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CIVORA : AI Based Civic Complaint Registration System

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Abstract
"CIVORA" is a civic complaint registration system based on AI, allowing to strengthen the relationship between the cities and the population by automating, introducing transparency, and smart processing. Handshaking, slow response time, lack of accountability and poor tracking are some of the challenges that face traditional civic systems. Civora is a solution to these problems that provides an easy-to-use digital platform allowing citizens to send complaints with the inclusion of photos, description, and location. The platform applies multimodal Artificial Intelligence to automate the process of complaint management. YOLOv8 object detector is used to analyze uploaded images and Natural Language Processing (NLP) is used to process textual description to identify automated categories and priorities. A built-in geotagging provides perfect location detection and effective directions to the relevant municipal departments. An organized system of workflow will facilitate actions that are timed and status which can be real-time making it significantly more transparent and more accountable. Moreover, Civora incorporates the aspects of voter and impact evaluation to focus on the problem impacting a greater number of people. Civora will offer a scalable and efficient responsive governance solution to the North Eastern States by minimizing manual intervention and increasing citizen involvement.

Keywords: *Civic Complaint Management; Geotagging; Natural Language Processing; Smart Governance; YOLOv8*

1. Introduction

The rapid growth of urban and semi-urban populations has significantly increased the demand for efficient, transparent, and technology-driven public service systems. Civic issues such as damaged roads, waste accumulation, streetlight failures, and drainage blockages directly impact public safety and quality of life. However, traditional grievance redressal mechanisms rely on manual processes, fragmented documentation, and limited inter-departmental coordination, leading to delays and lack of accountability. Although digital complaint platforms have improved accessibility, most existing systems function as basic reporting tools with minimal automation and analytical capabilities, highlighting the need for intelligent solutions in civic management (Patil, D et al., 2021; Subramanian, D. V et al., 2019; Shukla, S. G et al., 2024).Prior studies emphasize that responsiveness and efficient feedback mechanisms are essential for effective service systems. Research in e-governance indicates improvements in transparency and operational efficiency; however, limitations still exist in automated complaint classification and prioritization (Brown, T et al., 2022; Singh, A et al., 2022; Kapoor, V, 2022). Artificial Intelligence (AI) techniques have demonstrated strong potential in this domain, where Natural Language Processing (NLP) models are effective for analyzing and categorizing textual complaints, while computer vision techniques such as YOLOv8 enable accurate real-time detection of civic issues from images (Yusoff, M et al., 2022; Singh, A. P et al., 2022; Satpute, P et al., 2024). Despite these advancements, most systems process textual and visual data independently, lacking an integrated multimodal framework.To address these limitations, the proposed system, Civora, introduces a comprehensive approach for civic complaint management by integrating NLP-based text classification with YOLOv8-based image validation. The system incorporates geotagging to accurately

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identify complaint locations and supports real-time tracking to enhance transparency and accountability. Additionally, intelligent routing and prioritization mechanisms improve response efficiency while encouraging citizen participation. By combining multimodal analysis, geospatial validation, and structured workflow management, Civora provides a scalable and reliable solution aligned with smart city initiatives, enabling data-driven governance and improved public service delivery (Kapoor, V, 2022; Yusoff, M et al., 2022).

