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Complaint Registration and Management Portal for Local Government

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Abstract - The Complaint Management System for Local Government is a web-based platform designed to improve communication between citizens and local authorities by providing an efficient and transparent way to manage public service complaints. The system allows citizens to file complaints online, track their status, and receive notifications, while government officials can efficiently assign, monitor, and resolve complaints. Built using modern technologies such as React.js for the frontend, Spring Boot for the backend, and MySQL for the database, the system ensures scalability, security, and ease of use. By replacing manual processes with a centralized digital solution, the system aims to reduce delays, enhance transparency, and improve the overall quality of public service delivery. It features an intuitive user interface, role-based access control, and automated notifications to keep both citizens and government officials informed. Additionally, the system provides data analytics and
reporting tools to help authorities identify recurring issues and optimize resource allocation. This project fosters better citizen engagement, accountability, and governance by providing a user-friendly platform for complaint management, ultimately
strengthening trust between the public and local government institutions.

Key Words: Web Application, Complaint Management, Java Spring boot, Management System

1.INTRODUCTION

In today's rapidly evolving digital landscape, effective communication between citizens and local government authorities is crucial for ensuring efficient public service delivery. The Complaint Management and Registration System for Local Government is a web-based platform designed to streamline the process of submitting, tracking, and resolving complaints related to public services. This system aims to bridge the gap between citizens and government officials by providing a centralized, transparent, and user-friendly interface for managing grievances.
The current manual handling of complaints often leads to delays, lack of proper tracking, and limited visibility for citizens regarding the status of their issues. These challenges not only hinder the efficiency of government operations but also reduce citizen satisfaction and trust in public services. To address these issues, the proposed system introduces a robust, technology-driven solution that enhances communication, improves responsiveness, and ensures accountability in the complaint resolution process.
Moreover, with the increasing adoption of e-governance initiatives, there is a growing need for platforms that leverage digital tools to foster civic engagement and administrative efficiency. By incorporating features such as real-time updates, automated notifications, and data analytics, the system empowers both citizens and officials to monitor progress, identify recurring issues, and allocate resources more effectively. Studies have shown that such digital interventions can significantly reduce resolution times while increasing public confidence in local governance.
The system also supports multi-channel accessibility, allowing users to submit complaints through web portals, mobile applications, or even SMS-based services, ensuring inclusivity for individuals with limited internet access. Additionally, advanced data visualization and trend analysis capabilities enable authorities to proactively address systemic issues, optimize resource allocation, and enhance long-term urban planning efforts.
Ultimately, this system represents a step toward more inclusive, transparent, and responsive governance, aligning with global trends in smart city development and participatory democracy. By digitizing complaint management, local governments can not only improve service delivery but also strengthen their relationship with the communities they serve. Furthermore, integrating AI-driven analytics and chatbot assistance can further streamline interactions, reduce manual
workload, and offer immediate guidance to citizens, making governance more accessible and citizen-centric.

2. RELATED WORK

The development of digital complaint management systems for local governments has been explored extensively in recent years, with several studies proposing solutions to enhance transparency, efficiency, and citizen engagement. As urbanization accelerates and civic expectations rise, governments worldwide are increasingly adopting technology driven approaches to streamline public grievance redressal. However, despite advancements, many existing systems suffer from fragmented workflows, poor scalability, and limited citizen interaction—issues that undermine their effectiveness. This section reviews key research contributions and technological advancements in the field, highlighting gaps that the proposed Complaint Management and Registration Portal for Local Government aims to address. By synthesizing lessons from prior work and introducing novel features, our system seeks to overcome these limitations while aligning with modern e-governance standards.

3. LITERATURE SURVEY

Several studies have been conducted to improve online complaint management systems for public grievances and municipal redressal. A system proposed in [1] enhances transparency, efficiency, and accountability in resolving public complaints. It allows users to register, submit complaints, and track feedback,

while administrators and officers manage the workflow. Similarly, a municipal complaint redressal application developed using a web platform [2] allows citizens to file complaints online without visiting government offices and notifies them once the issue is resolved.

