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PrajaSetu - Intelligent Civic Problem Reporting and Resolution System

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Abstract:** This paper presents Praja Setu, an AI-powered civic issue reporting and governance system designed to improve the efficiency, transparency, and responsiveness of urban service management. Traditional complaint reporting methods often rely on manual processes and fragmented platforms, resulting in delayed responses, lack of accountability, and poor communication between citizens and authorities. To address these challenges, the proposed system integrates modern technologies such as Artificial Intelligence (AI), Geographic Information System (GPS), and real-time notification services to enable quick and accurate issue reporting and resolution. In this system, users can submit complaints through a web portal by uploading images along with location details, while the backend automatically processes and stores the data securely. The AI module analyzes the submitted images to classify the type of issue, detect duplicate reports, and assign priority levels based on severity. Once processed, the system forwards the complaint to the appropriate civic department, where authorities can track, manage, and resolve issues through a centralized dashboard. The platform also provides real-time status updates and notifications to users, ensuring transparency and continuous engagement. Additionally, the system incorporates data analytics and map-based visualization to identify problem hotspots and support better decision-making. The proposed solution reduces manual effort, improves response time, and enhances civic participation, offering a scalable and efficient approach for smart governance and urban infrastructure management.

I. INTRODUCTION

The increasing concerns about personal safety, particularly for women, have highlighted the need for advanced and reliable security systems. Traditional safety measures such as helplines, manual reporting, and basic mobile applications often fail to provide immediate assistance during critical situations, as they rely heavily on user interaction and often result in delayed response times. Despite the availability of various safety solutions, the lack of real-time monitoring, automation, and intelligent response mechanisms remains a significant challenge. In recent years, advancements in technologies such as the Global Positioning System (GPS), Internet of Things (IoT), and Artificial Intelligence (AI) have opened new possibilities for developing smart safety solutions. GPS enables real-time location tracking, IoT facilitates seamless communication between devices and cloud platforms, and AI supports the detection of abnormal activities or distress situations. By integrating these technologies, an intelligent women safety system can be developed to ensure rapid response and continuous monitoring without complete dependence on manual intervention. The proposed system uses a mobile or wearable device equipped with GPS to continuously track the user's location and allows emergency alerts to be triggered through an SOS button, voice command, or automatic detection of unusual behavior. Once activated, the system immediately sends alerts along with live location details to predefined emergency contacts and nearby authorities, while also utilizing cloud-based storage to maintain user data, location history, and alert status, and providing a web-based or mobile interface for real-time tracking, notifications, and system updates. Additionally, features such as audio/video recording and AI-based threat detection enhance evidence collection and situational awareness, making the system a modern, efficient, and scalable solution for improving women's safety and ensuring faster emergency response.

II. LITERATURE SURVEY

Civic issue reporting systems have gained significant attention in recent years due to the growing need for efficient urban governance and improved public service delivery. Researchers have explored various technologies such as mobile applications, Geographic Information Systems (GIS), cloud platforms, and Artificial Intelligence (AI) to enhance citizen engagement and automate complaint management processes. Brown et al. [1] studied the use of GIS-based platforms in civic reporting systems and demonstrated that location-based mapping enables accurate identification of problem areas and improves resource allocation. However, the system performance may be affected by inaccurate location data and limited real-time integration.

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Davis and Clark [2] focused on mobile-based complaint reporting applications that allow users to submit issues with images and descriptions. Their study showed that such applications improve accessibility and user participation, but they rely heavily on manual categorization and verification, leading to delays in resolution. Zhang et al. [3] analyzed cloud-based civic management systems that store and process large volumes of complaint data efficiently. These systems support scalability and real-time access, but they raise concerns related to data privacy and security. Sharma and Gupta [4] proposed an AI-based classification model for civic issues using image recognition techniques. Their approach improves accuracy in identifying problem types and reduces manual workload, although it requires high-quality datasets and computational resources. Lee et al. [5] studied duplicate detection techniques using similarity algorithms to minimize redundant complaints. Their research demonstrated improved system efficiency, but challenges remain in handling variations in images and text descriptions. The existing studies indicate that integrating AI, GIS, cloud computing, and real-time communication technologies can significantly enhance civic issue reporting systems, though challenges such as data accuracy, system scalability, and security must be effectively addressed.