1.1.Literature review

The emergence of effective grievance redressal systems has become a significant area of research in both corporate and public administration domains. With rapid digitalization in governance, technology is increasingly leveraged to enhance transparency, accountability, and operational efficiency in public service delivery. Effective complaint management systems are essential for building trust and improving service outcomes, especially in civic environments where timely issue resolution directly impacts citizens' quality of life.Studies highlight the importance of structured complaint handling and responsiveness in improving service delivery. Systematic feedback mechanisms and efficient classification processes play a crucial role in ensuring user satisfaction and institutional trust (Brown, T et al., 2022). Similarly, the adoption of e-governance platforms has contributed to improved communication, transparency, and efficiency in public systems; however, many early implementations primarily focused on digitization rather than intelligent automation (Patil, D et al., 2021; Singh, A et al., 2022). Initial web-based grievance systems simplified manual processes but still relied heavily on human intervention for sorting and routing complaints, limiting scalability and efficiency (Subramanian, D. V et al., 2019).With advancements in Artificial Intelligence, research has shifted toward automating complaint analysis and classification. Machine learning approaches have demonstrated improved accuracy in routing complaints and reducing manual workload (Yusoff, M et al., 2022). In particular, Natural Language Processing (NLP) techniques have proven effective in analyzing unstructured textual data and categorizing complaints efficiently (Singh, A. P et al., 2022). Despite these advancements, most systems remain limited to text-based processing and do not incorporate additional sources of information such as images for validation.Recent developments in computer vision have enabled real-time object detection for identifying infrastructure-related issues from images. Techniques such as YOLOv8 have shown strong performance in detecting objects with high accuracy and speed, making them suitable for applications in civic monitoring (Satpute, P et al., 2024). However, the integration of visual intelligence into grievance systems is still limited. Existing platforms often focus on improving accessibility and user interaction without incorporating advanced AI-based automation (Shukla, S. G et al., 2024). Furthermore, while some studies emphasize scalability, cloud integration, and inter-departmental coordination, the use of multimodal intelligence combining text and image data remains underexplored (Kapoor, V, 2022; Singh, A et al., 2022).Overall, current systems tend to adopt isolated approaches by applying either NLP or computer vision independently. There is a clear research gap in integrating multimodal AI techniques for unified civic complaint management. Additionally, key functionalities such as geotagging, real-time tracking, and citizen-driven prioritization are not comprehensively combined within a single framework.To address these limitations, the proposed system, Civora, integrates NLP-based text classification with YOLOv8-based object detection within a structured workflow. By incorporating multimodal AI, geolocation tagging, and transparent tracking mechanisms, Civora aims to enhance efficiency, accountability, and citizen engagement, contributing to the development of an intelligent and scalable civic governance system.

1.2.Problem Definition

Although the adoption of digital grievance portals has increased, many civic complaint systems still lack intelligence, automation, and transparency. Traditional approaches rely on manual verification, inter-departmental routing, and basic online forms, leading to delays, misrouting, and inefficient

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coordination. Early web-based systems improved accessibility by digitizing complaint registration; however, they largely functioned as passive platforms without intelligent prioritization or automated decision-making capabilities (Subramanian, D. V et al., 2019; Singh, A et al., 2022).Recent research has introduced AI-driven approaches, including Natural Language Processing (NLP) techniques for text classification and computer vision models such as YOLOv8 for image-based analysis (Yusoff, M et al., 2022; Singh, A. P et al., 2022; Satpute, P et al., 2024). While these advancements demonstrate the potential of automation, they are typically implemented in isolation rather than within an integrated framework. Most existing systems do not combine text analysis, image validation, geospatial intelligence, and workflow transparency into a unified architecture. Furthermore, features such as geotagging and structured monitoring mechanisms remain limited, reducing the efficiency of jurisdiction mapping and complaint resolution tracking.To address these limitations, Civora proposes an integrated approach that combines multimodal AI-based complaint classification, precise geotagging for jurisdiction mapping, and real-time workflow monitoring. By consolidating these functionalities into a single architecture, the system aims to deliver a scalable, transparent, and citizen-centric solution that enhances efficiency and accountability in civic governance (Kapoor, V, 2022; Patil, D et al., 2021).

1.3.Objectives

The main focus of this study is to design and create a smart, effective, and citizen-focused civic complaint management system that would help improve transparency, precision, and responsiveness in grievance redressal. The project aims to turn the conventional and semi-digital complaint-aggregating solutions into a smart and AI-powered model that will be able to process multimodal inputs and enhance the coordination between citizens and municipalities. The system will minimize the need for manual intervention, delay and enhance the trust of the population by ensuring automation, geospatial intelligence and structured workflow monitoring. The objectives of the study are specific and they are:

- Automated multimodal classification: Fusing YOLOv8 for image-based detection with NLP for text-based categorization, to ensure accurate routing of data and reducing the number of human actors that need to be part of the process.
- Accurate geotagging and location intelligenceMaking it possible to map jurisdiction effectively and route an assignment faster in terms of department responsible for the issue.
- Complaint tracking along with the ability to organize workloads and of course provide better insight.
- Expandable modular architecture: Flexible for traffic volume growth and other future technological improvements
- Well-designed, intuitive layout: Can encourage residents to become involved and make it easy to submit complaints and get updates on them.

When these objectives are attained, Civora will establish a technological and holistic civic complaints management system that fosters transparent, efficient and data-driven urban governance.

