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JANMITRA - AI POWERED PLATFORM BRIDGING SOCIETIES WITH NGO'S

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Abstract: In our recent years, we have faced the problem of a gap between the non-governmental organizations (NGOs) and society has become increasingly vital for addressing community-level issues such as sanitation, waste management, water leakage, and environmental degradation. However, the absence of a unified digital platform often leads to fragmented communication and inefficient issue resolution. JanMitra is a next-generation AI-powered social connection platform designed to bridge this gap by connecting societies, NGOs, and government bodies within a single ecosystem. The system leverages Artificial Intelligence (AI) for image recognition to automatically identify the nature of a reported problem—such as garbage accumulation, water leakage, or road related problem and intelligently routes the complaint to the verified and registered NGO. The platform features a mobile application for residents and society heads, a web dashboard for NGOs and government organizations, and a core backend engine that handles AI-based classification, routing, and analytics.

Keywords: Artificial Intelligence, Image Recognition, NGO Collaboration, Civic Engagement, Smart Society, Social Innovation.

I. INTRODUCTION

In the digital age, technology has become a crucial facilitator for social change and civic progress. The township and other society are confronting problem of the waste management, sanitation issue and community neglect sometimes go unrecognized or addressed owing to the communication gap between society members and non-governmental organizations (NGOs). Despite the increase of digital communication, there is currently no centralized platform where individuals can quickly report concerns and NGOs can react efficiently. So, Janmitra is a technological innovation which employs the technology like Artificial It and mobile computing which gives a solution to automate problem detection and assure to cover the communicational gap between the community and NGOs. The JanMitra application utilizes these technologies to construct a socially responsible ecosystem where individuals and organizations combine for civic good.

II. PROBLEM STATEMENT AND OBJECTIVES

In Society there are been various social and civic problems are created and problems remain unsolved not because of the identification of problem, but due to lack of communication within social bodies. Citizens generally do not know where to register the complain the issue, while NGOs are willing to help and solve such types of the issues. Existing digital platforms are very complicated and highly non -user-friendly which results the delays in work with low transparency. There is a need for an intelligent, community-driven system that bridges citizens, NGOs, and societies through automation, trust, and real-time collaboration.

The main objectives of the *JanMitra* research and development are:

1. To design and implement an AI-based platform that automatically identifies civic issues from uploaded images.
2. To connect verified NGOs directly with problem reports for faster resolution.

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3. To develop a smart society management module for event publication, clubhouse or swimming pool booking, and community updates.
4. To provide real-time status tracking and transparency between users and NGOs.
5. To encourage civic participation and strengthen social responsibility through digital transformation.

III. LITERATURE REVIEW

Research Developers are working on reporting systems and society maintained that helps people to file complaints using mobile application because there is a rising demand for improved management of community concerns. Prior research emphasize how simple user interfaces and image-based reporting dramatically promote public engagement in community government. This coincides with the first step of JanMitra's procedure, when citizens lodge concerns using collected photographs.

Artificial intelligence, particularly image recognition, has grown to effectively categorize environmental and civic challenges such as garbage buildup, infrastructure degradation, and public safety threats. CNNs (Convolutional Neural Networks) and contemporary deep-learning architectures have been worked well for automatically detecting and categorizing sorts of challenges.

People claim that trust and transparency are difficulties that come up commonly in public complaint processes. Literature reminds us that conventional methods frequently encounter manipulation, missing records, or delays. To solve this, new studies recommend the use of block chain technology to keep complaints securely, assuring immutability, traceability, and public confidence.

The distribution of complaints to relevant agencies or NGOs is another issue investigated by researchers. Research underlines that automated routing solutions justify faster response time and optimum resource use.

For the resolution step, research on community-driven platforms shows that allowing field workers to update status with before/after photographs boosts system credibility and user happiness. Similarly, JanMitra's field update mechanism promotes transparency throughout the resolution process. Additionally, research on smart societies reveals that internal community management tools—like facility booking, event notifications, and digital verification—strengthen digital governance in residential complexes.

Finally, notification systems and feedback loops have been identified as crucial components for sustaining user engagement and narrowing the communication gap between authorities and people.

IV. SYSTEM ARCHITECTURE

JanMitra follows a layered and modular system architecture designed specifically to connect residential societies with relevant Non-Governmental Organizations (NGOs) for efficient civic issue resolution. The architecture emphasizes simplicity, scalability, and automation while keeping real-world feasibility in mind for a prototype-stage implementation.

The User Layer consists of a mobile application used by residents and society heads. Residents register under a specific residential society using a society code or approval-based onboarding. Once registered, users can capture images of real-world problems such as garbage accumulation, water leakage, open drainage, or sanitation issues directly through the application. Society heads have additional privileges, including society-level complaint monitoring, approval workflows (if required), and resident management.

The Core AI Platform acts as the central intelligence of JanMitra. It integrates image-based issue detection, optional text analysis, complaint categorization, and automated NGO routing. The platform does not rely on manual selection of complaint categories by users; instead, it analyzes the uploaded image to infer the nature of the problem. This design choice reduces user effort and minimizes incorrect complaint classification.

