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CiviConnect (Aadhaar Card–Based Complaint Management System for MNCs)

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Abstract: The Aadhaar Card–Based Complaint Management System (ACBCMS) is a secure digital platform designed to simplify complaint registration, tracking, and resolution for citizens in Municipal Corporations. The system addresses challenges such as identity fraud, duplicate complaints, lack of tracking mechanisms, delayed responses, and administrative inefficiencies by providing a unified web-based environment for managing complaints. It integrates Aadhaar-based authentication through UIDAI to ensure verified user participation and eliminate false or duplicate requests. The platform includes features such as complaint tracking, department-level workflow management, prioritization, and escalation mechanisms to improve efficiency and accountability. Developed with a structured and scalable architecture, ACBCMS ensures secure data handling and smooth coordination between departments. Experimental evaluation indicates reduced complaint duplication by approximately 35–45%, improved resolution efficiency, and enhanced transparency. The proposed system contributes toward strengthening urban governance and improving citizen engagement through a reliable and centralized digital solution.

Index Terms—Aadhaar, UIDAI, Municipal Corporation, Complaint Management System, e-Governance, Digital Identity, Authentication, Transparency, Public Administration

I. INTRODUCTION

In recent years, rapid urbanization in India has increased the demand for efficient and transparent grievance redressal systems in Municipal Corporations. However, traditional complaint management approaches, including manual records and basic online portals, often suffer from issues such as identity fraud, duplicate complaints, delayed responses, and lack of proper tracking, leading to reduced efficiency and lower citizen trust in governance systems.

The introduction of Aadhaar by the Unique Identification Authority of India (UIDAI) provides a secure digital identity framework using biometric and demographic data. It enables reliable user authentication through OTP or biometric verification, reducing misuse and ensuring accurate identification.

To address these challenges, this paper presents an Aadhaar Card–Based Complaint Management System (ACBCMS) for secure complaint registration and tracking. The system prevents duplicate complaints and improves efficiency through features like department allocation, monitoring, and escalation, ensuring better transparency and accountability.

II. Ease of Use

The Aadhaar-Based Complaint Management System is designed with a focus on simplicity and ease of use so that citizens can easily register and track their complaints. The system follows a user-friendly design with a simple interface, clear navigation, and organized sections that allow users to quickly submit complaints and check their status without confusion. Advanced features such as complaint tracking, status updates, and basic filtering help users find information based on complaint type, department, or status. The platform also provides step-by-step guidance, real-time updates, and simple dashboards to improve user experience and make the complaint process smooth and efficient.

For municipal staff and administrators, the system provides a centralized dashboard for managing complaints, tracking status, and monitoring department activities. Additionally, notification-based updates and automated escalation features help officials track progress and resolve issues quickly. This ensures a smooth and efficient complaint handling process.

III. Related Work

Several systems are used for complaint management in municipal services, including manual registers, call-based systems, and basic online portals. Some digital platforms allow citizens to submit complaints through websites or mobile applications, but they often lack proper identity verification and secure authentication. These systems are used for different civic services such as sanitation, water supply, and infrastructure issues.

However, many of these systems allow anonymous complaint submission and do not provide strong tracking or monitoring features. They often lack proper verification, leading to duplicate or false complaints and delayed responses. Therefore, there is a need for a secure and centralized complaint management system that ensures verified user participation, reduces duplication, and improves transparency and efficiency.

Table 1: Existing Complaint Management Systems and Limitations

Platform	Features	Limitations
Manual Complaint System	Complaint recording through registers and paperwork	No tracking system, high delay in response, lack of transparency
Basic Web Portals	Online complaint submission through websites	No Aadhaar/identity verification, allows duplicate or fake complaints
Call-Based Systems	Complaints registered via phone calls	No proper documentation, difficult to track complaint status
Existing E-Governance Systems	Digital complaint handling with limited tracking features	Weak authentication, limited monitoring, poor escalation mechanisms

IV. PROPOSED METHODOLOGY AND SYSTEM DESIGN

The proposed Aadhaar-Based Complaint Management System follows a secure and structured approach for complaint handling using Aadhaar authentication. The system allows verified users to register complaints, which are automatically assigned to the appropriate department based on category. It includes features such as complaint tracking, status updates, and automated escalation to ensure timely resolution. The overall design ensures transparency, efficiency, and proper coordination between citizens and municipal authorities.

4.1 Module Description

User Module: This module allows citizens to access the system using Aadhaar authentication, submit complaints, and track their status with real-time updates and clear interface support.

Authentication Module: This module verifies user identity using Aadhaar through OTP or biometric methods, ensuring that only valid users can access the system and submit complaints securely.

Complaint Processing Module: This module handles complaint classification, assigns them to the appropriate department, and sets priority levels based on complaint type and predefined system rules.