III. EXISTING METHODS

Existing civic issue reporting systems primarily rely on basic digital platforms and manual processes, which often result in delayed response, lack of transparency, and inefficient management of public complaints. One of the most commonly used methods is web or mobile-based reporting applications, where citizens can manually submit complaints by entering details such as description and location. Although these platforms improve accessibility and allow users to report issues conveniently, they depend heavily on manual categorization and verification, which leads to delays in processing and resolution. Additionally, many systems do not provide real-time updates or effective tracking mechanisms, reducing user trust and engagement. To enhance reporting, some platforms allow users to upload images along with complaints, enabling better understanding of the issue. While this improves clarity, the absence of automated image analysis requires authorities to manually review each report, increasing workload and reducing efficiency. Another approach involves GIS-based systems that display reported issues on maps, helping authorities visualize problem areas. However, these systems often lack integration with intelligent analytics and do not support automated prioritization of complaints. Some existing solutions also attempt to handle complaints through centralized government portals that provide multiple services. While these platforms offer a wide range of functionalities, they are not specifically designed for civic issue management and often lack focus on real-time interaction and problem resolution. In addition, duplicate or fake complaints are common in such systems due to the absence of validation mechanisms, leading to data redundancy and inefficient resource allocation. Despite these advancements, most existing systems lack intelligent automation, real-time decision-making, and seamless integration of multiple technologies. They often fail to prioritize critical issues, detect duplicate reports, and provide actionable insights through analytics. These limitations highlight the need for a more advanced solution that integrates Artificial Intelligence, geolocation services, real-time communication, and data analytics to ensure efficient, transparent, and responsive civic issue management.

IV. PROPOSED WORK

This paper proposes an intelligent civic issue reporting and governance system called **Praja Setu**, which provides real-time complaint management, automated issue analysis, and seamless communication between citizens and government authorities using Artificial Intelligence, geolocation, and cloud technologies. The system is designed to ensure quick reporting and efficient resolution of civic problems by integrating a user-friendly web interface with intelligent backend processing and data monitoring features. In the proposed system, a GPS-based location module is used to capture the real-time position of the reported issue in terms of latitude and longitude coordinates, ensuring accurate mapping and identification. The system is equipped with an easy complaint submission mechanism, allowing users to upload images or videos along with a brief description of the issue. Once a complaint is submitted, the backend automatically processes the data and forwards it to the AI module for analysis. The AI module classifies the type of issue, detects duplicate or fake reports, and assigns priority levels based on severity, enabling efficient resource allocation. After processing, the system automatically routes the complaint to the appropriate civic department, such as the municipality or public works department, without requiring manual intervention. A centralized database is integrated to securely store user information, complaint details, location data, and status updates, ensuring reliable data management and real-time access. For user interaction and monitoring, a web-based dashboard is developed for both citizens and authorities. Citizens can track complaint status and receive notifications, while authorities can view, manage, and resolve issues through map-based visualization and analytical reports. The system may also incorporate real-time notifications, data analytics for hotspot detection, and reporting tools to improve decision-making.

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Communication between system components is enabled through internet-based services, ensuring continuous data flow and synchronization. The proposed system offers several advantages, including reduced response time, improved transparency, efficient complaint handling, and enhanced citizen participation. By integrating Artificial Intelligence, geolocation, and data analytics, Praja Setu provides a scalable, reliable, and cost-effective solution for smart governance and modern urban infrastructure management.

