

PIMS: Public Issue Management System

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Abstract—The Public Issue Management System (PIMS) is a web-based platform designed to streamline the reporting, tracking, and resolution of civic issues such as broken streetlights, road damage, water pipeline leaks, overgrown vegetation, and wildlife disturbances. Traditional complaint systems suffer from delays, lack of transparency, and inefficient coordination between residents and government departments. PIMS enables residents to register complaints online, which are verified by local authorities and assigned to the appropriate department (KSEB, Water Authority, PWD, Forest). By bridging the gap between citizens and municipal bodies, PIMS enhances government responsiveness, transparency, and public trust in urban management. Traditional civic complaint systems rely on manual reporting methods, resulting in slow response times and unresolved issues. This paper presents the system architecture, workflow, and impact analysis of PIMS, demonstrating its potential as a scalable model for digital governance in smart city initiatives.

Keywords—public issue, complaint resolution, e-governance, smart cities.

I. INTRODUCTION

A well-maintained infrastructure is fundamental to a thriving society, ensuring the seamless functioning of essential public services. In a developing country like India, public issue management is often reliant on traditional manual methods that suffer from inefficiencies, lack of transparency, and delays in complaint resolution. These challenges lead to citizen dissatisfaction, inefficient resource allocation, and administrative bottlenecks. Considering Kerala, its urban governance is strong in fiscal empowerment but still requires improvements in decentralized decision-making and local autonomy[1]. The lack of a centralized complaint tracking system often results in delayed responses from municipal bodies and poor coordination between departments such as KSEB, PWD, Water Authority, and the Forest Department. As cities expand and infrastructure demands increase, the need for a localized digital framework becomes essential to streamline communication between citizens and government departments. A smart complaint

management system like PIMS can address these challenges by enabling real-time tracking, structured issue resolution, and department-based complaint assignments. By providing a centralized digital platform for complaint registration and tracking, PIMS aims to enhance transparency, accountability, and efficiency in public service management. This paper outlines the workflow, system architecture, and measurable benefits of PIMS in improving civic governance and ensuring effective municipal responsiveness.

II. CRISIS IN URBAN SERVICE DELIVERY

A. The Scale of Unresolved Civic Issues

India's urban population of 483 million generates 27 million annual infrastructure complaints, with 43% remaining unresolved beyond 30 days[2]. Kerala's digital governance model achieves 91% resolution rates through centralized tracking systems[1], while other states average 57%[3] but interdepartmental delays persist. For instance, water pipeline leaks in Kochi take 14 days to resolve due to fragmented workflows between the Water Authority and PWD[4].

B. Lack of Transparency

Traditional complaint systems rely on physical visits, phone calls or written complaints, leading to inefficiencies. 38% of the civic complaints remain unsolved due to the lack of structured tracking mechanisms[5]. Citizens have no way to track complaint progress, leading to frustration and disengagement.

C. Delayed Complaint Resolution

Only 21% of municipalities provide complaint status updates to residents[6]. Complaints often require multiple approvals across departments, delaying resolution. 72% of urban citizens abandon complaints after facing bureaucratic hurdles[7]. Bureaucratic hierarchies delay approvals, with 67% of complaints requiring 3+ departmental referrals[8]. The Kerala Local Self-Government Report (2024) notes that 58% of delays stem from miscommunication between panchayats and line departments[9]. By adapting an

automated complaint routing, the response time can be reduced.

III.EXISTING SYSTEM

The current methods used for reporting civic issues are largely outdated and inefficient. Residents often rely on manual processes such as calling municipal offices[3], visiting government departments in person, or writing formal complaints. Many local governments lack dedicated websites or digital platforms for complaint submission, making the process cumbersome. Even when online portals exist, they frequently lack features such as real-time tracking, automated complaint categorization, or direct department assignment. As a result, complaints are often lost, overlooked, or resolved with significant delays. Furthermore, there is no standardized way for residents to track the progress of their complaints, leading to frustration and reduced public trust in government service.

Current civic complaint mechanisms rely on fragmented analog processes:

- **Manual Reporting:** Residents submit complaints via phone calls (42%), in-person visits (34%), or outdated web portals (24%)[10].
- **No Real-Time Tracking:** 89% of municipalities lack digital tracking, leading to citizen distrust[11].
- **Departmental Silos:** Complaints are manually routed, causing delays (e.g., Kochi's streetlight repairs take 11 days due to KSEB-PWD miscommunication[4]).

Considering Kerala, Kerala's civic grievance systems vary across administrative tiers:

- **Panchayats:** Follow KILA's 2017 manual, using physical grievance books and weekly hearings[12].
- **Municipalities:** Use hybrid systems (e.g., Kochi's online portal with manual department assignments)[13].
- **Urban Bodies:** Rely on Excel-based tracking, causing 27% duplicate complaints[5].

The **Kerala Urban Governance Index (2024)** identifies three systemic flaws[9]. The workflows are fragmented as there is no integration between panchayat and municipal systems. Additionally, analog tracking remains a major issue, with 89% of rural complaints lacking digital records, making it difficult to monitor progress[9]. Furthermore, localization gaps persist, as existing systems do not provide tailored interfaces for district-specific issues—for example, coastal erosion in Alappuzha requires a different approach than wildlife conflicts in Wayanad[9]. These shortcomings highlight the need for a centralized and region-specific complaint management system to ensure effective issue resolution.

IV.PROPOSED SYSTEM

The Public Issue Management System (PIMS) introduces a modern, digital approach to handling civic complaints. This system is designed to provide a structured and transparent workflow that ensures complaints are efficiently reported, tracked, and resolved[8]. PIMS adopts a Kerala-centric design with manual verification and assignment.

