Civic Complaint Registration Application for Citizens of Urban/Rural Areas

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Abstract: Citizen engagement and technology usage are two emerging trends driven by smart city initiatives. Typically, citizens report issues, such as broken roads, garbage dumps, etc. through web portals and mobile apps, in order for the government authorities to take appropriate actions Several mediums– text, image, audio, video– are used to report these issues. Through a user study with 13 citizens and 3 authorities, we found that image is the most preferred medium to report civic issues. We aim Through this platform, we aim to achieve the following: Enable citizens to easily submit complaints, particularly via image-based submissions, Automate the complaint handling process, from Geo-fencing tagging to department allocation, Utilize ML, and Image Processing to enhance efficiency and accuracy in complaint resolution, Foster a sense of community engagement and participation in local governance. Method which implemented are Image Processing, Computer Vision model: To capture and interpret complaint images, Geo-fencing: To precisely determine the location of each issue, ML: To automatically categorize com plaints and allocate them to the relevant departments, User-Centric Design: Ensuring an intuitive and accessible interface for citizens. Citizens can report issues promptly through images, reducing reporting barriers. The Geo-fencing and automated department allocation result in faster response times [1]. ML technologies ensure accurate tagging and categorization of complaints. By harnessing the power of automation and technology, we enable citizens to actively participate in improving their local communities [1]. This application not only streamlines the process of addressing complaints but also promotes transparency and civic engagement.

Keywords: - Civic Issues, Image Processing, Complaint Redressing, Geo-tagging, Geo fencing.

I. INTRODUCTION

Today's smartphones can unlock the full potential of crowdsourcing and take e-Participation to a new level. Users can transparently contribute to solving complex and novel problems. Citizen involvement remains a challenge, but with the proliferation of geo-located smartphones, it has never been easier. Complaints are a valuable source of feedback to improve the infrastructure and condition of our city. Citizens may be dissatisfied with the surrounding or urban infrastructure, but may not prefer traditional grievance systems that have to go through lengthy procedures such as going to the office and waiting in line for hours. Valuable time and effort. So, to fill the gap, we devised an Android application that introduces a new platform for exchanging problems between civil servants and the general public with just two clicks [2]. Today we don't have a direct communication platform between the government authority and public people efficiently for solving the civic issues. Now we use the more efficient way for solving the problems, using some online systems. The complaint system will provide a direct communication platform for citizens and higher authority. Online systems are very faster and used for our satisfaction. This system is using the hierarchy of different levels of authority like user level, department authorities and finally the higher level of authority [3]. The current system in most countries provides some or all of these ways for citizens to register their complaints: (1) email, (2) helpline number, (3) short messaging service (SMS), and (4) online complaint registration portal. However, all of these methods require the complainant to describe the

location of the complaint manually. This method is prone to human errors and thus misinterpretations, leading to inefficiency in addressing the complaints. The proposed GPS based Complaint Redressal System (GPSCRS) aims to solve this problem through a mobile application for registering complaints [7]. "Civil Complaint Registering Application" designed for both urban and rural areas. By harnessing the power of Image Processing technology, we capture images of issues, automate key details such as address, pin code, and geotagging, and categorize complaints based on image analysis. This streamlined process ensures that each complaint is efficiently routed to the respective department for swift resolution, revolutionizing the way community issues are addressed [1]. The Civic Complaint Registration Application for Citizens of Urban/Rural Areas project is an innovative initiative aimed at empowering citizens to voice their concerns and grievances effectively, thus fostering a more accountable and responsive governance system [1].