2. Methodology

Civora aims to integrate multimodal Artificial Intelligence techniques with geospatial intelligence and structured workflow management to create an intelligent, scalable, and transparent civic complaint management system. This methodology is designed to be both modular and layered, allowing for interaction between users, the AI processing modules, administrative authorities, and the database. Correct classification of complaints, automated mapping of jurisdiction, and tracking of the resolution process in real-time is ensured by the framework. It includes four major parts, which are system architecture design, workflow modeling, AI processing pipeline development and algorithmic implementation for complaint handling and status tracking.

2.1.System Architecture

The proposed system in figure 2 aims to address the shortcomings of current digital grievance platforms and standalone artificial intelligence models.

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Previous web-based complaint systems made it easier for citizens to file complaints online, but they lacked intelligent automation, real-time tracking, and clear workflows (Subramanian et al., 2019; Singh and Kaur, 2022). Likewise, individual AI methods like Natural Language Processing (NLP) for text classification and YOLOv8 for image detection performed well on their own, but they were not part of a unified civic governance framework (Yusoff et al., 2022; Singh et al., 2022; Satpute and Nikam, 2024). To tackle these issues, the CIVORA system uses a layered, modular client-server setup that ensures scalability, efficiency, and smooth integration of different AI technologies. The User Interface Layer allows citizens to file complaints through a web platform by providing text descriptions, uploading images, and sharing geolocation data. This approach collects various types of input and enriches complaint data. The Application Layer serves as the main controller, managing user authentication, input validation, secure data exchange, and communication between system components. The AI Processing Layer combines both NLP-based text classification and YOLOv8-based image detection models, enabling the simultaneous processing of text and visual inputs. The results from these models come together to enhance the accuracy, reliability, and strength of complaint categorization (Yusoff et al., 2022; Singh et al., 2022; Satpute and Nikam, 2024). The Location Intelligence Layer uses geotagging and mapping techniques to pinpoint the exact location of the reported issue and automatically identify the responsible municipal department. This cuts down on delays in routing complaints and boosts administrative efficiency.All complaint data, AI outputs, geolocation information, and workflow logs are stored in the Data Management Layer, providing centralized storage, scalability, and real-time access to system data. This layer supports effective monitoring and decisions based on data. Finally, the Administration and Monitoring Layer offers dashboards for both authorities and citizens, allowing real-time complaint tracking, status updates, and performance evaluation. This increases transparency, accountability, and citizen involvement in the grievance process. A combination of multimodal artificial intelligence, geospatial routing, and organized workflow management, CIVORA offers a scalable, efficient, and intelligent civic complaint management system that supports the growth of modern smart governance solutions.

2.2.System Workflow

Figure 1 illustrates the system workflow of Civora, representing the structured and step-by-step process of complaint submission, processing, routing, and status tracking. Traditional web-based grievance systems mainly focused on digitizing complaint registration and relied on manual routing mechanisms, resulting in limited automation and inefficiencies (Subramanian, D. V et al., 2019; Singh, A et al., 2022). Although advancements such as NLP-based text classification and YOLOv8-based image detection have improved automation, these methods are typically applied independently (Yusoff, M et al., 2022; Singh, A. P et al., 2022; Satpute, P et al., 2024). Civora integrates these components into a unified workflow.The process begins when a citizen submits a complaint through the web interface by providing a description, along with optional image and location details. The backend system validates the inputs, generates a unique complaint ID, and forwards the data to the AI processing layer. NLP techniques are used to analyze the textual content, while YOLOv8 is used to process images. The outputs from both are combined through a multimodal fusion approach to determine the final complaint category, reducing manual intervention and routing errors (Yusoff, M et al., 2022; Satpute, P et al., 2024).Geotagging is then applied to map the complaint to the appropriate administrative department based on location. Authorities handle the complaint through a series of status updates, ensuring a structured resolution process. Citizens can track the progress of their complaints in real-time, which improves transparency, accountability, and overall efficiency in civic governance systems (Kapoor, V, 2022; Patil, D et al., 2021).