PIMS follows a structured workflow that progresses through five key stages as given in fig.2, ensuring clear

accountability and transparency throughout the process. Residents can submit complaints via the web platform, providing details such as issue type, location, and photographic evidence, which are systematically logged for tracking. Local authorities then review, verify, and filter complaints to eliminate duplicates and prioritize urgent cases before assigning them to the relevant department such as KSEB, PWD, Water Authority, or the Forest Department. Once assigned, the respective department reviews the complaint, initiates necessary actions, and updates the status as "In Progress" or "Resolved" based on progress. Throughout the process, residents receive real-time updates on their complaint status, allowing them to track progress seamlessly. After resolution, users can provide feedback and ratings, enabling authorities to assess departmental efficiency and improve future service delivery.



Fig 2. Block diagram of proposed system

Key enhancements over the existing system include:

- **User-Friendly Complaint Registration:** Residents can easily submit complaints through an intuitive web platform, including details such as issue type, description, location, and photographic evidence.
- **Complaint Verification:** The system filters duplicate complaints and prioritizes urgent issues, reducing administrative workload.
- **Real-Time Tracking and Notifications:** Users receive instant updates regarding the status of their complaints, eliminating uncertainty and enhancing transparency.
- **Efficient Task Allocation:** Complaints are automatically assigned to the appropriate government department based on the issue type, ensuring faster resolution times.
- **Feedback and Review System:** After resolution, users can provide feedback on the effectiveness of the response, holding departments accountable for their services.
- **Data-Driven Decision Making:** Authorities can analyse complaint trends to identify recurring problems and proactively address infrastructure issues before they escalate.

By utilizing technology, PIMS aims to streamline public issue management, improve accountability, and foster a more responsive governance model that benefits both residents and government agencies.

V.SYSTEM ARCHITECTURE

The Public Issue Management System (PIMS) follows a three-tier architecture, ensuring efficient complaint handling and department coordination. Fig.1 illustrates the interaction between users, admins, departments, backend services and the database. The frontend enables user interactions, the backend manages complaint processing, and Firebase

Firestore and Realtime Database ensures real-time data synchronization and storage for seamless functionality.

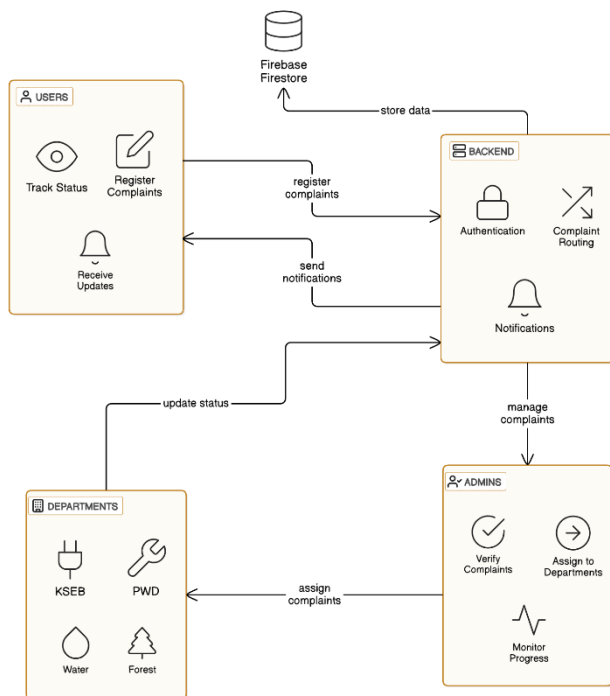


Fig.1. System Architecture Diagram

A. Workflow of PIMS

The five-step complaint resolution process in PIMS ensures streamlined issue tracking:

- **Complaint Registration-** Residents submit complaints with descriptions, location and media uploads.
- **Admin Verification-** Local authorities validate complaints before forwarding them.
- **Department Assignment-** Complaints are routed to KSEB, PWD, Water Authority etc...
- **Status Updates and Resolution-** Departments update the complaint status at each stage.
- **Citizen Feedback-** Users rate service efficiency and provide feedback.

B. System Components

- **Citizen Portal-** Mobile responsive interface for complaint submission.
- **Admin Dashboard-** Complaint verification and routing system.
- **Department Modules-** Custom workflows for service departments.
- **Analytics Engine-** Tracks resolution performance and response times.

VI.CONCLUSION AND FUTURE SCOPE

Efficient public service management is a fundamental necessity in rapidly urbanizing regions. PIMS aims to simplify, digitize, and accelerate civic complaint resolution through real-time tracking and department -based issue assignment. By addressing limitations of manual complaint

handling, PIMS is expected to increase transparency, trust, accountability and citizen engagement in municipal governance.

While the system is yet to be deployed, its potential impact can be inferred from similar implementations in smart governance models. The next steps involve real-world deployment, testing, and refining the system based on user feedback. Future enhancements could include AI-powered complaint prioritization, which would classify complaints based on urgency, ensuring that critical issues such as landslides receive immediate attention over less urgent concerns like potholes[14]. Additionally, local language expansion can enhance accessibility by incorporating Tamil and tribal dialects, particularly for border districts where linguistic diversity is prominent[15]. Furthermore, IoT sensor integration could improve disaster response capabilities, such as flood detection in Alappuzha's coastal zones, allowing authorities to take proactive measures[16]. As cities grow, solutions like PIMS will play a crucial role in shaping efficient, citizen-centric urban governance models by leveraging data-driven insights, improved accessibility, and advanced monitoring technologies to streamline issue resolution and public service delivery.

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