

Crowd-Sourced Civic Issue Reporting and Resolution System

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ABSTRACT:

Urban areas are growing fast because of urbanization. As more people move to cities they need civic infrastructure and public services. This growth causes cities to face problems like potholes on roads bad waste management, water leaks, broken streetlights, blocked drainage systems and other infrastructure issues. These problems affect citizens daily lives create safety risks, health concerns and environmental problems. So city authorities must. Resolve these issues efficiently and on time. With digital technology advancing and a focus on city development a more efficient approach to managing civic complaints is needed. This project supports governance by using technology to improve communication between citizens and authorities. The platform aims to make the complaint reporting system faster and more reliable, for citizens and administrators.

Keywords: civic issue reporting, smart city, digital governance, municipal service, issue tracking, citizen reporting.

1. INTRODUCTION:

Cities are growing fast because people are moving to cities for better jobs, education and services. Many cities have a lot of problems like roads, potholes and trash not being picked up. There are also issues with water leaking drains being blocked and streetlights not working. These problems might seem small. They really affect how comfortable and safe people feel in their daily lives. So it is very important for the people in charge of cities to find and fix these problems quickly and efficiently.

In a lot of places people still have to go to city offices write down their complaints or call a helpline to report problems. Cities are growing fast because people are moving to cities for better jobs, education and services. Many cities have a lot of problems like roads, potholes and trash not being picked up. There are also issues with water leaking drains being blocked and streetlights not working. These problems might seem small.

They really affect how comfortable and safe people feel in their daily lives. So it is very important for the people in charge of cities to find and fix these problems quickly and efficiently. Now because we have the internet and smartphones we can make it easier for people to report problems and for cities to manage them. If we have a website or app people can report problems from where they are using their phone or computer. This way people can help make their community better. Cities can respond to problems, in a more organized way. By getting people involved and using technology we can make the process of managing cities open, responsive and efficient. Cities can really benefit from this kind of system. The civic management process can be improved with the help of citizen participation and digital technology. This will make cities better places to live in.

II. RELATED WORK:

Researchers People have come up with systems that use new technologies to make it easier for citizens to report and fix civic issues.

[1] Sharma and his team created a system that lets people report problems like potholes and water leaks using their phones. This system made it faster for the authorities to respond and more people got involved.

[2] Reddy and Kumar designed a system for managing complaints in cities using sensors and GPS. This system helps the authorities track and fix problems quickly. They can monitor everything in real time.

[3] Gupta and his team proposed a system that uses machine learning to decide which civic issues are most important based on how severe they're where they are. This helps the city officials make decisions.

[4] Chen and his team introduced a platform that uses artificial intelligence to analyze complaints and categorize them automatically. This makes it faster to fix the problems.

[5] Patel and Mehta developed a system that uses feedback from citizens and past data to suggest actions and improve services in cities.

[6] Singh and his team implemented a system that uses data from citizens and predictive analytics to forecast problems and use resources wisely.

All these studies show that using crowdsourced systems can make civic issue reporting and resolution faster, more transparent, and more responsive. [7] Patel and Mehta developed a system that uses feedback from citizens and past data to suggest actions and improve services in cities.

[8] Singh and his team implemented a system that uses data from citizens and predictive analytics to forecast problems and use resources wisely.

All these civic issue reporting and resolution systems are different. They all show that civic issue reporting and resolution systems that are intelligent and crowdsourced are important, for making the process of civic issue reporting and resolution more efficient, transparent, and responsive.

III. PROPOSED SYSTEM:

A. Overview of the Proposed System:

The Crowd-Sourced Civic Issue Reporting and Resolution System is a platform that makes it easier for people to report problems with public infrastructure. This system is for things like potholes, garbage that is overflowing, water that is leaking, and streetlights that are not working. People can report these problems using a website or a phone app.

When someone reports a problem, they can describe what is happening, upload pictures, and say where the problem is. Then the system figures out what kind of problem it is and sends it to the people in the city government. The person who reported the problem can track what is happening with it in time. They can see how their complaint is being handled from start to finish.