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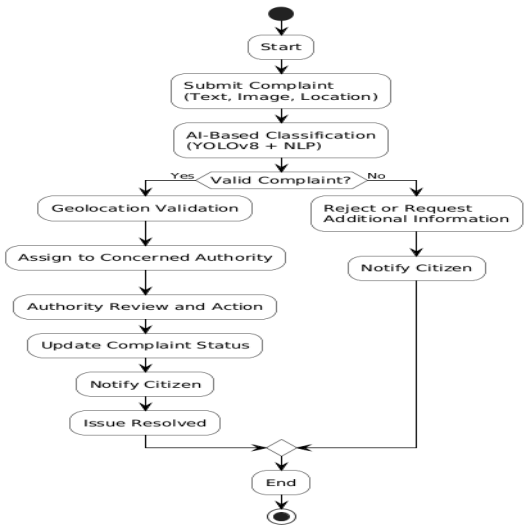

Figure 1 Workflow of CIVORA System

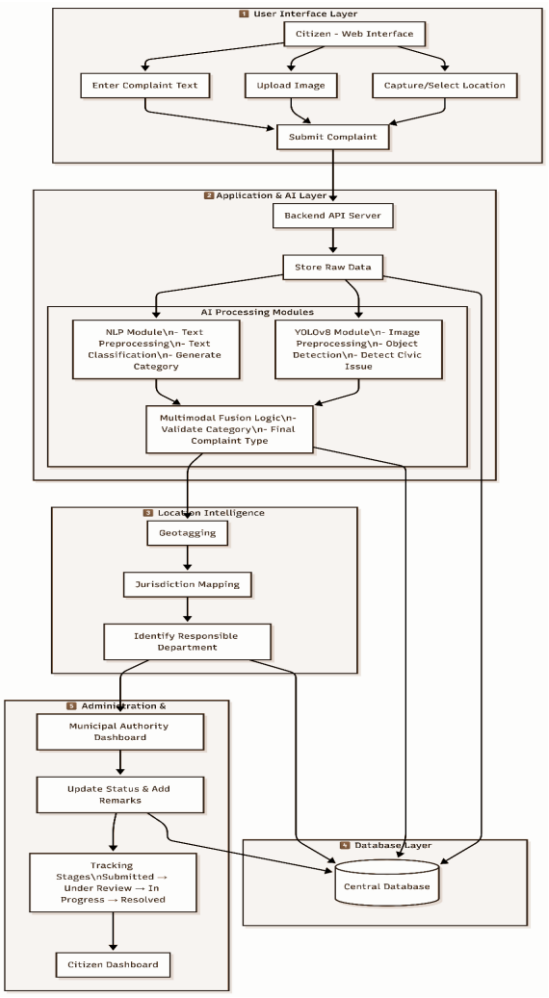

Figure 2. System Architecture of CIVORA

2.3.AI Processing Pipeline

The Civora AI Processing Pipeline is a multimodal framework designed for intelligent classification and validation of civic complaints using both textual and visual inputs. Unlike traditional systems that rely on manual categorization, Civora integrates Natural Language Processing (NLP) and deep learning-based object detection to improve accuracy and reliability. Prior studies have demonstrated the effectiveness of NLP in complaint classification and YOLO-based models in real-time object detection; however, these techniques are often implemented independently (Yusoff, M et al., 2022; Satpute, P et al., 2024). Civora combines these approaches into a unified pipeline to reduce misclassification and enhance decision-making. The pipeline begins with text preprocessing, where the complaint text T is transformed into a structured representation. This involves tokenization, normalization, and embedding generatio:

$$T' = f_{\text{pre}}(T), E = f_{\text{embed}}(T')$$

The embedded representation E is then passed through an NLP classifier:

$$(C_t, S_t) = f_{NLP}(E)$$

where C_t denotes the predicted complaint category and $S_t \in [0,1]$ represents the confidence score. This process enables semantic understanding and efficient categorization of unstructured textual complaints (Yusoff, M et al., 2022; Singh, A. P et al., 2022). In parallel, image data I undergoes preprocessing and is processed using the YOLOv8 model for object detection:

$$I' = f_{img}(I)$$
$$(C_i, S_i) = f_{YOLO}(I')$$

YOLOv8 performs detection by dividing the image into grids and predicting bounding boxes along with class probabilities:

$$S_i = P(\text{ object }) \times IoU_{\text{pred}}^{\text{truth}}$$

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where *IoU* (Intersection over Union) measures the overlap between predicted and ground truth bounding boxes. This enables accurate identification of civic issues such as potholes, waste accumulation, and infrastructure damage (Satpute, P et al., 2024). The outputs from both modalities are integrated using a decision-level fusion mechanism to improve classification robustness:

$$C = \begin{cases} C_t, & \text{if } C_t = C_i \wedge \min(S_t, S_i) \geq \theta \\ C_i, & \text{if } S_i > S_t \\ C_t, & \text{otherwise} \end{cases}$$

where θ is a predefined confidence threshold. This fusion ensures consistency between semantic and visual interpretations while prioritizing the more confident prediction.

