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LOCAL PROBLEM SOLVER PLATFORM

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Abstract

Efficient handling of local civic issues is essential for the smooth functioning of any community. However, in many areas, the process of reporting and resolving problems such as road damage, waste accumulation, water supply issues, and electrical faults is still managed through traditional methods. These methods often involve manual complaint registration, lack proper record management, and provide no clear mechanism for tracking the status of reported issues. As a result, problems remain unresolved for long periods, leading to inconvenience for citizens and reduced trust in local administration.

To overcome these limitations, the Local Problem Solver Platform is proposed as a digital and centralized system for managing community issues. The platform allows users to easily report problems using an online interface by entering details, uploading images, and specifying the location of the issue. It ensures that all complaints are stored systematically and can be accessed and managed efficiently.

The system provides real-time updates on complaint status, enabling users to stay informed about the progress of their requests. In addition, it introduces an interactive feature where community members can support issues by voting and sharing their opinions. This helps in identifying the most urgent problems and enables authorities to prioritize their actions accordingly.

On the administrative side, the platform offers a structured dashboard for monitoring, categorizing, and resolving complaints. It improves coordination among responsible personnel and ensures accountability at every stage of the process. By reducing manual work and enhancing communication, the system increases overall efficiency.

In conclusion, the proposed platform leverages digital technology to create a transparent, responsive, and user-friendly environment for addressing local problems. It not only simplifies the complaint process but also encourages community involvement, ultimately contributing to better governance and improved quality of life..

Keywords— Grievance Redressal System, E-Governance, Complaint Management System, Crowdsourcing, Civic Issue Management, Web Application.

I. INTRODUCTION

In today's rapidly developing world, the effective management of civic issues has become an essential aspect of maintaining a high quality of life for citizens. Problems such as damaged roads, poor waste management, water leakage, drainage issues, and malfunctioning streetlights are

common in many communities. However, the systems used to report and resolve these issues are often outdated and inefficient, especially in rural and semi-urban areas. Traditional methods require citizens to physically visit local offices to lodge complaints, which is both time-consuming and inconvenient.

These manual processes lack proper organization and tracking mechanisms, resulting in delays, mismanagement, and sometimes complete neglect of reported problems. Citizens are often left unaware of the progress or status of their complaints, leading to frustration and a lack of trust in local authorities. Additionally, there is no centralized database to store and analyze complaint data, making it difficult for authorities to identify recurring issues or prioritize critical problems effectively.

To overcome these challenges, there is a growing need for a modern, technology-driven solution that simplifies the complaint management process while ensuring transparency and accountability. A digital platform can bridge the communication gap between citizens and authorities by enabling users to report issues easily, track their progress in real time, and receive timely updates.

The Local Problem Solver Platform is designed to fulfill this need by providing a user-friendly system where citizens can submit complaints along with images and location details. The platform also encourages community participation by allowing users to view, vote, and comment on reported issues, helping to highlight the most urgent problems. On the administrative side, authorities can efficiently manage complaints, assign tasks, and update statuses through a centralized dashboard.

By integrating modern web and mobile technologies, this system aims to improve efficiency, reduce manual effort,

and promote better governance. Ultimately, it contributes to creating smarter, more responsive communities where citizens play an active role in problem-solving.

II. LITERATURE SURVEY

With the increasing number of civic issues in both rural and urban areas, the need for efficient and reliable grievance redressal systems has become highly significant. Traditional methods of reporting problems, such as visiting local offices, submitting written applications, and relying on manual registers, are time-consuming and often lack transparency, accountability, and proper tracking. To overcome these challenges, various researchers and developers have proposed digital and web-based complaint management systems. These systems aim to automate the complaint process, improve data handling, and provide centralized access to civic issue information.

In order to understand the existing approaches, technologies, and limitations related to complaint management systems, a detailed review of previous research work has been carried out. The following literature survey presents a summary and analysis of multiple research papers related to grievance redressal systems, complaint management platforms, and digital governance solutions, which have been studied to gain insights and support the development of the Local Problem Solver Platform.

