International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 03 | March - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

Smart College Grievance Portal

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Abstract -The Smart College Grievance Portal is a comprehensive web-based system designed to streamline the process of lodging, tracking, and resolving grievances within an academic institution. The system includes two primary access points: an admin login and a user login. The admin has the authority to create user accounts by uploading a spreadsheet containing login credentials for students, faculty, heads of departments (HODs), the vice principal, and the principal. Students can submit complaints directly to the appropriate recipient based on the nature of their grievance. The designated faculty or administrative authority can review, address, and update the complaint status to "resolved" upon resolution. This structured grievance redressal mechanism ensures transparency, accountability, and efficient communication between students and institutional authorities. The portal enhances administrative efficiency by reducing manual paperwork and providing a centralized, real-time tracking system. By leveraging digital record-keeping and, it fosters a responsive and organized approach to grievance handling, ultimately improving student satisfaction and institutional governance.

Key Words: Grievance Portal, Academic Institution, User Login, Complaint Resolution, Transparency, Administrative Efficiency.

1. INTRODUCTION

In many colleges, students struggle to report grievances due to the absence of a structured and transparent system. Common challenges include delays in addressing complaints, miscommunication, and difficulty in tracking complaint status, leading to frustration. Manual grievance handling results in inefficiency, data loss, and lack of accountability. Additionally, there is no proper mechanism for escalation if a complaint is not resolved within a reasonable timeframe. These issues highlight the need for an automated grievance redressal system to improve efficiency, transparency, and responsiveness.

The Smart College Grievance Portal is designed to address these challenges by providing a structured, automated complaint management system. Administrators can create user accounts by uploading a XML document containing login credentials for students, faculty, HODs, the vice principal, and the principal. Students can submit complaints to the appropriate recipient, who reviews, addresses, and updates the complaint status to "resolved" upon resolution. The system enhances transparency by allowing students to track their complaints in real time. It reduces paperwork, improves communication, and ensures accountability through role-based access control, assigning permissions based on user designation.

The system follows a client-server architecture, with a React and Tailwind CSS frontend interacting with a Node.js and Express.js backend via RESTful APIs. Authentication and authorization are managed using JWT and bcrypt.js for secure password handling. MongoDB is used as the database, with Mongoose for schema management. Supporting documents are uploaded using Multer, stored in Cloudinary, and security is enforced using Helmet and CORS. The system is optimized with Vite for frontend performance and Nodemon for backend development, ensuring a secure, scalable, and efficient grievance redressal solution.

2. RELATED WORK

Traditionally, grievance redressal in colleges relied on manual methods, such as physical complaint registers, suggestion boxes, or direct reporting to faculty and administrators. These processes were inefficient, as complaints could be misplaced, delayed, or ignored due to the lack of a structured tracking system. Additionally, students often refrained from submitting grievances due to concerns about bias, lack of confidentiality, or absence of proper follow-up, resulting in unresolved issues and dissatisfaction.

To address these challenges, some institutions have implemented basic web-based grievance portals, enabling students to submit complaints online. However, these systems primarily function as one-to-one communication platforms, where grievances are sent directly to an administrator without visibility for other stakeholders. This lack of transparency makes it difficult for students to track complaint progress, and there is often no escalation mechanism if an issue remains unresolved.

Moreover, many existing systems do not categorize grievances or assign them to the appropriate authority, leading to inefficiencies in resolution. Without automated tracking, status updates, and role-based access, these systems fail to provide a comprehensive grievance redressal mechanism. Therefore, there is a growing need for an intelligent, structured, and transparent grievance management system that ensures timely resolution and accountability.

3. MOTIVATION & PROBLEM IDENTIFICATION

Traditional grievance redressal systems in colleges, such as manual registers and direct faculty reporting, are plagued by inefficiencies, including delayed responses, misplaced complaints, and lack of follow-up. These issues discourage students from voicing their concerns, leading to unresolved grievances and dissatisfaction. While some institutions have adopted web-based systems, these often follow a one-to-one model, restricting transparency and preventing students from tracking complaint progress.

A major drawback of existing systems is the absence of a structured escalation mechanism. Complaints are often misclassified or directed to the wrong authority, causing delays and frustration. Without accountability measures, students lack confidence that their grievances will be addressed effectively.

To overcome these challenges, a multi-level grievance redressal system is essential. This system should incorporate real-time tracking, allowing students to monitor complaint status and ensuring timely resolution. A tiered escalation mechanism would ensure unresolved complaints automatically move to higher authorities, preventing stagnation. Additionally, categorization of grievances would streamline resolution by directing issues to the appropriate department.

By fostering transparency, accountability, and efficiency, a structured grievance redressal system can enhance student confidence and institutional responsiveness, creating a more supportive and fair academic environment.