An online system that simplifies complaint registration and encourages active citizen participation, especially in enhancing city cleanliness, is discussed in [3]. Another solution, "FixTheCity" [4], promotes citizen involvement in reporting property issues via a mobile application, focusing on collaboration between citizens and local government. A detailed review in [5] also outlines a system for citizens to submit complaints online and track their status while avoiding physical visits to government offices.

A newer system introduced in [6] employs Google Places API to detect the user's location and display it on a map. It enables users to file complaints and track their status using smartphones, enhancing user convenience. This approach of using Google Places API was also previously adopted in [7], which focused on complaint registration via web services. Furthermore, a more recent study [8] suggests a citizen-friendly registration app tailored for rural and urban residents, again minimizing the need for physical presence at government offices.

To improve satisfaction and streamline complaint handling, [9] emphasizes citizen loyalty and future integration of AI into complaint systems. Earlier research in [10] focused on a web-based system enabling citizens to report issues and track complaint status, with added GPS functionality to reduce false reports. Another paper [11] also highlights the effectiveness of a centralized online system to facilitate citizen-government interaction and reduce inefficiencies in traditional complaint handling.

In [12], an online complaint registration platform specifically for city corporations is described. It allows citizens to report civic issues like road and water problems, aiming to eradicate corruption and improve public life using digital platforms. Lastly, [13] proposes a feature-rich complaint management system that includes auto-escalation, GPS tracking, and administrator reports to boost service efficiency and reliability.

4. PROPOSED SYSTEM

The Complaint Management and Registration Portal for Local Government is a web-based system designed to streamline the process of filing, tracking, and resolving complaints related to public services. The system ensures efficient complaint resolution by leveraging modern technologies and an intuitive workflow. Below are the key aspects of the proposed system:

4.1. Backend Technologies:

The core of the AI Yoga Assistant lies in its machine learning capabilities, implemented using Python and its robust ecosystem of libraries:

1) Spring Boot (Java): A powerful Java framework that simplifies backend development by providing built-in support for dependency injection, security, and database management. It ensures a scalable, high-performance, and modular architecture for the system. [1]
2) Supabase: An open-source alternative to Firebase, used for storing user details, complaints, and status updates in a PostgreSQL database. It provides real-time data synchronization, authentication, and an easy-to-use API.[8]
3) RESTful APIs: Designed to facilitate seamless communication between the frontend and backend, enabling efficient data exchange and improving system responsiveness.[10]
4) JWT Authentication: A secure authentication mechanism that generates tokens for users upon login, ensuring secure access control and preventing unauthorized access.

4.2. Frontend Technologies:

The frontend serves as the interface through which users interact with the Complaint Registration Portal, providing Realtime visual feedback, tracking, and guidance.

1) Tailwind CSS: A utility-first CSS framework that streamlines UI development by offering predefined styling classes. It enhances design flexibility and ensures a visually appealing and responsive user experience.[7]
2) JavaScript: The core scripting language used for handling API requests, user interactions, and dynamic content rendering. It plays a crucial role in managing application logic and ensuring smooth functionality across the system. [8]

4.3. System Workflow:

The proposed system follows a structured workflow to ensure efficient complaint handling and resolution:

1) User Registration Authentication:
   - Citizens create an account and log in.
   - Credentials are verified using JWT-based authentication.
2) Complaint Submission:
   - Users submit complaints, specifying details such as location, category, and severity.
   - The complaint is stored in the Supabase database.
3) Status Tracking Notifications:
   - Users can track complaint progress in real-time.
   - Notifications (email/SMS) are sent to inform users of updates.
4) Government Action Resolution:
   - Officials review complaints and take necessary actions.

- Status updates (In Progress, Resolved, etc.) are recorded.