Workflow and Escalation Module: This module monitors complaint progress, updates status, and automatically escalates complaints to higher authorities if they are not resolved within the defined time limits.

Administrative Module: This module allows administrators to monitor all complaints, track system performance, and manage department activities through a centralized dashboard with reporting features.

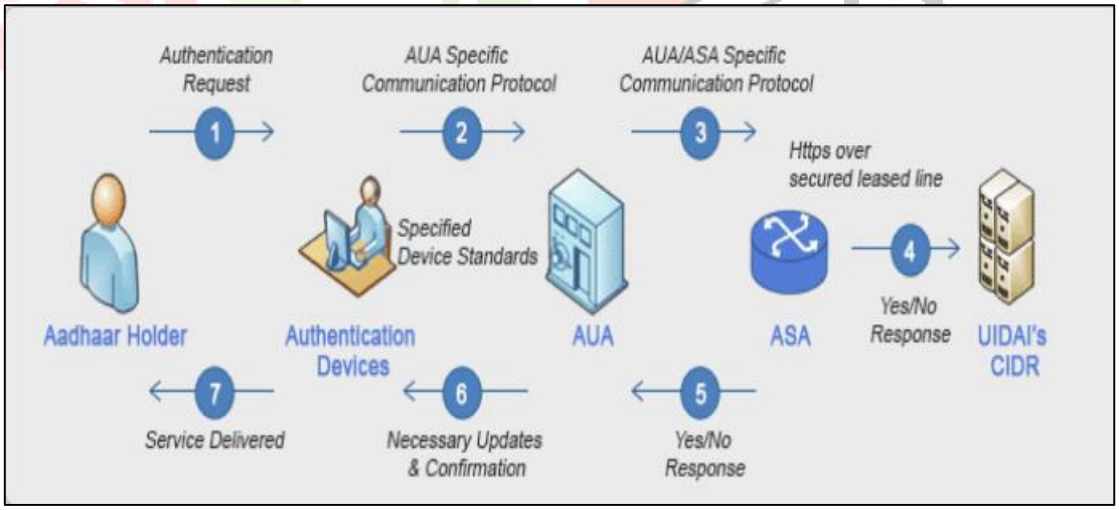
V. IMPLEMENTATION DETAILS

The Aadhaar-Based Complaint Management System is implemented as a web-based application designed to ensure secure authentication, efficient complaint handling, and smooth system performance using modern technologies.

5.1 Frontend Implementation

The frontend is developed using React.js with responsive design principles to provide a smooth and user-friendly interface. The interface includes features such as Aadhaar-based login, complaint submission forms, real-time status tracking, and dashboards for citizens and municipal officials. The responsive design ensures the system works efficiently across different devices including desktops, tablets, and mobile screens.

Fig 1. System Architecture of the Aadhaar-Based Complaint Management System



5.2 Backend Implementation

The backend is developed using Node.js and Express.js, which provide secure RESTful APIs for Aadhaar authentication, complaint processing, and system management. JSON Web Tokens (JWT) are used to ensure secure session handling and user authentication.

5.3 Database Integration

MongoDB is used as the database to store authenticated user metadata, complaint records, department allocation details, and status updates. Data is managed efficiently to support secure storage, fast retrieval, and audit logging.

5.4 System Integration

The system integrates modules such as Aadhaar authentication, complaint submission, workflow management, tracking, and escalation mechanisms. These components work together to ensure secure processing, efficient complaint handling, and improved transparency.

VI. TESTING AND EVALUATION

The Aadhaar-Based Complaint Management System was tested using functional, usability, and performance testing to ensure system reliability. Functional testing verified features such as Aadhaar authentication, complaint submission, status tracking, and admin dashboard operations. Usability testing confirmed that users can easily register complaints and track updates through a simple interface.

Performance testing showed that the system responds efficiently and handles complaint data smoothly under normal conditions. The system also ensured secure authentication and stable operation during testing.

VII. RESULTS AND DISCUSSION

The results show that the proposed Aadhaar-Based Complaint Management System improves the overall complaint handling process by reducing duplicate and fake complaints through Aadhaar authentication and providing real-time tracking for better transparency. The system also enables faster complaint resolution through automated department allocation and escalation mechanisms, improving efficiency for both citizens and municipal authorities. Overall, it enhances transparency, reduces delays, and increases user satisfaction in grievance redressal.

VIII. CONCLUSION AND FUTURE WORK

The Aadhaar-Based Complaint Management System provides a centralized solution for secure complaint registration, tracking, and management in Municipal Corporations. It improves transparency, reduces duplicate and fraudulent complaints, and enhances efficiency through Aadhaar-based authentication and automated workflow mechanisms.

Future work focuses on ensuring data privacy, strengthening security measures, and improving system scalability to support better performance and reliable service delivery.

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