The city government also has a dashboard to manage all the complaints. They can give tasks to people to update the status of problems and upload pictures to show that a problem has been fixed. The system also lets people vote on which problems are the most important, give feedback, and get notifications. This helps people feel more involved and makes sure the city government is being transparent and responsible.

B. Overall System Architecture:

The system has different parts that work together to make sure problems are reported, handled, and

fixed efficiently. It is designed to be flexible and able to handle a lot of users. The system is setup so that people interact with it using a website or phone app and the backend does all the processing. The main parts of the system are the user interface, the part that collects data the part that handles problems the part that manages problems the part that tracks and notifies people and a central database. The user interface is what people use to interact with the system. The backend parts handle things like making sure data is correct figuring out what kind of problem something is and assigning tasks. The central database stores all the information so it can be accessed intime and the system can handle a lot of users. This structure makes it easy for all the parts of the system to communicate with each other, which makes the wholeprocess moreefficient and helps with civic issue management. The Crowd-Sourced Civic Issue Reporting and Resolution System is, about making it easier for people to report problems and for the city government to fix them

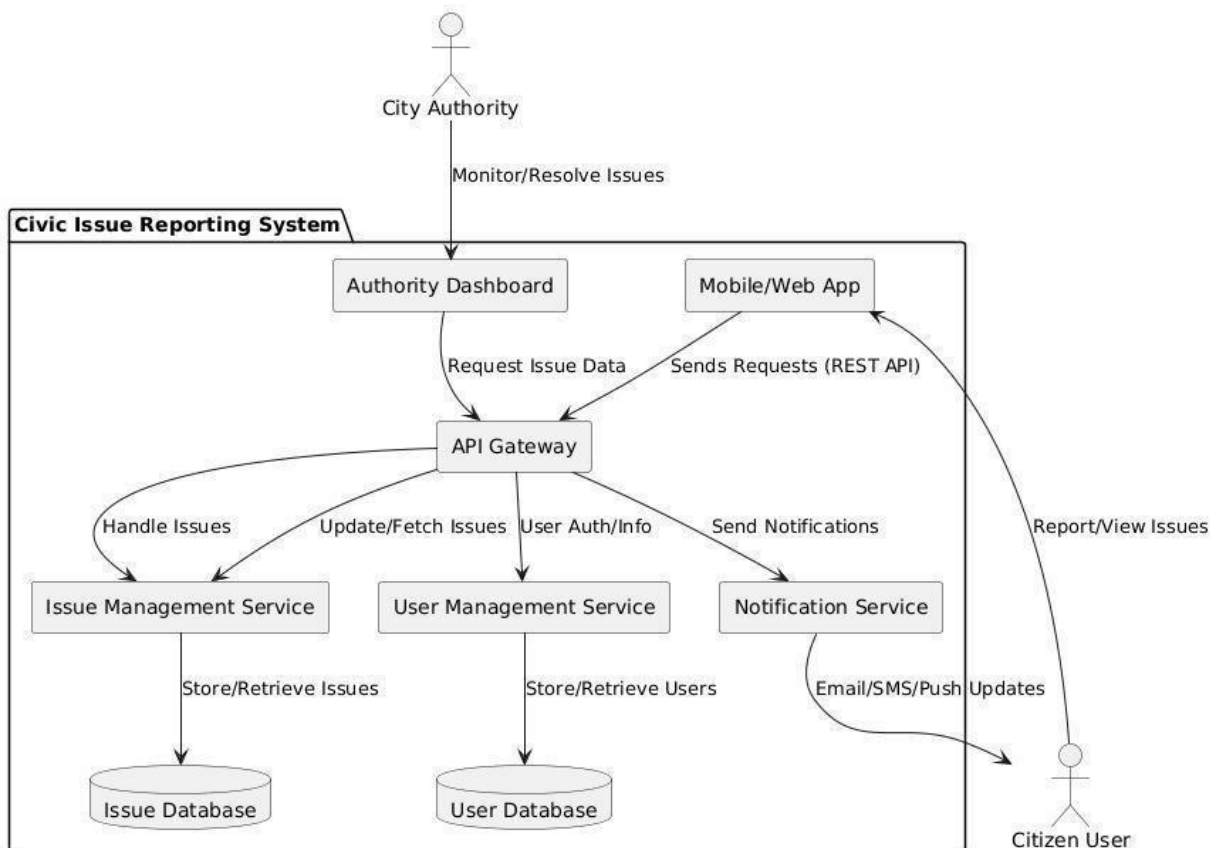


Figure.1.SystemArchitectureCrowdsourcecivicissueforreportingandresolution

C. DataCollectionModule:

The Data Collection Module is really important for getting all the information we need to report issues. It gets data from people using the app, where they tell us about the issue, like what the problem's where it is and add pictures. The module checks that all the information entered is complete and correct before it is submitted. It works with people entering data and also with getting data based on where the issue is so we can accurately find the problem areas. When we have all the data it gets. Saved in the database so it can be used later.The Data CollectionModule helps make sure we have information to work with.

D. UserProfileManagementModule:

The UserProfileManagementModule takes care of all the information about the users. It lets users sign up, log in, and change their name, email, and phone number. The User Profile Management Module also keeps a record of what users do like, problems they report, and what happens to them. This way, users can see what is going on with their problems and use the system without worrying. The User Profile Management Module makes things better for users. Makes sure people are responsible for what they do, by connecting each problem to the user who reported it.

E. CivicIssueDatabaseModule:

The Issue Database Module is where we keep all the information about issues. It has lots of records with details about each issue, like what the issue's pictures, where it is, what is happening with it, and which department is handling it. The Issue Database Module helps us store, find, and manage a lot of data about issues.

F. IssueProcessingModule:

The Issue Processing Module does a lot of work. It looks at the problems that people report and gets them ready for someone to do something about them. The Issue Processing Module checks the information that people send in to make sure it is correct and has all the details. Then it sorts the problems into groups like road damage, sanitation problems, or water supply issues. The Issue Processing Module also tries to find problems that're the same or not valid so it can get rid of duplicates and reduce unnecessary work, on the Issue Processing Module.

G. IssueAssignmentandMatchingModule:

The Issue Assignment and Matching Module is what helps get reported issues to the people in the municipal departments. It looks at what kind of issue it's where it is, and then it sends it to the people who can fix it. The Issue Assignment and Matching Module can also decide which issues are most important based on how bad they're, how quickly they need to be fixed, and what people in the community are saying. This helps make sure that issues get fixed faster because the Issue Assignment and Matching Module helps get them to the people. The Issue Assignment and Matching Module is like a connection, between people and the authorities, making sure that each issue gets to the right department so it can get fixed.

H. TrackingandNotificationModule:

The Tracking and Notification Module is something that keeps an eye on each issue that is reported. It watches what happens to the issue from the time it is reported until it is fixed. The Tracking and Notification Module checks the status of each issue. It can be submitted, assigned, in progress, or resolved. The Tracking and Notification Module also tells users when something changes with their issue. The Tracking and Notification Module sends these updates when something happens with the issue. These updates can be sent to the user when they are using the application or they can be sent by email.

IV. IMPLEMENTATION DETAILS:

A. DevelopmentFramework:

A mix of technologies is used to build the Crowd-Sourced Civic Issue Reporting and Resolution

System. This system needs to handle a lot of users and data so its built to be scalable, efficient and interactive in time. The part of the system that users see the frontend is built using web technologies like HTML, CSS and JavaScript. Frameworks like ReactJS are also used to make it easy to use and look good on devices.

Citizens and authorities can use it to report and resolve issues. The backend is the part that works behind the scenes. Its built using Python. Frameworks like Flask or Django are used to handle requests keep users logged in process issues and let different parts of the system talk to each other. All the data, like user profiles, civic issues, images and updates are stored in a database, like MySQL or SQLite.