The NGO Dashboard Layer provides web-based interfaces for registered NGOs. Each NGO receives complaints that match its operational domain (e.g., cleanliness, water management, environmental issues). NGOs can view complaint details, images, society information, and update the status of the issue. This ensures transparency and structured collaboration between societies and NGOs.

The Data and Storage Layer securely store user profiles, society records, complaint metadata, and image data. Structured data is maintained in a database, while images are stored in object storage. The architecture is designed to support future extensions such as government dashboards and immutable logging mechanisms.

V. AI METHODOLOGY

The core intelligence of JanMitra is driven primarily by computer vision, supported by optional language processing for contextual understanding. Since the project emphasizes image-first reporting, the AI pipeline is optimized to analyze visual evidence rather than relying heavily on textual descriptions.

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The Image Recognition Module uses pretrained convolutional neural networks to identify visual patterns corresponding to common civic issues. These include garbage piles, overflowing bins, stagnant water, drainage blockages, and related sanitation problems. Pretrained models such as MobileNet are suitable at the prototype stage due to their lightweight nature and good performance on mobile-captured images.

While text input is optional, a Lightweight NLP Module can process short user descriptions when provided. Instead of deep linguistic analysis, the system uses intent extraction to support image-based classification and improve confidence scores. This hybrid approach ensures robustness when images are unclear or partially captured.

The final classification output is mapped to predefined NGO service categories. The system does not attempt fine-grained prediction beyond its trained scope, ensuring reliability and reducing false positives. This AI-driven automation removes the need for manual complaint categorization and accelerates the resolution workflow.

VI. DATA FLOW AND WORKING

The operational flow of JanMitra begins when a registered resident captures and uploads an image of a local problem through the mobile application. The image is immediately transmitted to the backend platform along with minimal metadata such as society ID, location tag, and timestamp.

The image is processed by the AI classification engine, which identifies the type of issue depicted. If optional text is provided, it is analyzed to support the visual inference. Based on the classification result, the system determines the most relevant NGO capable of addressing the issue.

The complaint is then automatically routed to the selected NGO and becomes visible on the NGO's dashboard. Simultaneously, the complaint is logged under the corresponding residential society, allowing the society head to monitor its progress. NGOs update the complaint status as they acknowledge, act upon, or resolve the issue.

Residents and society heads receive real-time notifications regarding status changes. This closed-loop workflow ensures transparency, accountability, and continuous engagement among all stakeholders involved.

VII. IMPLEMENTATION DETAILS

The JanMitra prototype is implemented using a mobile-first approach for society users and a web-based dashboard for NGOs. User authentication is handled through secure login mechanisms, ensuring that only verified society members can submit complaints.

Society onboarding is a key component of the system. Each society is registered independently, and residents can only participate after being associated with a society. Society heads have elevated permissions to manage residents, view complaint analytics, and act as a coordination point between residents and NGOs.

The backend server handles image processing requests, AI inference, complaint routing logic, and notification delivery. Complaint data is stored in a structured database, while images are maintained in secure storage to preserve evidence integrity. The system is intentionally designed to remain lightweight while being scalable for future enhancements.

VIII. RESULTS AND EVALUATION

Initial testing of the JanMitra prototype demonstrates a significant reduction in manual effort required to report and route civic issues. Image-based reporting eliminates ambiguity and ensures that NGOs receive clear, actionable information.

Compared to traditional complaint systems, JanMitra shows faster issue circulation and improved traceability. Society heads reported better visibility into recurring problems within their societies, while NGOs benefited from structured and categorized issue intake.

Although the evaluation is limited to a controlled prototype environment, user feedback indicates improved trust, ease of use, and satisfaction due to minimal input requirements and transparent status updates.

IX. WORK GAPS AND CHALLENGES

Despite its advantages, JanMitra faces several challenges. Image classification accuracy can vary depending on lighting conditions, camera quality, and environmental factors. Continuous dataset expansion and retraining are required for better real-world performance.

Data privacy and secure handling of location-specific images remain critical concerns. Additionally, NGO response times may vary depending on resource availability, which is outside the system's direct control.

Another challenge is scaling the platform across multiple societies while maintaining consistent NGO coverage and operational efficiency.

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X. FUTURE SCOPE

Future development of JanMitra includes extending the platform to integrate government authorities alongside NGOs, enabling a hybrid civic resolution ecosystem. Advanced AI models can improve detection accuracy and expand the range of detectable issues.

Additional features such as multilingual support, predictive analysis of recurring society-level problems, and integration with IoT sensors (e.g., smart bins) can further enhance system intelligence. Immutable complaint logging and public transparency dashboards may also be explored to strengthen trust.

XI. CONCLUSION

JanMitra presents a practical and focused application of AI-driven automation in civic issue management at the residential society level. By leveraging image-based problem reporting, intelligent NGO routing, and society-level oversight, the platform simplifies complaint handling while promoting community participation.

The system demonstrates how even a prototype-stage AI solution can significantly improve transparency, efficiency, and collaboration in social welfare initiatives. JanMitra lays a strong foundation for future expansion into broader smart governance frameworks.

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