2.4. Complaint Processing and Status Tracking Algorithms

Civora ensures systematic grievance handling and transparent lifecycle management through structured algorithms for complaint processing and status tracking.

Algorithm 1: Complaint Processing Algorithm

Input: Complaint Text (T), Image (I), Location (L)
Output: Routed Complaint with Category (C), Department (D), Complaint ID (CID)
Begin

1. Receive multimodal inputs {T, I, L}.
2. Generate unique complaint ID:
   CID = f_id(T, L, t)
   where t represents the timestamp.
3. Perform text preprocessing:
   T' = f_pre(T)
4. Apply NLP classifier:
   (Ct, St) = f_NLP(T')
   where Ct is the predicted category and St is confidence score (0–1).
5. If image I is available:
   a. Preprocess image:
   I' = f_img(I)
   b. Apply YOLOv8 detector:
   (Ci, Si) = f YOLO(I')
6. Perform decision-level fusion:
   If (Ct = Ci) AND (min(St, Si) ≥ θ) → C = Ct
   Else if (Si > St) → C = Ci
   Else → C = Ct
7. Extract geolocation coordinates:
   (lat, lon) = f_geo(L)
8. Map coordinates to administrative zone:
   Z = f_map(lat, lon)
9. Assign responsible department:
   D = f_dept(C, Z)
10. Store complaint record:
    R = {CID, C, D, status = "Submitted", timestamp = t0}
11. Route complaint and notify:
    f_notify(CID, D)

End

Algorithm 2: Complaint Status Tracking Algorithm

Input: Complaint ID (CID), Updated Status (S_new)
Output: Updated Complaint Record with Notification
Begin

1. Authenticate authority:
   auth = f_auth(credentials)
2. Retrieve complaint record:
   R = f_fetch(CID)
3. Update complaint status:
   R.status = S_new
   Status values include:
   Submitted, Under Review, In Progress, Resolved
4. Record timestamp:
   t_i = current_time()
5. Append update log:
   R.log = R.log + {(S_new, t_i)}
6. Store updated record:
   f_store(R)
7. Trigger notification:
   f_notify(CID, S_new)
8. Update dashboard:
   f_dashboard(CID, R.status)

End

3. Results and Discussion

3.1. Results

A functional prototype of the CIVORA system has been developed in order to assess the performance of

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the multimodal complaint management framework. In this regard, the implementation includes features such as complaint submission, AI classification, geospatial routing, public prioritization, and real-time monitoring.The complaint submission section allows the citizen to provide textual descriptions, upload supporting images, and provide location details as well. On submission, the backend generates a complaint ID and sends the details to the AI processing section. The NLP model processes the textual descriptions, and the YOLOv8 model processes the images to perform object detection. The output of both models is combined through multimodal fusion logic to provide the final classification of the complaint with higher accuracy.

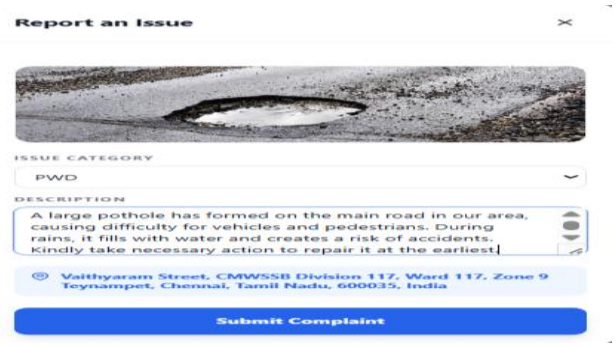

Figure 3 Reporting a Complaint Module

The geotagging mechanisms help in the extraction of the location coordinates, and the complaint is automatically mapped to the correct municipal jurisdiction.