V. BLOCK DIAGRAM

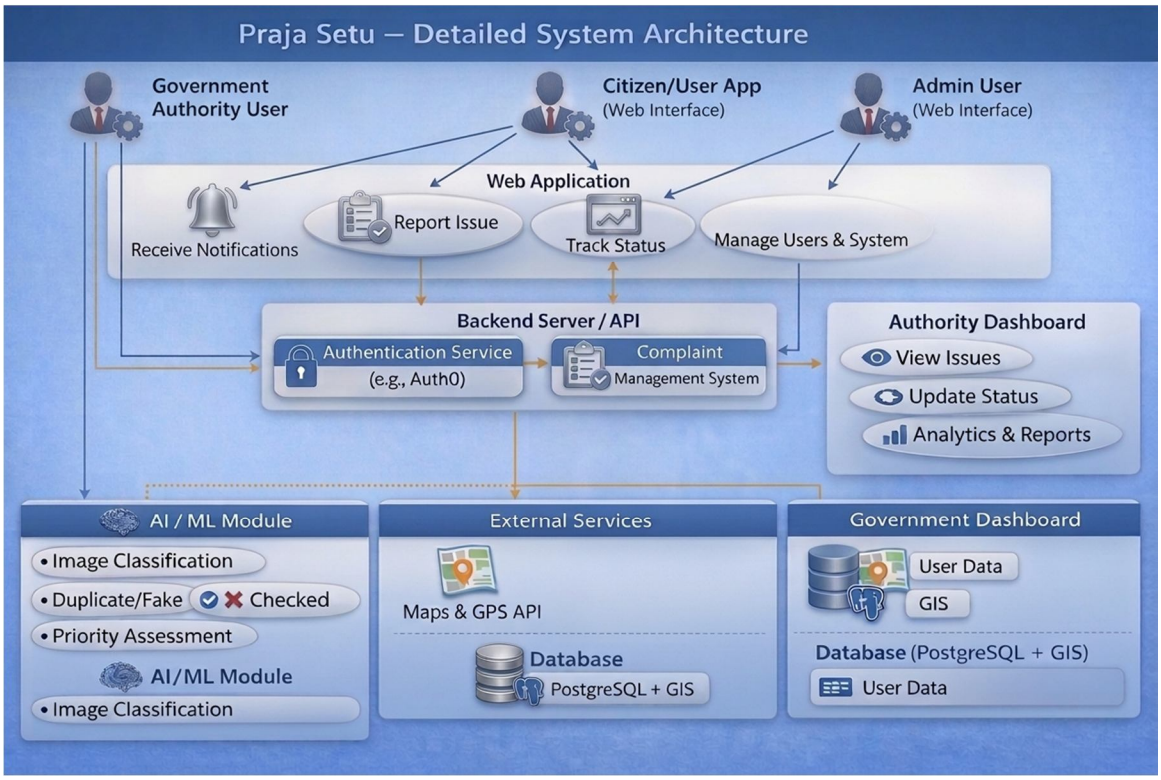


Fig no.1:Block Diagram

The system architecture of the Praja Setu civic issue reporting platform is designed to provide real-time complaint management and efficient communication through an integrated frontend, backend, AI processing, and database system. The user frontend is developed using web technologies such as HTML, CSS, and JavaScript (or React), providing an interactive interface that includes features like complaint submission, image upload, map view, and user dashboard. The frontend is responsible for capturing user inputs, including issue details, images, and GPS-based location data, and sending this information to the backend server for further processing. The backend server, implemented using Node.js and Express.js, acts as the core processing unit of the system, where complaint handling, validation, and communication management take place. Upon receiving complaint data from the frontend, the backend processes the request and forwards the uploaded images to the AI module for analysis. The AI module performs tasks such as issue classification, duplicate detection, and priority scoring, enabling intelligent decision-making and reducing manual effort. The system also includes a notification service that ensures real-time communication between citizens and authorities. Once a complaint is processed, notifications are sent to the respective civic department, and users receive updates regarding the status of their complaints through email or in-app alerts. The backend server interacts with a centralized database to store and retrieve essential information, including user details, complaint records, location data, and status updates. The database supports real-time access, ensures data consistency, and enables analytical processing for identifying trends and hotspots.Government authorities access the system through a dedicated web dashboard, where they can view complaints on a map, update status, and analyze reports for better decision-making. Overall, the system architecture demonstrates a seamless integration of user interaction, backend processing, AI-driven analysis, real-time communication, and data management, creating an efficient, transparent, and scalable solution for modern civic governance.

