



CITIZEN CENTRIC SCHEME MAPPING SYSTEM

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Abstract : *The purpose of the Citizen-Centric Scheme Mapping System is to close the gap that exists between qualified beneficiaries and government services. Users can browse, filter, and apply for schemes that meet their unique needs on this system's versatile premises. Government officials may effectively establish, modify, and monitor schemes with the support of the admin panel. The system also includes an educational counseling tool to help students apply for engineering counseling. The platform makes public service delivery more efficient, transparent, and accessible.*

KEYWORDS

E-Governance, Eligibility Criteria, Automated Scheme Filtering, Government Schemes, Social Inclusion through Technology, Transparency, Digital Accessibility and Beneficiary Mapping

INTRODUCTION

Government schemes are initiatives put forth by the government to raise everyone's standard of living [5]. Although government programs are established to assist residents, many are still underutilized because of a lack of knowledge and accessibility. By providing an intuitive platform that enables users to find pertinent schemes based on their eligibility requirements, the Citizen-Centric Scheme Mapping System seeks to address this problem. The system's functionality is expanded to include students looking for guidance regarding engineering admissions by incorporating an educational counseling module. This module offers personalized suggestions based on academic performance, category, and entrance exam scores, helping students make informed decisions about college and course selection. Additionally, the system ensures transparency and ease of use through a user-friendly interface, bridging the gap between government initiatives and the people they are designed to benefit..

NEED OF THE STUDY

The study of the Citizen-Centric Scheme Mapping System is essential due to the persistent gap between government welfare schemes and their intended beneficiaries. Although numerous schemes are introduced to support various sections of society, many remain underutilized because of low awareness, complex application processes, and scattered information. This study focuses on how a centralized digital platform can simplify access to these schemes, personalize recommendations based on user eligibility, and promote transparency in public service delivery. Additionally, it explores how technology can assist students in making informed decisions during engineering admissions through an integrated educational counseling module. By examining user needs, system functionality, and administrative workflows, the study aims to demonstrate how such a platform can make public services more accessible, efficient, and impactful.

ALGORITHMS

To ensure accurate scheme recommendations, secure user data handling, and intelligent counseling support, the Citizen-Centric Scheme Mapping System integrates a combination of machine learning models and cryptographic algorithms. These technologies work together to enhance the efficiency, personalization, and reliability of the platform for both users and administrators. The key components used in the system include Decision Tree algorithm for eligibility-based scheme recommendations, AES (Advanced Encryption Standard) for data security, and NLP (Natural Language Processing) models for analyzing user inputs and guiding counseling interactions..

1. Natural Language Processing (NLP) – For User Query Understanding and Counseling Guidance

NLP techniques are used in the system to interpret user queries, analyze text-based inputs, and support intelligent interactions, particularly in the educational counseling module. With the help of NLP, the system can process natural language questions from students and guide them through the counseling process. It can identify key elements such as entrance exam scores, academic background, and preferences, and respond with relevant suggestions. NLP models also improve the overall usability of the platform by enabling conversational interfaces that make scheme discovery and application more interactive and user-friendly.

2. Advanced Encryption Standard (AES) – For Data Security and Confidentiality

The platform deals with sensitive user information including identity details, academic records, and scheme applications. To protect this data from unauthorized access or breaches, AES encryption is used. AES is a symmetric key algorithm that encrypts user data before transmission and storage, ensuring that only authorized users can access it. With support for 128, 192, or 256-bit key lengths, AES provides robust security, maintaining confidentiality and building user trust in the system. This encryption ensures that all user communications and personal records remain private and tamper-proof.

3. Decision Tree Algorithm – For Scheme Eligibility Mapping

To accurately match users with schemes that align with their specific needs and profiles, the system uses a Decision Tree algorithm. This machine learning model evaluates user input parameters such as income level, age, educational background, caste category, and occupation. Based on these attributes, the decision tree traverses logical conditions to recommend only those schemes for which the user is eligible. This automated, rule-based classification not only reduces the burden of manual filtering but also increases the accuracy and speed of recommendation, ensuring users are matched with the most suitable schemes..