II. METHODOLOGY

The goal is to create "Civil Complaint Registering Application" we focus on a flexible communication between public people and municipal authority. Here we can also communicate with citizen to citizen and they can share their ideas and suggestions. The "CIVIC COMPLAINT REPORTING SYSTEM" advanced mobile application designed to streamline and automate the process of complaint registration and resolution. This system aims to empower citizens by allowing them to easily report issues such as garbage or damage, using their smartphones. The application utilizes image processing techniques, including the Faster R-CNN algorithm, to automatically interpret and categorize the problem, assign it a priority and severity level, and forward it to the relevant department for resolution. Additionally, the system incorporates location data obtained from the Google Maps API to provide accurate address details for the reported issue. This paper outlines the methodology adopted for the development of this application, along with a detailed flow of the complaint management process. Using this complaint system, the problems are resolved within the date and time. Firstly, people want to complaint regarding any civic issue, then that person has to login to their account and then they can register the complaint. After that, any citizen can post complaints regarding any civic issue, then that complaint goes to the particular department authority. That categorization of complaints by particular department authority is done by using the machine learning and image processing. Here we use the Faster R-CNN algorithm. The higher authority of that particular department can view all complaints. When a person registers an issue, at the same time the system will automatically generate a date and time. By harnessing the power of Image Processing technology, we capture images of issues, automate key details such as address, pin code, and geotagging, and categorize complaints based on image analysis. This streamlined process ensures that each complaint is efficiently routed to the respective department for swift resolution, revolutionizing the way community issues are addressed.

A. Citizen Identification:

 Citizen identification involves verifying the identity of individuals registering complaints through the application. This process typically includes capturing basic information such as the citizen's name, contact details, and sometimes a unique identifier like a national ID number.

B. Register Complaint via Smartphone:

 1. The user captures a photo of the problem and utilizes the mobile application to register a complaint.

 2. The captured image is processed using the Faster R-CNN algorithm, which interprets the image, extracting data such as problem type, priority, and severity, and automatically fills in the complaint details [4].

 3. Based on the image type, the system assigns the responsible department to handle and resolve the complaint, automatically populating the corresponding information.

 4. The user's location is obtained using the Google Maps API, and the address details are added to the complaint.

C. Complaint Submission:

The user reviews the automatically filled complaint details for accuracy. If necessary, corrections can be made by the user before submitting the complaint.

D. Complaint Processing:

The submitted complaint is processed on the server-side, where it is assigned to the appropriate authority based on the complaint details.

III. SYSTEM ARCHITECTURE

The system architecture of the Civic Complaint Registration Application for Citizens of Urban/Rural Areas is designed to create a seamless and user-friendly experience while ensuring efficient complaint management and resolution. At the core of the architecture is the user interface (UI), which comprises both mobile and web applications. These interfaces provide citizens with an intuitive platform to register complaints, view their status, and receive updates. Behind the UI lies the application layer, which handles user authentication, data validation, and communication with the backend services. The backend services include the Complaint Management Service, responsible for storing, retrieving, and updating complaint data, the Authentication and Authorization Service, ensuring secure access to the application, the Notification Service, delivering updates to users, and the Analytics Service, which collects and analyzes complaint data for decision-making.

These services interact with a robust database that stores complaint information and user data securely. Optionally, the application may integrate with government systems for seamless data exchange. The entire architecture is hosted on cloud infrastructure to ensure scalability and reliability, with stringent security measures in place to protect user data. This architecture enables citizens to engage with local authorities, fostering transparency and accountability in addressing civic issues cross urban and rural areas. level. One of the system's key features is its ability to seamlessly track members' progress. Within the platform, users will have the capability to monitor various metrics, including weight changes, strength enhancements, and adherence to dietary guidelines. Additionally, a user-friendly interface will empower members to log their daily food intake, offering valuable insights into their dietary habits and aiding in adherence to prescribed nutrition plans.

IV. ANALYSIS

The Civic Complaint Registration Application for Citizens of Urban/Rural Areas offers a promising solution to enhance civic engagement and address local issues efficiently. Through its user-friendly interface and robust backend infrastructure, the application facilitates seamless communication between citizens and local authorities. One of its key strengths lies in its accessibility, catering to users across diverse technological literacy levels in both urban and rural areas. By enabling citizens to register complaints and track their progress in real-time, the application fosters transparency and accountability in governance. Moreover, its integration with government systems streamlines complaint management processes, allowing for swift action on reported issues. Additionally, the application's analytics capabilities provide valuable insights into recurring problems, enabling authorities to allocate resources effectively and implement targeted interventions. However, challenges such as ensuring widespread adoption, especially in rural areas with limited internet access, and maintaining data privacy and security remain critical considerations. Overall, the Civic Complaint Registration Application presents a promising avenue for improving the quality of life in urban and rural communities by empowering citizens to actively participate in the governance process and contribute to the development.