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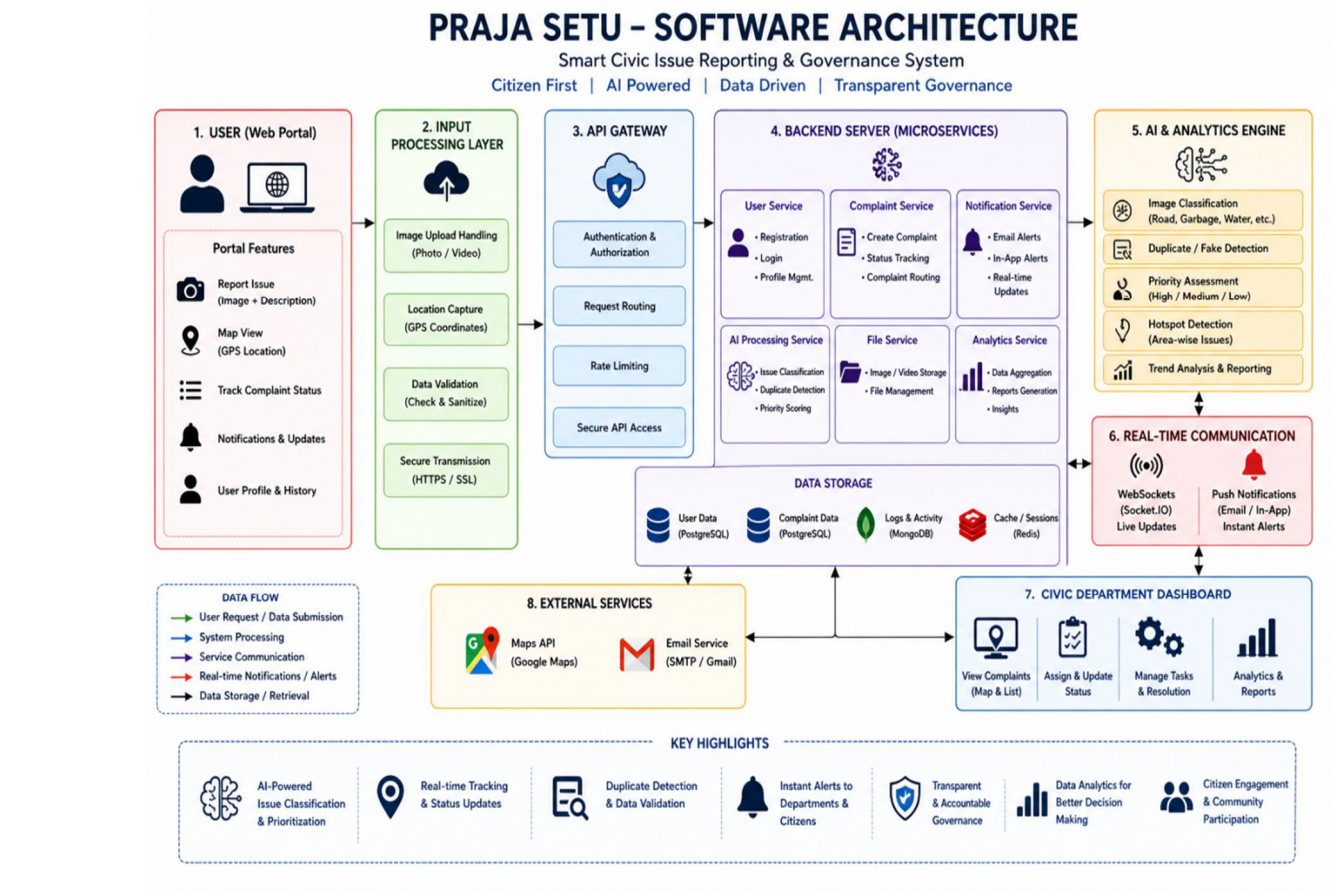


