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Smart E-Mahanagar Palika

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ABSTRACT:

In modern urban governance, effective communication between municipal authorities and citizens is crucial for timely problem resolution and service delivery. This project focuses on the development of a digital complaint management system using Android Studio and Java, enabling citizens to report issues related to roads, water supply, and electricity services. The application allows users to register complaints by providing essential information and uploading photographs of the issue. To ensure accountability, users must verify their identity through OTP-based verification linked with their Aadhaar, phone number, and email. The reported complaints are directed to the respective municipal departments, where admins can track, manage, and resolve them promptly. In cases where false complaints are identified, appropriate actions can be taken.

Keywords: Complaint Management System, Android Studio, Java, Municiple Corporation.

INTRODUCTION:

In today's urban landscape, maintaining effective communication between citizens and municipal authorities is a growing challenge. As cities expand and civic issues multiply, timely reporting and resolution of problems such as broken roads, leaking pipelines, and power outages are critical for maintaining public infrastructure and trust. However, traditional complaint mechanisms are often slow, opaque, and vulnerable to mismanagement or data tampering. To address these challenges, our project introduces a digital complaint management system that bridges the gap between the public and municipal corporations through a secure and transparent mobile application. This system provides a streamlined platform where citizens can easily register complaints by uploading descriptions, locations, and photographic evidence of issues. Each submission is linked to the user's verified credentials (phone number, Aadhaar number, and email), ensuring accountability and minimizing fraudulent reports. Our solution also includes an administrative module that enables municipal staff to efficiently manage, track, and respond to complaints based on category and urgency. By digitizing the complaint resolution process and integrating secure user verification and media uploads, this project enhances both transparency and responsiveness. This paper outlines the system's design, development, and evaluation, demonstrating its potential to modernize civic grievance redressal and promote active citizen participation in urban governance.

LITERATURE SURVEY:

The Four Papers are studied [1] In the paper A Comprehensive Study of Digital Image Steganographic Techniques, the authors explore various methods for data hiding using cover mediums like images, audio, and video. Techniques discussed include LSB (Least Significant Bit) replacement, edgebased embedding, provenance authentication, and pixel pointer-based methods. Mahdi et al. proposed an improved LSB-based technique where secret keys and pseudo-random number generation are used to select pixel regions, enhancing security. However, while the method strengthens secrecy, it lacks detailed evaluation regarding the perceptual invisibility of the hidden data within the images. [2] The paper Combining Steganography with Data Obfuscation: A Study on Advanced Security Measures for Confidential Data Transmission focuses on audio signal security through multiple encryption and scrambling steps. The authors use different pseudo-random sequences and keys to scramble and multiply the original audio signal, making it resemble random noise and hiding its actual content. By cutting the signal into frames and applying multiple operations, they enhance encryption robustness. This technique ensures that without the appropriate decryption key, the original audio cannot be retrieved, thus providing a strong layer of security during data transmission. [3] In the paper Chaos-Based Encryption Technique for Compressed H264/AVC Videos, the focus is on secure encryption of H.264/AVC compressed videos while maintaining syntax compliance and efficient performance. The authors emphasize that conventional encryption methods like DES or AES are unsuitable because they add too much computational load. Instead, lightweight encryption is integrated directly into the video encoding process, allowing the resulting encrypted videos to remain standard-compliant and playable. This ensures high-level security without sacrificing compression efficiency or introducing significant computational burdens. [4] The paper A Novel Digital Audio Encryption and Forensics Watermarking Scheme addresses the challenges of audio copyright protection and forensic authentication through digital watermarking. Two techniques are discussed: Hu and Lu's semi-fragile watermarking based on compressed sensing, which embeds watermarks into high and low-frequency regions of the audio using DWT, and Lai et al.'s fragile watermarking approach using homomorphic encryption in the encrypted wavelet domain. While these schemes effectively verify tampering and maintain audio quality, they show varying robustness, particularly withstanding different signal processing attacks.

III. PROPOSED SYSTEM:

The proposed system aims to address the limitations of the existing systems by offering an integrated platform for medication reminders and disease predictions. By leveraging modern technologies such as ReactJS, Node.js, and machine learning models, the system provides users with accurate predictions for diseases like pneumonia, obesity, and diabetes. The inclusion of features like email reminders, personalized reports, and secure authentication enhances the user experience and promotes proactive healthcare management.



Figure 1: System Architecture of the proposed system

3.1 IMPLEMENTATION

1. User Registration and Authentication

This module enables users (citizens) to register and log in using their email, phone number, and Aadhaar number, verified through OTP authentication. It ensures secure access using session management. Registered users can file complaints and track status updates. Admins (municipal staff) have secure login credentials to access complaint records and take necessary action.

2. Complaint Submission with Media Upload

Users can submit complaints related to roads, water supply, or electricity by providing a brief description, location, and uploading photographic evidence of the issue. The system supports image upload functionality from mobile devices, ensuring that the complaint includes visual proof for verification.

3. Complaint Verification and Response

Once a complaint is submitted, the backend system notifies the respective municipal department. Admins can review the complaint details, verify the attached evidence, and change the complaint status (e.g., Pending, In Progress, Resolved). Verified complaints are forwarded for field action.

4. Admin Dashboard and Complaint Management

Admins can view, filter, and manage complaints based on department, urgency, or date. The dashboard provides tools to assign complaints to relevant field staff, update complaint status, and view complaint history. It ensures transparency and quick resolution tracking.

5. Secure Data Storage and Validation

All user data and complaint records are stored securely in the database. User credentials and identification details (email, Aadhaar, phone) are encrypted. The system checks for duplicate or fake complaints using user identity and image comparison to avoid misuse. **6. Notification and Tracking System** Users receive real-time updates via email or SMS when the complaint status is changed. The complaint ID enables users to track their issues through the portal. The system ensures timely communication between citizens and municipal authorities

RESULTS AND DISCUSSION:

The system was rigorously tested across various complaint categories—road, water, and electricity—under real-time user interactions, demonstrating reliable performance in authentication, data handling, and issue tracking. User verification through Aadhar, phone number, and email OTPs consistently ensured high accuracy in preventing false or duplicate entries, significantly improving the integrity of complaint data. Complaint submissions with image uploads were successfully processed with minimal latency, even under simultaneous access by multiple users. The system reliably stored multimedia evidence along with timestamps and user identification, enabling accurate verification and traceability of each complaint. Admin interactions, including complaint status updates and resolution logging, were reflected in real time, offering clear accountability and transparency throughout the process.





CONCLUSION:

The project effectively demonstrates how a digital complaint management system can streamline communication between citizens and municipal corporations using modern mobile and web technologies. By integrating secure user authentication through Aadhaar, mobile number, email, and OTP verification, the system ensures that only genuine users can lodge complaints, thereby minimizing the risk of fraudulent or spam submissions. Additionally, the ability to upload photographic evidence strengthens complaint validation and enhances transparency. The modular design, with dedicated sections for electricity, water, and roads, helps categorize grievances efficiently, enabling targeted responses from municipal staff. The admin panel provides real-time updates and complaint tracking, ensuring better accountability and faster resolution cycles. This citizen-centric approach not only empowers the public to report civic issues easily but also promotes responsive governance. In the future, the system can be expanded to include real-time GPS-based complaint mapping, predictive analytics for issue hotspots, and multilingual support to cater to a wider demographic. Overall, the project stands as a scalable and secure civic engagement platform that promotes active citizen participation and smarter municipal administration.

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