This study presents an ICT-enabled grievance redressal system that replaces traditional complaint mechanisms with a digital platform, improving efficiency, transparency, and communication between citizens and authorities. It highlights how digital systems can reduce delays and enhance service delivery.[1] Another research focuses on evaluating online grievance management systems, emphasizing their effectiveness in improving user satisfaction and reducing response time. It demonstrates how centralized systems can improve complaint handling and monitoring.[2]

A web-based complaint management system is proposed to automate complaint registration, tracking, and resolution processes. The system

reduces paperwork and improves data accuracy, making it easier for administrators to manage large volumes of complaints efficiently.[3] Another study introduces a citizen-centric complaint system designed to increase participation in governance by allowing users to report issues and monitor their progress. It highlights the importance of user engagement in improving public services.[4]

Research on location-based complaint applications shows how integrating GPS and mobile technologies can improve the accuracy of reporting civic issues. These systems allow users to capture images and tag locations, helping authorities identify and resolve problems quickly.[5] A study on e-governance platforms discusses the importance of centralized complaint portals that enable better coordination between departments and improve transparency in public service delivery.[6]

Another paper focuses on smart city complaint systems that use mobile applications to report and manage civic issues efficiently. It highlights features such as real-time updates, notifications, and data analysis for better decision-making.[7] A web-based tracking system is proposed to monitor complaint status and provide users with continuous updates, ensuring accountability and reducing the need for follow-ups.[8]

Research on crowdsourced platforms emphasizes the role of community participation in identifying and prioritizing issues. These systems allow users to vote, comment, and suggest solutions, enabling authorities to focus on high-priority problems.[9] Another study highlights the importance of integrating feedback mechanisms and user interaction features to improve system usability and engagement.[10]

A complaint management system with dashboard functionality is discussed, where administrators can categorize, assign, and monitor complaints systematically. This improves workflow management and ensures efficient resource allocation.[11] Another research presents a digital system that stores complaint data in a centralized database, enabling analysis of recurring issues and long-term planning.[12]

The use of advanced technologies such as data analytics is explored in some studies to predict problem patterns and improve decision-making processes.[13] Finally, research emphasizes the need for scalable and user-friendly systems that can be implemented across different regions to improve governance and service delivery.[14]

III. PROBLEM STATEMENT

The current system for managing local civic issues is largely manual, inefficient, and time-consuming, creating difficulties for both citizens and authorities. People are required to visit local offices to register complaints, which leads to delays and inconvenience. Complaints are recorded in paper-based registers, increasing the risk of data loss, duplication, and poor record management. There is no proper system to track complaint status, resulting in lack of transparency and accountability. Citizens remain unaware of progress, causing frustration and reduced trust.

Therefore, there is a strong need for a Local Problem Solver Platform that provides a centralized, digital solution to simplify complaint registration, enable real-time tracking, improve communication, and ensure faster, more transparent, and efficient resolution of civic issues.

IV. PROPOSED SYSTEM

The Local Problem Solver Platform is proposed as a centralized digital system designed to streamline the process of reporting, tracking, and resolving civic issues efficiently. The platform provides a user-friendly web and mobile interface where citizens can easily register complaints by entering descriptions, uploading images, and specifying the exact location of the problem. All complaints are stored in a structured database, ensuring proper data management and easy retrieval.

The system enables users to track the status of their complaints in real time, improving transparency and reducing the need for repeated follow-ups. It also incorporates a community

participation feature, allowing users to view, vote, and comment on reported issues, which helps in identifying and prioritizing critical problems.

On the administrative side, authorities are provided with a dashboard to monitor complaints, assign tasks, and update their status systematically. This improves coordination, accountability, and efficiency. Overall, the proposed system reduces manual effort and enhances communication between citizens and authorities.

1. TABLE I

Comparison Between Existing System and Proposed System

Parameter	Existing System	Proposed System (EduStay)
Complaint Registration	Manual	Online
Transparency	High	Low
Tracking	Not Available	Real-time
Data Storage	Paper-based	Digital
Community Participation	Not Available	Voting & Comments
Accessibility	Limited	Web & Mobile

2. Advantages of Proposed System Over Existing System

1. Easy online complaint registration
2. Real-time status tracking
3. Increased transparency
4. Improved accountability
5. Community participation through voting
6. Better prioritization of issues
7. Reduced manual work

V. METHODOLOGY

The methodology of the Local Problem Solver Platform follows a structured and systematic approach to ensure reliable development and effective implementation of the proposed solution. The system adopts a client–server architecture to provide a centralized digital platform for managing civic issues. The methodology focuses on system design, workflow implementation, and integration of frontend, backend, and database components to ensure smooth functionality, scalability, and reliability.

A. System Design

The Local Problem Solver Platform is developed using a client–server architecture consisting of the following components:

1. Frontend: Web application (CSS & HTML).
2. Backend: Server developed using Python or Flask framework.
3. Database: MySQL or Xampp for structured data storage.
4. API Handling: Postman platform for WEB development and testing.