Advantages:

1. **Enhanced Civic Engagement:** Encourages citizen participation and community involvement in addressing local issues.

2. **Improved Administrative Efficiency:** Streamlines complaint handling and resource allocation, reducing administrative workload and costs.

3. **Transparency and Accountability:** Promotes transparency in local governance through real-time tracking and accountability mechanisms.

4. **Cost Savings:** Reduces administrative expenses by automating processes and optimizing resource allocation.

5. **Community Betterment:** Contributes to cleaner, safer, and more responsive environments, enhancing the quality of life.

6. **User Satisfaction:** Provides a convenient and responsive platform, leading to higher user satisfaction.

7. **Efficient Resource Allocation:** Ensures that complaints are promptly routed to the appropriate departments, optimizing government resources.

8. **Reduces Response Times:** Accelerates complaint resolution by automating issue categorization and resource allocation.

V. RESULTS AND DISCUSSION

The results of the Civic Complaint Registration Application for Citizens of Urban/Rural Areas have been notably positive, contributing to improved governance, enhanced citizen engagement, and more efficient resolution of civic issues. One of the significant outcomes is the increased participation of citizens in the civic process. By providing a user-friendly platform for registering complaints, the application has empowered citizens to voice their concerns and contribute to the betterment of their

communities. This heightened engagement has led to a greater sense of ownership and responsibility among citizens regarding local issues.