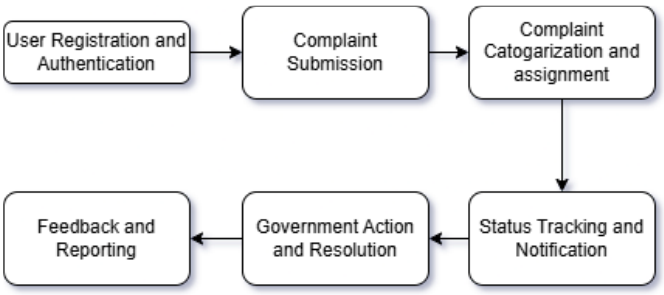

Fig1. Block diagram of the proposed work

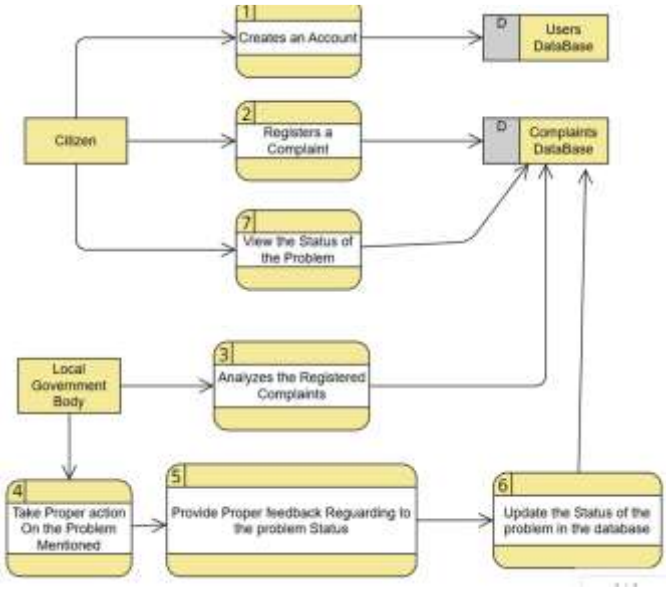

Fig1. Workflow of the Proposed System

5. METHODOLOGY

The development of this Complaint Management and Registration Portal follows a structured approach that includes data collection, system design, backend and frontend development, testing, and deployment. The following outlines the methodology used in building the system:

5.1 Requirement Analysis Data Collection

The first phase involves gathering data and defining system requirements to ensure the proper functioning of the complaint management system.

1) Data Gathering: Information related to common complaints, resolution timelines, and local governance processes is collected to define system workflows.
2) Functional and non-functional requirements are documented to guide development.

5.2 System Design

In this phase, the system's architecture and interface are designed to optimize performance and user experience.

1) Database Schema Design: Supabase is used to design the database, defining tables for user details, complaints, and resolutions.
2) User Interface Design: Wireframes and prototypes are developed using UI/UX tools to visualize the user journey.

5.3 Backend Development

The backend is developed to handle user authentication, data processing, and complaint management.

1) Implementation of Spring Boot: The backend logic is built using Java and Spring Boot to manage database operations and service requests.
2) Complaint Handling Logic: APIs for complaint submission, categorization, tracking, and resolution updates are developed.

5.4 Frontend Development

The frontend interface is developed to allow users to file and track complaints seamlessly.

1) React.js Development: Components are created for different user interactions, such as complaint submission, tracking, and feedback.
2) Tailwind CSS Integration: UI elements are styled using Tailwind CSS for a modern and responsive design.
3) JavaScript Logic Implementation: Dynamic elements, such as real-time updates and API requests, are implemented using JavaScript.

6. CONCLUSIONS

The Complaint Management and Registration Portal enhances transparency and efficiency in local governance by offering a user-friendly platform for lodging, tracking, and resolving complaints. Built using Spring Boot, Supabase, React.js, and Tailwind CSS, the system ensures seamless integration, real-time updates, and an intuitive, responsive interface.

A well-structured workflow—from user authentication to complaint resolution—streamlines the grievance redressal process. Role-based access control (RBAC) and secure API calls enhance security, while real-time notifications keep users informed about the progress of their complaints. With rigorous unit, integration, and security testing, the system is designed to be robust, scalable, and reliable. Cloud deployment ensures high availability, accessibility, and continuous optimization, adapting to evolving user needs.

In conclusion, this system empowers citizens and assists government authorities in efficiently managing complaints. By leveraging modern technology, it promotes transparency, accountability, and digital governance, contributing to a more responsive and citizen-centric public service system.

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