Fig no.2: Software Architecture diagram

The software architecture of the Praja Setu system is designed as a web-based, AI-powered, and cloud-enabled platform that ensures efficient civic issue reporting, real-time processing, and transparent communication between citizens and government authorities. The system begins with the user layer, where a web portal provides essential features such as issue reporting, image upload, map-based location selection, complaint tracking, and notification updates. These inputs are captured through an interactive interface and include details such as issue description, images, and GPS-based location data. The collected data is processed through an input handling layer that performs validation, formatting, and secure transmission to the backend system. The processed requests are then forwarded to the API gateway, which manages authentication, request routing, and rate limiting to ensure secure and efficient communication between system components. The backend, built using a microservices architecture, consists of multiple services including a user service for registration and authentication, a complaint management service for handling issue submission and tracking, a notification service for sending real-time updates, and an AI processing service for intelligent analysis. The AI engine plays a crucial role in enhancing system efficiency by performing image-based issue classification, duplicate complaint detection, and priority assessment based on severity. This enables automated decision-making and reduces manual workload for authorities. The backend system is supported by a centralized data storage layer that uses relational and non-relational databases to store user information, complaint records, location data, logs, and session details, ensuring data consistency and availability. The AI and analytics engine further enhances the platform by generating insights such as issue hotspots, trend analysis, and area-wise problem distribution, helping authorities make data-driven decisions. Real-time communication is achieved using technologies such as WebSockets and notification services, enabling instant updates and continuous interaction between users and civic departments. The civic department layer acts as a separate user interface, where authorized personnel can view complaints, update status, manage workflows, and analyze reports through a centralized dashboard. Additionally, the system integrates with external services such as map APIs for location tracking and email services for notifications to enhance functionality. Overall, the architecture provides a scalable, secure, and intelligent solution that combines real-time data processing, AI-based analysis, and seamless communication to improve civic issue management, increase transparency, and support efficient urban governance.