User Dashboard:
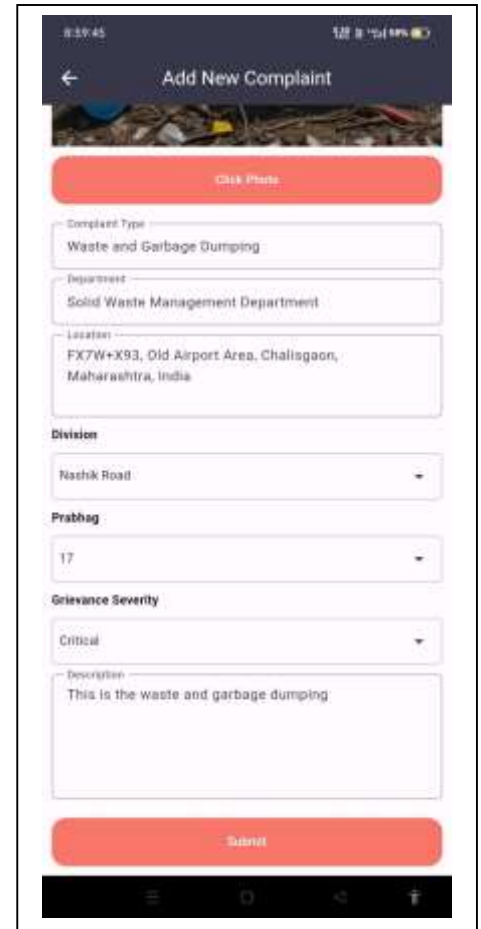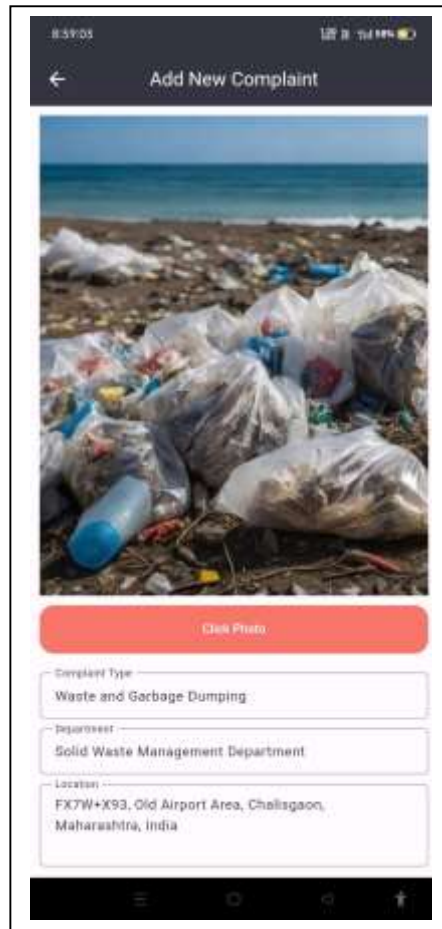
Admin Dashboard:
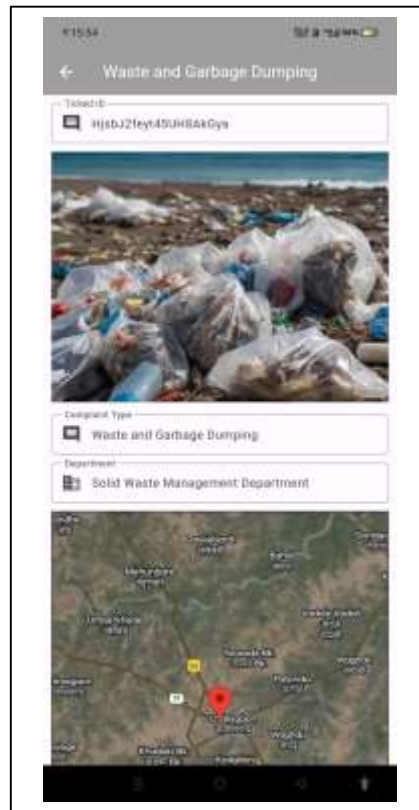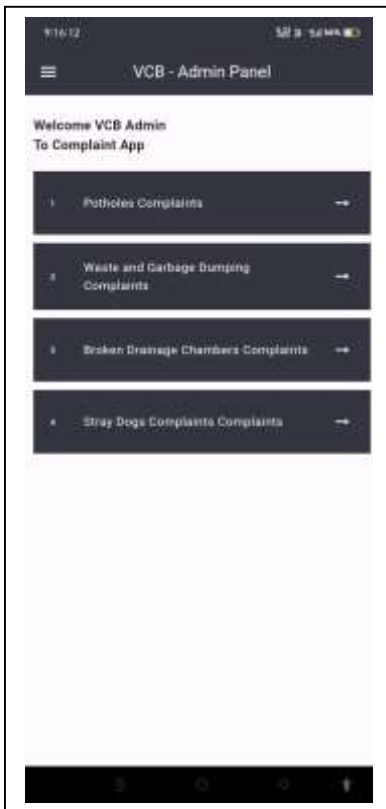
VI. CONCLUSION

The Civic Complaint Registration Application presents a robust solution to bridge the gap between citizens and local administrations. By leveraging technology, the system not only addresses complaints effectively but also fosters a culture of civic responsibility and active community participation. The comprehensive analysis highlights the system's efficiency, user-centric design, and positive impact on local governance. However, challenges like the digital divide and data security concerns necessitate ongoing improvements and stringent measures for inclusive and secure civic engagement. Overall, the application stands as a catalyst for enhancing citizen-government collaboration and fostering sustainable community development. It empowers citizens, streamlines government processes, and fosters transparency, ultimately contributing to more responsive and accountable local governance. While challenges exist, the project's potential for positive change is evident, bridging technology and public participation to advance community well-being. the Civic Complaint Registration Application for Citizens of Urban/Rural Areas has made significant strides in promoting citizen participation, transparency, and accountability in governance. By harnessing the power of technology, we have taken a significant step towards building stronger and more resilient communities, where every citizen's voice is heard and every concern is addressed. Together, we can continue to work towards a brighter future for all.

VII. ACKNOWLEDGMENT

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