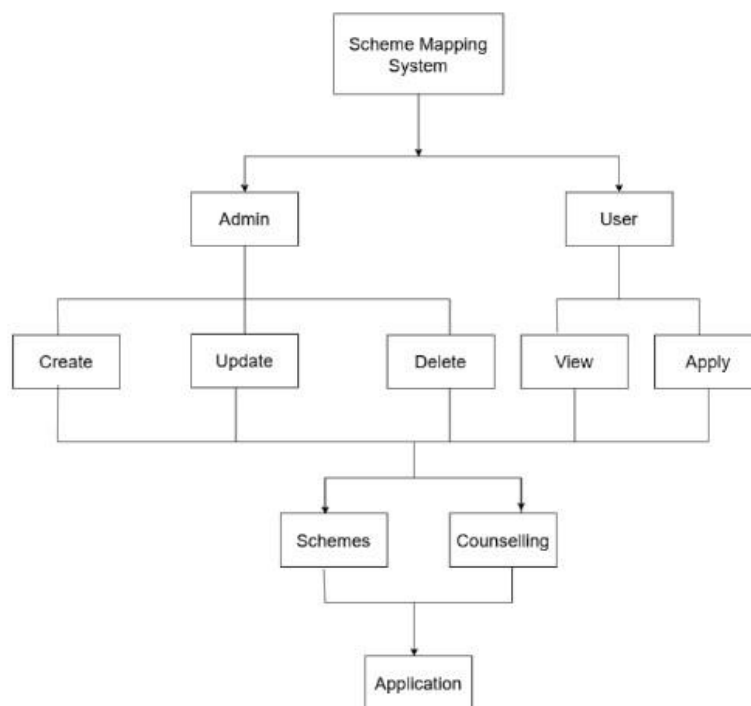


Figure:1 Flow diagram of the Scheme Mapping System

Figure 1: This functional flow diagram illustrates the interaction between Admin and User roles within the Scheme Mapping System. It shows how schemes and counseling modules lead to the final application process through create, update, view, and apply functionalities.

PROPOSED SYSTEM

1. User Registration and Secure Login

Users are required to register with accurate personal details, including name, age, income level, and category (student, farmer, etc.). A secure login process is implemented with strong password protection and OTP-based verification to ensure only authorized users access the system..

2. Scheme Filtering and Eligibility Matching

The system allows users to search and filter schemes based on key eligibility criteria such as income, category, location, and age. It uses rule-based logic to display only the schemes the user qualifies for, reducing confusion and improving accessibility.

3. Engineering Counseling Module

Students can access the dedicated counseling module to receive guidance on suitable engineering streams and colleges. The

system considers academic scores, interests, and preferences to suggest relevant educational paths, empowering students to make informed decisions.

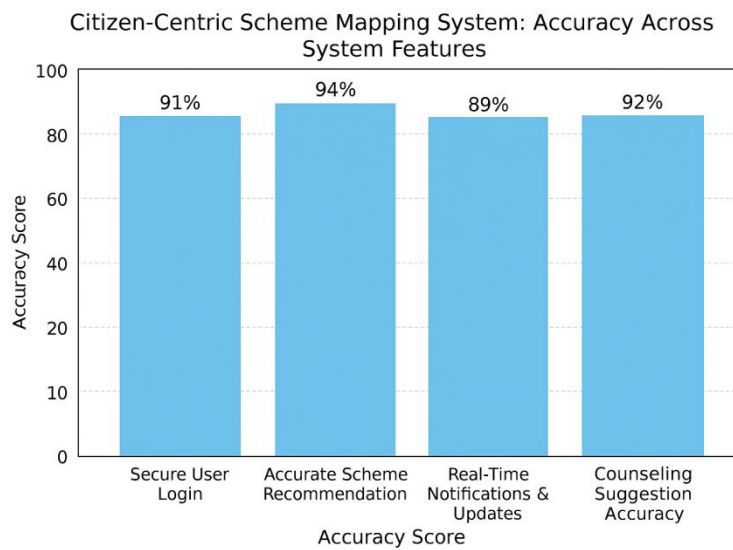


Figure:2 Graphical Representation of Scheme Recommendation Flow

Figure: 2 shows a flowchart of how the system collects user data, applies filtering logic, and recommends eligible schemes. It illustrates the user-to-database interaction and the decision logic used to display scheme matches.