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VI. EXPERIMENTAL RESULTS

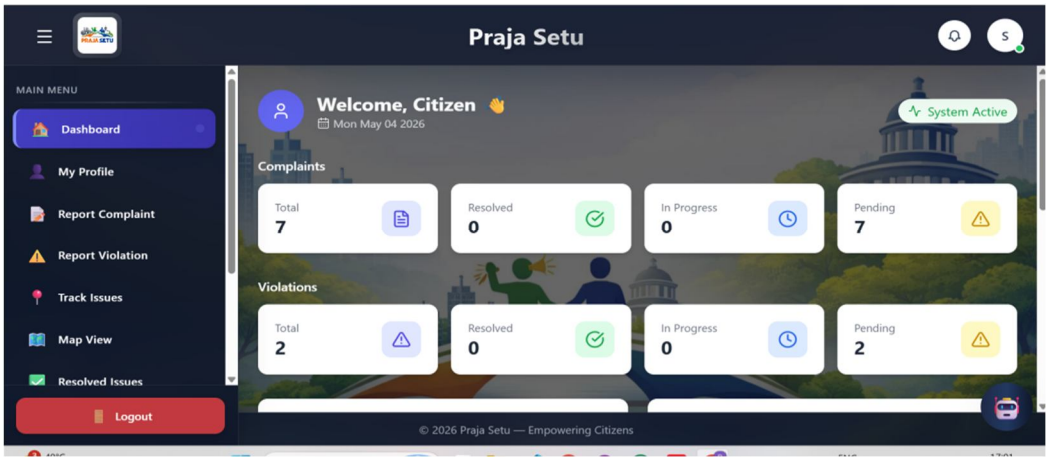


Fig no.3: Home Page

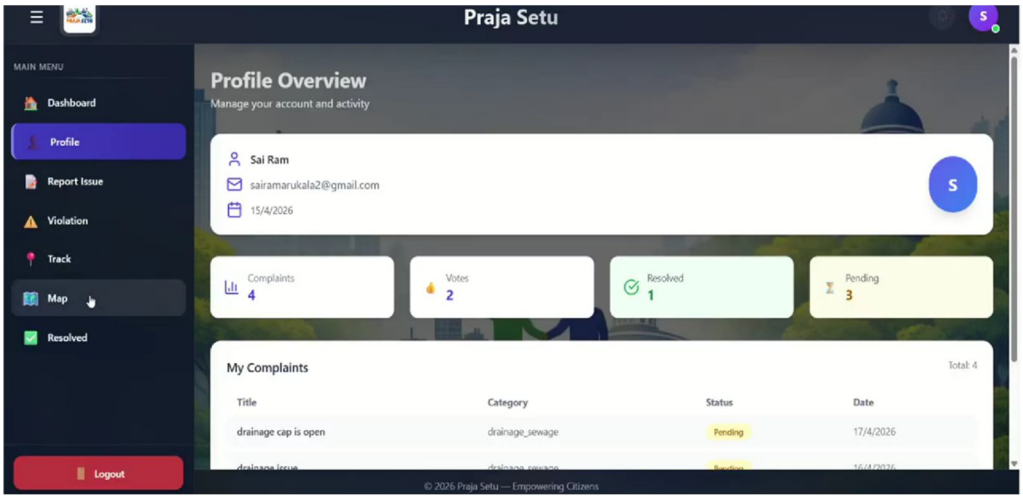


Fig no.4: Profile Page

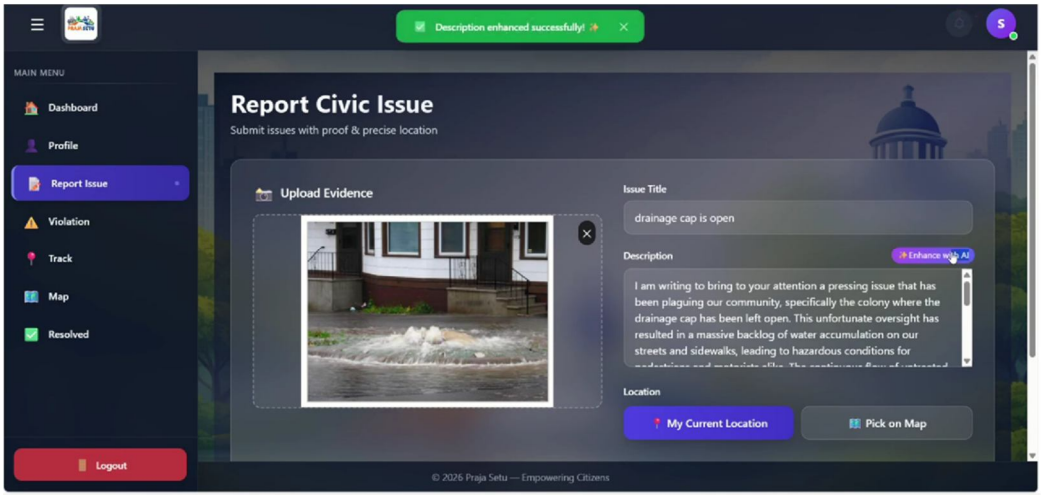


Fig no.5: Report Page

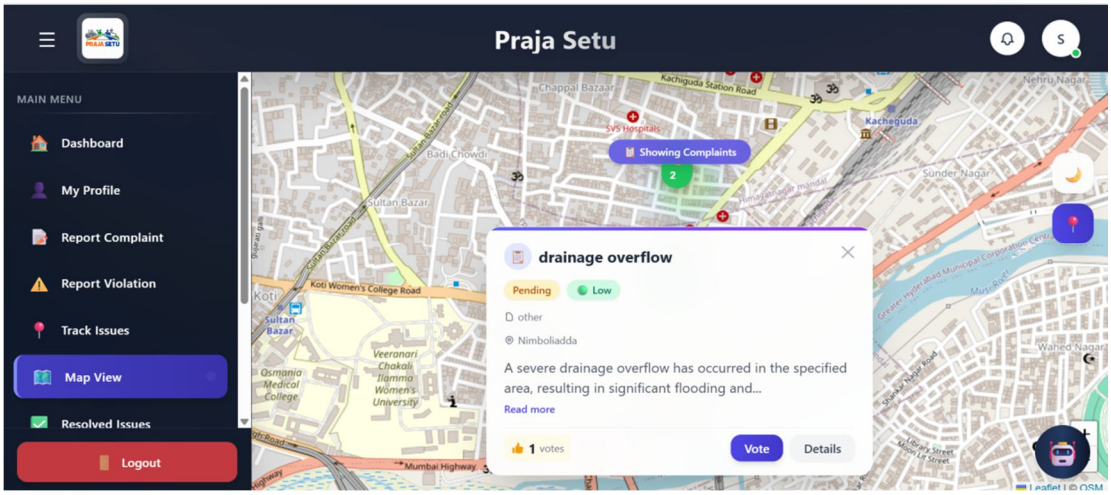


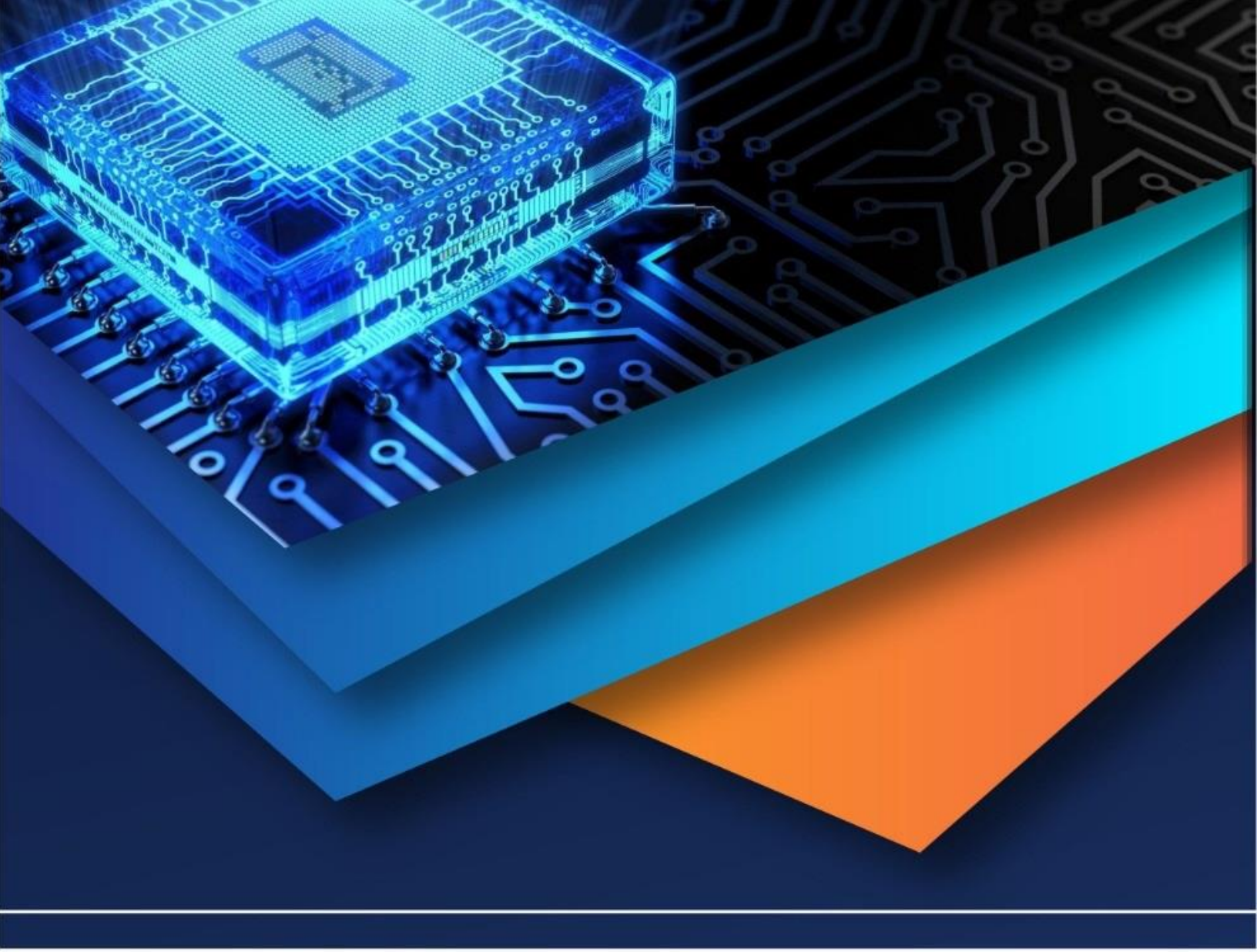
Fig no.5: HeatMap Page

VII. CONCLUSION

The proposed **Praja Setu system** successfully demonstrates an efficient and intelligent approach to improving civic issue reporting and urban governance using modern technologies. By integrating Artificial Intelligence (AI), geolocation services, and real-time communication mechanisms, the system enables faster complaint processing and reduces dependency on manual intervention. This results in improved response time, enhanced transparency, and better coordination between citizens and civic authorities. The implementation using a web-based platform, along with image-based complaint submission, location tracking, and automated workflows, provides a real-time and scalable solution for managing urban issues effectively. The system accurately captures complaint details, analyzes submitted images using AI techniques, and performs tasks such as issue classification, duplicate detection, and priority assessment. It ensures that complaints are automatically routed to the appropriate civic departments, while real-time