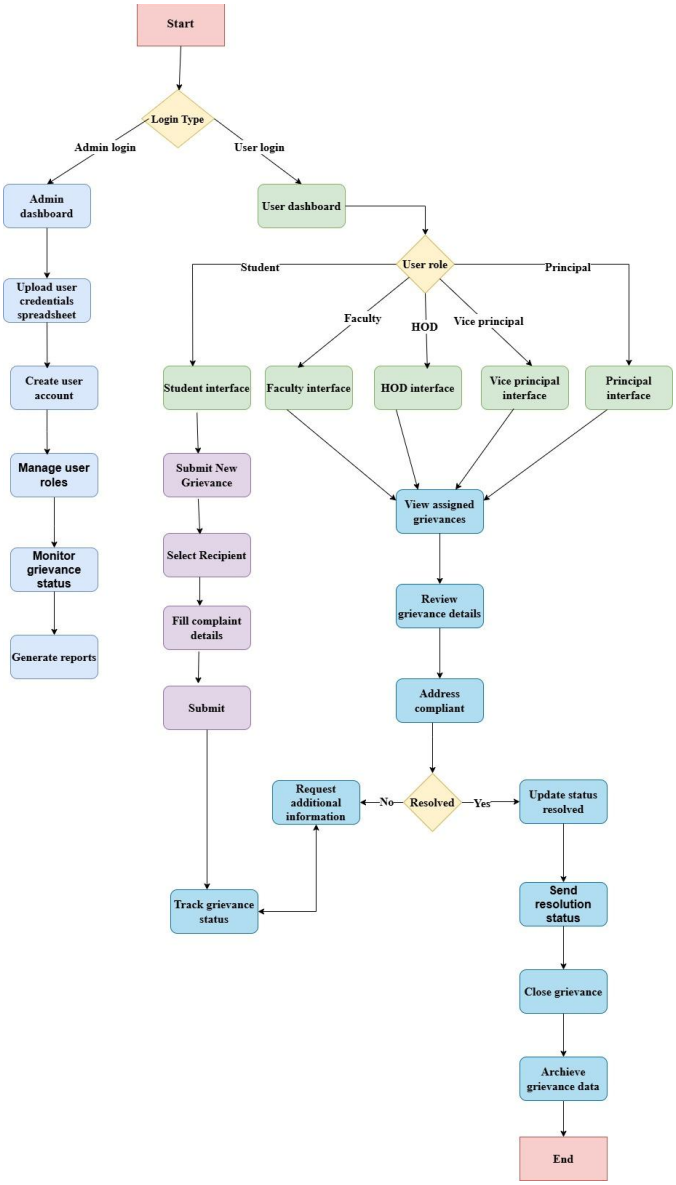
4. PROPOSED WORK

The Smart College Grievance Portal is an advanced web-based system designed to efficiently manage grievances within an academic institution. The system provides two key access levels: Admin and User. The Admin has the authority to create and manage user accounts by uploading a structured spreadsheet containing login credentials for students, faculty, heads of departments (HODs), the vice principal, and the principal. Students can submit complaints categorized by issue type, ensuring they are directed to the appropriate authority, such as faculty members, department heads, or higher administration. Once submitted, grievances can be tracked in real-time. The designated recipient reviews the complaint, takes necessary action, and updates the status to “Resolved” when addressed.

The portal fosters transparency and accountability by enabling structured communication between students and administrators. It eliminates manual paperwork, reducing administrative workload and ensuring that grievances are handled systematically. Additionally, the digital record-keeping feature allows easy reference and auditability of past grievances.

By streamlining the grievance redressal process, the system enhances institutional governance and student satisfaction. With a user-friendly interface, role-based access, and real-time tracking, the portal ensures a structured and effective resolution mechanism for academic institutions.

5. FLOW OF THE SYSTEM



The flowchart illustrates a grievance management system with two main login types: Admin login and User login.

- Admin Login Flow: The admin accesses the Admin Dashboard, where they can upload user credentials, create user accounts, manage roles, monitor grievance status, and generate reports.
- User Login Flow: Users log in and reach the User Dashboard, where their role determines their interface. Users can be Students, Faculty, HOD, Vice Principal, or Principal.
    - Student Flow: Students use the Student Interface to submit grievances by selecting a recipient, filling complaint details, and submitting the grievance. They can later track grievance status.
    - Faculty, HOD, Vice Principal, and Principal Flow: These roles access their respective interfaces to view assigned grievances, review grievance details, and address complaints.
    - Resolution Process: If additional details are required, a request is sent to the complainant. Once resolved, the status is updated, a resolution status is sent, and the grievance is closed and archived.