4. Real-Time Scheme Updates and Notifications

The admin panel allows real-time updates of scheme information. Users receive instant notifications about newly added schemes, deadlines, or changes to eligibility, ensuring they stay informed and never miss out on benefits.

5. User-Friendly Interface

The platform is built with a clean and responsive UI, accessible across desktops and mobile devices. It supports easy navigation, search functionality, and step-by-step application assistance, making it usable even for users with minimal digital experience.

RESULTS AND DISCUSSION:

The results and discussion of a chatbot for mental health support will depend on its specific implementation and performance. Here are some general points that may be discussed:

1. Register and Login :

Users must register by providing their personal details such as name, age, category (e.g., student, farmer, unemployed, etc.), income, and location. Once the registration is complete, they can securely log in to the platform to access detailed information about various government schemes and apply for those that match their eligibility criteria.

Figure: 4 A secure login screen for the user with fields for username, password, and a login button.

Figure 4 displays the login interface of the Citizen-Centric Scheme Mapping System, allowing users to securely enter their

credentials. It also provides options for new user registration and password recovery.

2. . Engineering Streams Search Interface:

This module allows users to explore a list of engineering programs offered by various colleges. The interface displays essential details such as course name, department, number of available seats, and caste-based eligibility. Each entry includes an "Apply" button, enabling users to directly initiate the application process for their preferred stream, making the counseling and admission experience more streamlined and user-friendly.

CO	COLLEGE NAME	DEPARTMENT	SEATS	CASTE	APPLICATION
CE009	PSC-College of Technology	Civil Engineering	90	BC	APPLY
CE011	Coimbatore Institute of Engineering and Technolo	Electrical and Electronics Engineering	90	BC	APPLY
CE011	Government College of Technology	Mechanical Engineering	90	BC	APPLY
CE008	Sri Krishna College of Engineering and Techn	Computer Science Engineering	90	BC	APPLY
CE009	Sri Krishna College of Engineering and Technolo	Information Technology	90	BC	APPLY
CE011	Government College of Technology	Electronics and Communication Engineer	90	BC	APPLY
CE008	Sri Krishna College of Engineering and Techn	Electronics and Communication Engineering	90	BC	APPLY

Figure: 5 Engineering Streams Search Interface

Figure 5 shows the engineering streams search interface within the scheme mapping system. Users can view a list of available courses, departments, seat availability, caste eligibility, and an "Apply" button to initiate their application process for the selected stream..

3.Admin Scheme Entry Interface

This form allows administrators to input comprehensive details about new government schemes including the scheme ID, name, gender eligibility, description, target beneficiaries, category, state, and caste. Once the information is filled, admins can save, reset, or cancel the entry using the action buttons at the bottom. This feature ensures efficient and structured onboarding of schemes for users to view and apply based on their eligibility..

ADD SCHEMES

Scheme ID:

Scheme Name:

Gender:

Description:

Scheme Description:

Objective:

Benefits:

Scheme Type:

State:

Caste:

Buttons: Save, Reset, Cancel, Delete

Figure: 6 Admin Scheme Addition Form

Figure 6 displays the scheme addition interface designed for admin users to add and upload schemes within the Citizen-Centric Scheme Mapping System.

CONCLUSION:

The Citizen-Centric Scheme Mapping System is designed to bridge the gap between citizens and government welfare schemes by providing an accessible, user-friendly, and informative platform. The system enables users to search and apply for schemes based on their eligibility, ensuring that government benefits reach the right individuals efficiently. The project successfully addresses major challenges in the existing system, such as lack of awareness, complexity in searching, and difficulties in the application process. By integrating features like filter-based searching, step-by-step application guidance, instructional videos, and an admin panel for real-time updates, the system enhances accessibility and usability. Additionally, the inclusion of an engineering counseling module extends the platform's impact by providing students with career guidance, helping them make informed decisions about their future. Overall, this project contributes to better governance and increased citizen participation in welfare schemes.

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