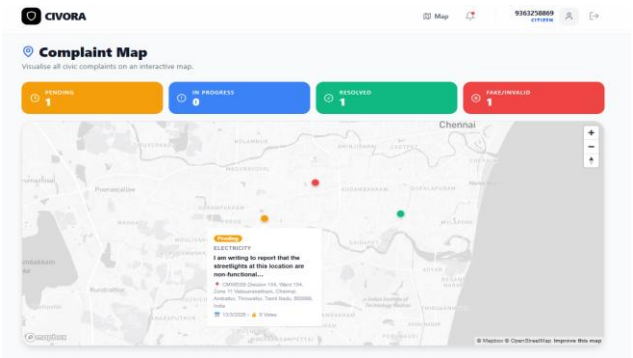

Figure 4 Geotagging Module

The most important feature of the proposed system is the implementation of the voting feature, allowing the public to vote for the complaint that has a major impact on their lives.The voting count plays an important role in determining the priority of the complaint, allowing the departments to address the grievance accordingly.The voting feature is an additional feature that is introduced in the grievance workflow.

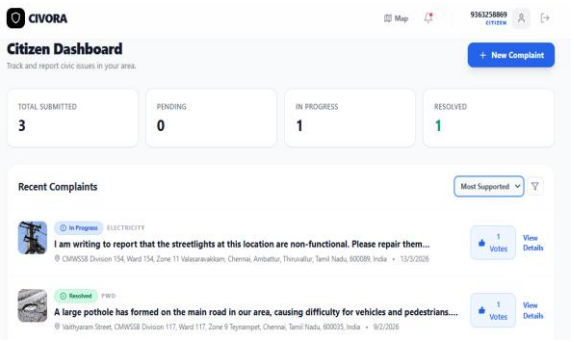

Figure 5 Citizen Complaint Voting Module

The citizen tracking dashboard fetches the complaint information dynamically and displays the real-time status updates such as Submitted, Under Review, In Progress, etc., with the date and time stamp on each transition of the workflow synchronized with the database to maintain transparency. This real-time tracking of the progress of the complaint resolution also increases the level of trust among citizens.

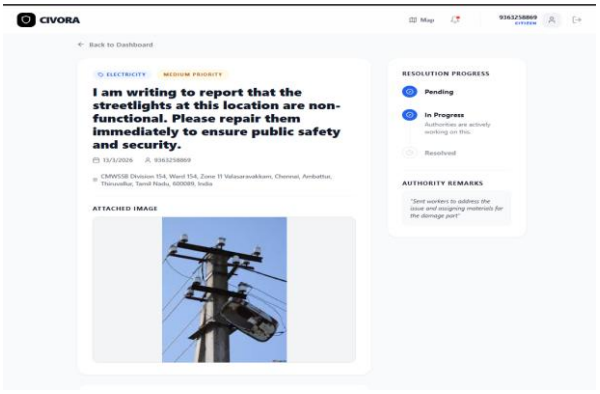

Figure 6 Citizen Complaint Monitoring Dashboard Module

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The department dashboard enables authorized officials to manage their assigned complaints, edit the stages, and record resolutions in a structured workflow system. All changes are reflected instantly in the citizen interface through real-time synchronization.

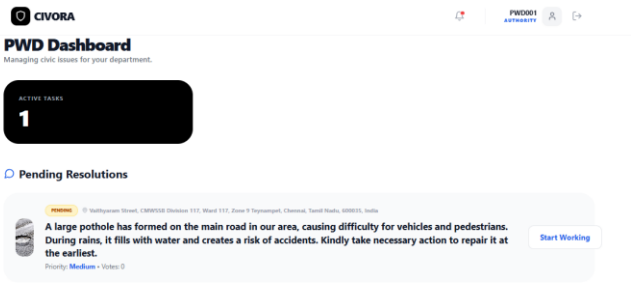

Figure 7 Public Works Department (PWD) Complaint Handling Dashboard Module

The performance evaluation of YOLOv8 showed that it is stable in terms of multi-class detection with fast inference time, confirming that it is appropriate for real-time image validation in civic complaints. The NLP model also showed that it is accurate in terms of classification with stable semantic interpretation for various complaint classes. The overall framework reduces misclassification errors.From the experimental results, it is clear that CIVORA improves the accuracy of complaint classification, allows community-driven prioritization through voting, and facilitates transparent governance through live tracking of civic issue status.