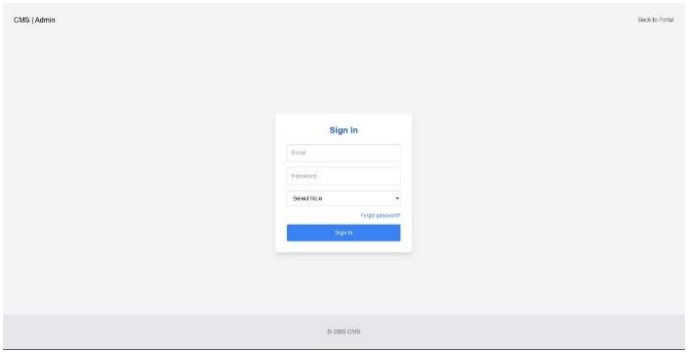
This structured workflow ensures grievances are properly addressed and tracked within the system.

6. METHODOLOGY

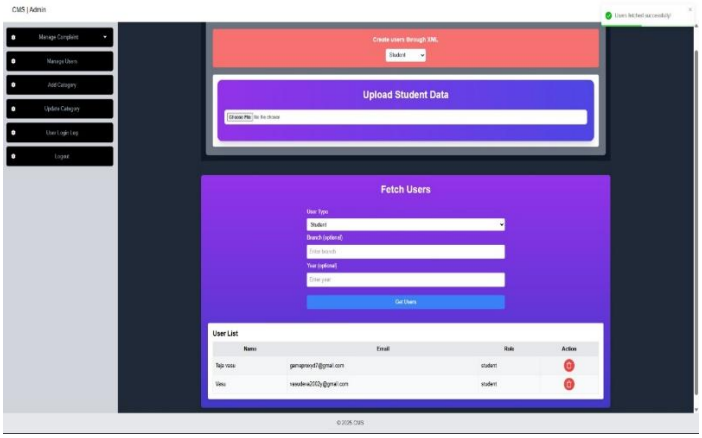
The core methodology involves:

- Role Definition: Identifying distinct user roles (Admin, Principal, Vice Principal, HOD, Faculty, User/Student) and their specific requirements.
- Functional Specification: Designing user interfaces tailored to each role, enabling role-specific actions like complaint lodging, account management, and administrative tasks.
- Modular Development: Creating reusable components such as navigation bars, forms, tables, and login interfaces, promoting efficiency and consistency.
- User Interface (UI) Design: Implementing a clean, consistent UI across all modules, utilizing a light color scheme with blue accents, ensuring ease of use and navigation.
- Workflow Implementation: Establishing complaint workflows, likely involving submission, routing, and resolution processes, with features like "Complaint Received" for relevant roles.
- Data Management: Incorporating features for user data management, including user creation (via XML for admins), profile updates, and login logs.

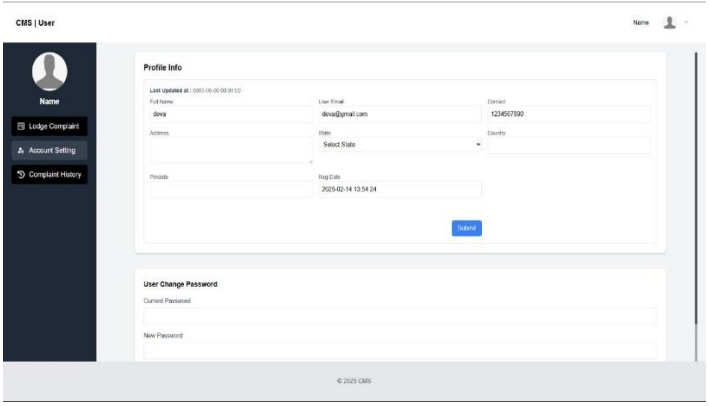
7. RESULTS AND DISCUSSION



The sign-in page is designed for users like students, faculty, HOD, vice principal, and principal to log in with credentials provided by the admin. It includes fields for email, password, and role selection. A "Forgot password?" option is available, along with a "Back to Portal" link and a copyright notice.

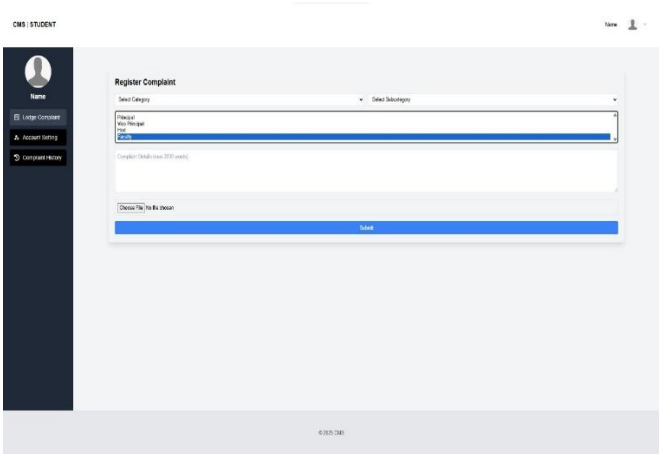


The admin dashboard allows managing users, complaints, categories, and login logs. It features options to create users via XML, upload student data, and fetch users based on type, branch, or year. A user list displays names, emails, roles, and deletion actions. A sidebar provides quick navigation, and a success message confirms actions.