The frontend serves as the user interface where citizens can register complaints, view issues, and track progress. The backend processes user requests, manages complaint data, and handles communication between the frontend and database. The database stores information related to users, complaints, images, locations, votes, and status updates. The modular design ensures scalability, easy maintenance, and future enhancements.

B. Workflow Implementation

The workflow of the system is designed to provide a simple, efficient, and interactive user experience focused on complaint management and resolution.

1. User Workflow

a. User Registration and Login:

Users register and log in to the platform using valid credentials to access system features securely.

b. Home Screen Navigation:

- After login, users can access options such as:

1. Reporting a new problem
2. Viewing existing reported issues
3. Tracking complaint status

c. Problem Reporting:

Users can report issues by entering a description, uploading images, and specifying the location of the problem.

d. Community Interaction:

Users can view other complaints, vote on issues, comment, and suggest solutions to highlight important problems.

e. Status Tracking and Notification:

Users can track complaint status (Pending → In Progress → Resolved) and receive updates from authorities.

C. Backend Processing

The backend is developed using python and flask tools, which handles all application logic. APIs process requests from users, retrieve data from the database, and send responses to the frontend. The backend ensures secure data handling, proper validation, user authentication, and smooth communication between all system components.

D. WEB Handling and Testing

WEBs are developed for functionalities such as user authentication, complaint submission, voting, commenting, and status tracking. These WEBs are tested using Postman to ensure proper functionality, accuracy, and performance before integration with the frontend. This improves system reliability and reduces errors.

E. Database Design and Management

The database is designed to store structured data related to users, complaints, votes, comments, and status updates. Proper relationships and constraints are defined to maintain data integrity and consistency. The centralized database ensures efficient data retrieval, reduces redundancy, and supports scalability..

F. System Integration and Testing

After developing individual modules, the frontend, backend, and database are integrated. Functional testing is performed to verify system behavior, data flow, and user interactions. The system is tested for usability, accuracy, and performance to ensure smooth operation.

G. Deployment and Validation

The final system is deployed on a server for real-time usage. Performance is evaluated based on response time, accuracy of complaint tracking, and user interaction. Validation ensures that the system successfully meets its objectives by improving transparency, efficiency, and communication in resolving local civic issues.

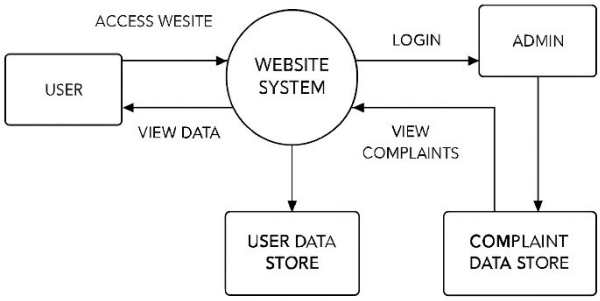

Fig.1 Workflow diagram of Frontend in Local problem solver platform.

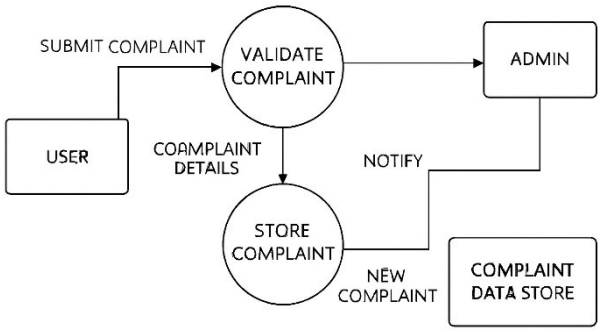

Fig.1 Workflow diagram of Backend in Local problem solver platform.

VI. FUTURE SCOPE

The future enhancements include:

1. AI-based issue classification
2. Predictive analytics for problem detection
3. IoT integration for automatic reporting
4. Multilingual support
5. Blockchain for transparency
6. Chatbot and voice-based reporting

VII. RESULTS & DISCUSSION

A. Key Findings

1. Faster complaint registration and resolution
2. Improved transparency and trust
3. Better communication between citizens and authorities

4. Efficient prioritization using voting system

B. Challenges and Limitations

1. Requires internet access
2. Initial resistance from users
3. Manual verification of complaints
4. Dependence on authority response

VIII. CONCLUSION

The Local Problem Solver Platform provides an effective digital solution for managing civic issues in a transparent and efficient manner. It simplifies the process of reporting, tracking, and resolving problems while reducing dependency on manual systems. The platform enhances communication between citizens and authorities, improves accountability, and encourages community participation. By integrating modern technologies, it ensures better data management and faster decision-making. Overall, the system contributes to improved governance and helps create more responsive, organized, and well-managed communities.

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