notifications keep users informed about the progress and resolution status. The inclusion of a centralized dashboard and data analytics enhances transparency by allowing authorities to monitor complaint trends, identify problem hotspots, and make informed decisions for better resource allocation. One of the key advantages of the proposed system is its scalability and cost-effectiveness, as it leverages existing web technologies and does not require complex infrastructure. Additionally, real-time communication and data-driven insights support efficient governance and enable integration with future smart city initiatives. However, certain limitations such as dependency on internet connectivity, data accuracy, and potential privacy concerns may affect system performance in specific scenarios. These challenges can be addressed in future work by incorporating offline reporting mechanisms, enhanced data validation techniques, and stronger security protocols. In conclusion, the Praja Setu system provides a reliable, intelligent, and user-friendly solution for civic issue management, representing a significant step toward transparent governance, improved public services, and sustainable urban development.

REFERENCES

[1] R. S. Pressman and B. R. Maxim, Software Engineering: A Practitioner's Approach, 9th ed. New York, NY, USA: McGraw-Hill, 2019.
[2] I. Goodfellow, Y. Bengio, and A. Courville, Deep Learning, 1st ed. Cambridge, MA, USA: MIT Press, 2016.
[3] T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, Introduction to Algorithms, 3rd ed. Cambridge, MA, USA: MIT Press, 2009.
[4] A. Rajaraman and J. Ullman, Mining of Massive Datasets, 2nd ed. Cambridge, UK: Cambridge University Press, 2014.
[5] S. Zanella, N. Bui, A. Castellani, L. Vangelista, and M. Zorzi, "Internet of Things for smart cities," IEEE Internet of Things Journal, vol. 1, no. 1, pp. 22–32, Feb. 2014, doi:10.1109/JIOT.2014.2306328.
[6] J. Chen, H. Li, and K. Wang, "Smart city applications: A survey," IEEE Communications Surveys & Tutorials, vol. 22, no. 2, pp. 1234–1270, Second Quarter 2020, doi:10.1109/COMST.2020.2964615.
[7] L. Liu, Y. Yang, and X. Zhang, "Urban issue detection using deep learning techniques," in Proc. IEEE Int. Conf. Smart City Innovations, Singapore, 2022, pp. 210–215.
[8] M. Gupta and P. Kumar, "Civic issue reporting and management system using web technologies," in Proc. Int. Conf. Advances in Computing and Communication, New Delhi, India, 2021, pp. 98–103.
[9] Ministry of Housing and Urban Affairs, Government of India, Swachhata App, Available: https://play.google.com/store/apps/details?id=com.ichangemycity.swachhbharat, Accessed: Apr. 2026.
[10] Smart City Solutions, SmartCity 311 Platform, Available: https://www.smartcity311.com, Accessed: Apr. 2026.



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