3.2.Discussion

The experimental results prove that the suggested multimodal framework would result in a higher level of complaint classification reliability through the combination of textual and visual intelligence. The NLP module can successfully extract the contextual meaning based on the description provided by users, whereas YOLOv8 provides the correct detection of objects in real-time based on the images. The decision-level fusion mechanism amplifies the discrepancies among modalities and minimises the misclassification errors and enhances robustness. Moreover, small end to end latency and automatic geospatial routing make it appropriate to real time civic governance and smart city implementation.The system has a number of feasible benefits. Automated multimodal classification means that the amount of manual work is decreased by several folds and at the same ti

me; the accuracy is enhanced. Geotag Department routing will make sure that jurisdiction is properly mapped and complaints are assigned to appropriate personnel faster. Status tracking in real time increases transparency and trust levels among the citizens and the voting system helps in prioritising issues. This is due to its modular and scalable structure that enables it to easily expand in future and integrate with other smart governance services.Nevertheless, the system has some limitations even though it is also strong. The performance of classification requires the quality of the data as any ambiguity of text or low quality of images can decrease accuracy. Good internet connectivity and enough backend computing infrastructure is needed to run smoothly. Moreover, model retraining should be carried out periodically to preserve performance and successful adoption may need administrative adjustment to fit and proper digital literacy among users.

Conclusion

CIVORA guarantees a scalable and intelligent civic complaint management platform to enhance transparency, efficiency, and accountability in local government that employs multimodal Artificial Intelligence. Through integration of image detection using YOLOv8, text classification which is driven by NLP and geotagging, this system will enable automated classification of complaints and accurate mapping of jurisdiction. The multimodal approach improves in the reliability of classification, and makes the forwarding of the issue to the appropriate departments to be done with minimal manual input. Also, the real-time tracking and status update options provide citizens with constant information on the progress of complaints, and this fosters trust in the citizens. The client-server architecture is modular and enables the future additions to be easily integrated

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and gives it flexibility in different areas of administration. CIVORA facilitates the enhancement of smart governance practices by reducing processing delays and enhancing the accuracy of decision-making and encouraging citizen participation. This framework demonstrates how the AI-based civic platforms can transform the traditional grievance resolution systems into dynamic, efficient, and citizen-centered digital ecosystems that would be appropriate in the modern municipalities.

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References

[1]. T. Brown and L. Miller, “Corporate Feedback Mechanisms and Customer Retention,” Journal of Business Studies, vol. 15, no. 2, pp. 99-114, 2022.

[2]. M. Yusoff, R. Ahmad, and M. Mohamed, “AI-Based Categorization in Grievance Redressal Systems,” International Journal of Artificial Intelligence and Applications, vol. 13, no. 4, pp. 45-58, 2022.

[3]. S. G. Shukla, T. A. Bhandare, R. V. Bava, I. S. Ahirrao, “Civic Complaints Registration Application for Citizens of Rural/Urban Areas,”International Research Journal of Modernization in Engineering Technology and Science, vol. 06, no. 01,

[4]. A. P. Singh, A. Goel, A. Goel, and D. Arya, “NLP based Grievance Redressal System,” International Journal of Computer Applications, vol. 184, no. 12, pp. 44–48, May 2022, doi: 10.5120/ijca2022922104.

[5]. P. Satpute and Y. Nikam, “Object Detection Using YOLOv8,” International Journal of Creative Research Thoughts (IJCRT), vol. 12, no. 12, Dec. 2024.

[6]. D. Venkata Subramanian, K. G. S. Venkatesan, M. Praveena, U. Prasad, N. Narasimha Rao, “A Complaint Registration SystemthroughWebServices with the Help of Online,” International Journal of Computational Intelligence in Control, vol. 11, no. 2, Dec. 2019.

[7]. A. Singh, P. Kaur, “Integrating Grievance Redressal Systems with Government Platforms,” Public Service Review Journal, vol. 5, no. 2, pp. 56- 70, 2022.

[8]. V. Kapoor,”Innovations in Grievance Redressal Systems: Integrating AI and Cloud Technologies,” International Journal of Smart CityTechnologies, vol. 2, no. 1, pp. 56-70, 2022.

[9]. D. Patil and P. Yadav, ”E-Government Systems for Efficient Public Service Delivery: Review and Future Directions,” International Journal of E- Government Studies, vol. 6, no. 4, pp. 234-245, 2021