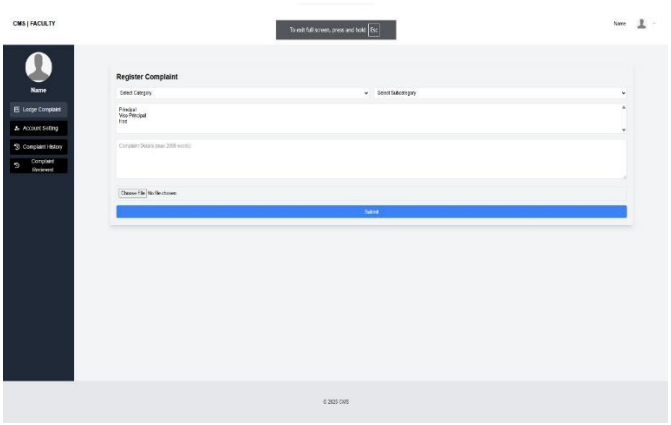


The student dashboard provides profile management, complaint lodging, and password change options. It

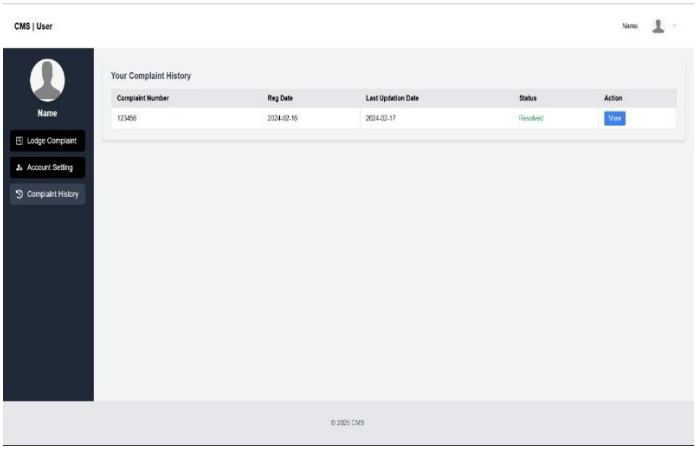
displays user details like name, email, contact, registration date, and editable fields for address, state, and country. A sidebar allows navigating complaints and account settings. Users can update their profile or change passwords using the provided input fields and buttons.



The student complaint lodging interface allows users to submit complaints by selecting a category (e.g., Principal, Vice Principal, HOD, Faculty) and subcategory. Users can describe their complaint (up to 2000 words) and upload supporting files. A submit button finalizes the complaint. Sidebar navigation includes options for account settings and complaint history.



The faculty dashboard in the Complaint Management System (CMS) allows faculty members to lodge complaints and manage student complaints directed to them. Faculty can select a complaint category (e.g., Principal, Vice Principal, HOD), provide complaint details (up to 2000 words), and attach supporting files before submitting. Additionally, faculty members can access complaint history and received complaints through the sidebar. They have the authority to resolve student complaints, making the system an interactive platform for grievance redressal. The layout is user-friendly, with a structured complaint registration form and easy navigation options. Similar dashboards exist for HOD, Vice Principal, and Principal.



The student complaint history dashboard allows users to track the status of their lodged complaints. It displays complaint details, including the complaint number, status, and actions. The complaint shown has been resolved, and the student can click the "View" button to check further details about the resolution.

8. CONCLUSION

The Smart College Grievance Portal is a transformative solution that modernizes the grievance redressal process in academic institutions. By leveraging digital technology, the system ensures efficiency, transparency, and accountability in handling student complaints. The portal's structured approach eliminates traditional manual inefficiencies, allowing grievances to be submitted, tracked, and resolved seamlessly. With role-based access, students, faculty, and administrators can interact within a secure and well-defined framework, ensuring that complaints are addressed promptly and fairly.

One of the key advantages of the system is real-time tracking and automated status updates, which keep students informed about the progress of their complaints. This feature enhances trust in the institution's administrative processes, as students no longer face uncertainty or delays in grievance resolution. Additionally, the portal promotes confidentiality, encouraging students to voice their concerns without fear of bias or retaliation.

Beyond grievance resolution, the Smart College Grievance Portal fosters a culture of responsiveness and continuous improvement within institutions. By streamlining communication between students and administrators, it strengthens institutional governance and enhances overall student satisfaction. As educational institutions strive to create a more inclusive and student-centric environment, implementing such a portal is a crucial step toward fostering fairness, efficiency, and trust in the academic ecosystem.

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