systems

Mayur Raypot And his research team AI- based suggestion. Recommendation system to government welfare schemes. Their study Focused on matching user information with eligibility conditions to give accurate scheme suggestions. Go system Better access and support users Identity suitable schemes more efficiently. However, issues such as data imbalance And frequent dataset updates Major challenges remain.

B. AI Chatbots I Public Administration

Venkataramana Reddy and Sudheer Chennuri Discussed the role of AI chatbots I digital governance And public administration. Their study Explained it AI chatbots can give continuous support To users, less administrative workload, And improve communication efficiency. However, integration multiple government portals and maintaining user trust were identified as difficult tasks. Citizen Interface and Complaint Submission.

C. Conversational AI Systems

Several researchers studied conversational AI systems And a chatbot technologies to improving human- computer interaction. Highlighted their work. The importance of communication Through text, noise and images. Conversational AI systems give faster responses And improve user interaction, But problems like inaccurate recommendations and evaluation difficulties still exists.

D. AI Digital Governance

Research on AI I digital governance It turned out AI technologies Can be automated public services, improve multilingual communication, and increased accessibility. These systems Contribute to reducing and optimizing the waiting time. Service quality. However reliable internet connectivity And transparent AI implementation is essential for successful deployment.

E. AI and RPA to Accessibility Solutions Studies About integration AI and RPA

AI and RPA to Accessibility Solutions Studies About integration AI and RPA to accessibility solutions Revealed it automation Improves performance, reduces repetitive manual work, And increasing service delivery. A collection of AI And automation Technologies simplify administrative tasks and improve productivity. However implementation costs and security concerns Remain important boundaries.

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IV. RESEARCH GAP

The literature survey Identified several research gaps in the present government scheme recommendation systems:
1.Lack of centralized platforms integration both AI and RPA technologies.
2.Limited multilingual support for regional language users.
3.Lack of personalization recommendation systems.
4.Due to the manual validation procedure delays and errors.
5.Absence of real- time automation eligibility verification.
6.Limited integration of secure APIs and intelligent automation tools.
7.Lack of user- friendly interfaces rural and non-technical users.

These limitations highlight the need for the AI- powered smart platform which can be automated. Scheme recommendation and eligibility verification more efficiently.

V. PROPOSED METHODOLOGY

The proposed system is structured as a five-phase pipeline.

A. Phase 1: Dataset Construction

Data collection and integration Government scheme information Collected from official portals By using APIs, web scraping techniques, and data aggregation methods. Data collected includes: eligibility criteria, Required documents, benefits, deadlines and application procedures.

B. Phase 2: User Information Treatment

Users Provide details such as: Age* Sex* Income* Profession* Education* Place* Category The system Validation and proper of first refusal the user information Before eligibility analysis.

C. Phase 3: Based on AI Recommendation Engine Machine Learning

algorithms Appreciate Decision Tree, K- Nearest Neighbor(KNN), and Content- Based Filtering Used for analysis user profiles And recommend suitable government schemes. The recommendation engine compares user Details with scheme eligibility conditions and ranks schemes according to likelihood of relevance and eligibility.

D. Phase 4: Based on RPA Eligibility Verification RPA bots automatic repetitive activities including

Document verification* Qualification test* Form automation* Data mining* Application Tracking Rule- based validation methods improve and reduce accuracy. Manual workload under verification.

E. phase 5: Implementation of web interface.

A web- based platform has been developed. Using Flask or Django To provide:* User registration and login* Of a personal nature scheme recommendations* Automated eligibility check* Direct application links* Multilingual support* Real- time chatbot support The interface Designed to be practical, accessible and user- friendly for all residents.

VI. SYSTEM ARCHITECTURE

The proposed system is included the following modules:

[User Input]
↓
[Data Validation and Preprocessing]
↓
[AI Recommendation Engine]
↓
[Confirmation of RPA Eligibility]
↓
[Form Matching and Ranking]
↓
[Web Interface Output]
↓
[Request and Notification System]

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The architecture Adding AI and RPA technologies To provide secure, efficient and automated access to government welfare schemes.

VII. EXPECTED RESULTS

The proposed system Expected to provide:
* Correct scheme recommendations
* Faster eligibility verification
* Less manual effort
* Better access for citizens
* Increased awareness of welfare schemes
* Better transparency digital governance
* Real- time automated services
* Improved user satisfaction and performance

The system aims To facilitate access to government services And improve welfare distribution Among eligible citizens.

VIII. APPLICATIONS

Requests The proposed platform can be used in different sectors including:
• Education Scholarship recommendation and student welfare support.
• Agriculture Farmer subsidy And agricultural assistance scheme identification.
• Healthcare Healthcare insurance And medical support scheme recommendation
• Work Employment assistance and unemployment welfare scheme access.
• Rural Development To improve accessibility of government services I rural areas.
• Digital Governance Automation Of public administration and residents service delivery.

VIII. CONCLUSION/RESULT

This survey paper Presented a detailed study of AI- And based on RPA government scheme recommendation systems and proposed an AI- powered platform for automation. Eligibility verification and scheme recommendation. Existing systems still face problems Like scattered information, manual verification, and lack of personalization, which reduces accessibility. Welfare benefits.

The proposed platform Adding Machine Learning, NLP, recommendation systems, and RPA technologies To simplify government scheme access And automatically verification procedures. When integrating intelligent recommendation methods with automation tools, the system Improves efficiency, transparency, accessibility, and accuracy I digital governance.

I the future, The platform can be further expanded by integration. Multilingual chatbots, Based on OCR document verification, Blockchain enabled secure data storage, And additional government service modules.

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