B. DataProcessingandIssueHandling:

The system uses data from users to handle problems quickly. When someone reports a problem thesystem looks at theinformation theyprovide likewhat the problem's a pictureofit and where it is. The problem is then. Put into a category, like roads, cleaning, water or electricity. The system can also spot if someone has already reported the problem or if the report is not valid to avoid doing extra work. The system then gets the problem ready to send to the department. This automatic process helps authorities respond faster and do work.

C. IssueResolutionMechanism:

The system helps fix problems in a way by sending the problems to the right people in the city. It looks at what kind of problem it's where it is and then it sends the problem to the right department. If a problem is very important or a lot of people are talking about it the systemmakes sure it gets fixed first. The people in charge can see the problems that are sent to them do what they need to do and then tell the system what they did.

D. InfrastructureandDeployment:

The system can be deployed in a cloud-based environment to ensure scalability, availability, and reliability. Cloud platforms allow the system to handle a large number of users and complaints simultaneously. Thedatabase can behosted securely using cloud database services to enable real-time data storage and retrieval. Technologies such as containerization (e.g.Docker) can be used to simplify deployment and maintenance of the system. The cloud-based infrastructure ensures that the platform remains accessible at all times and can be easily scaled in the future.

E. SecurityandPrivacy:

The system has security to keep user data safe and make sure everything runs smoothly. It has thingslikeloginandpasswordencryptiontostoppeoplefromgettinginwhoshouldnotbether. The system checks what people put in to make sure it is okay and will not cause problems. Importantinformation,likeuserdetailsandissuedataiskeptsafeinthedatabase.Allthese security things help people trust the system and keep it working.

F. PerformanceEvaluationandSystemTesting:

Toseehowwellthesystemworks wedo alotoftests.Wecheckhowlong ittakes forthesystem to respond if it correctly figures out what kind of problem it is and if it can fix the problem quickly. We also ask users what they think to see if the system is easy to use and if they like it.

We do something called load testing and stress testing to make sure the system can handle a lot of people using it at the time. The system is tested for response time and accuracy of issue categorization and efficiency of issue resolution. We use the results of these tests to make the system work better, make it more reliable, and make the whole platform better.

V. ALGORITHMS:

1. Issue Categorization Algorithm:

The Issue Categorization Algorithm is what we use to sort out problems that people report about their community. We put these problems into groups like roads, sanitation, water supply, electricity, or drainage. This is similar to how some systems work, where they look at what people say and the pictures they send and then match them with the group. So the system looks at the words in the problem description and checks them against what we know about each group.

Steps to perform this:

1. Collect issued data (description, image, location).
2. Extract keywords from the issue description.
3. Define categories with relevant features (e.g., roads, garbage, water).
4. Compare issue features with category features.
5. Assign the issue to the category with the highest similarity score.

2. Duplicate Detection:

The Duplicate Detection Algorithm is used to identify repeated or similar complaints reported by different users. Instead of creating multiple entries for the same issue, the system compares new complaints with existing ones using similarity measures. If a match is found, the issue is marked as duplicate and linked to the existing complaint. This reduces redundancy and improves system efficiency.

Steps of Conducting the Work

1. Collect new issued data.
2. Compare with existing issues in the database.
3. Measure similarity using text/location comparison.
4. Identify duplicate issues.
5. Link or merge duplicate complaints.

2. Issue Prioritization:

The Issue Prioritization Algorithm is used to determine the urgency of reported civic issues. The system assigns priority levels based on factors such as severity, number of complaints,

and community upvotes. Issues affecting a larger number of people or posing safety risks are given higher priority.

ProcessSteps

1. Collectissuedetails(type,location,severity).
2. Considernumberofreportsorupvotes.
3. Assignweightstoeachfactor.
4. Calculatepriorityscore.
5. Rankissuesbasedonpriorityscore.

3. IssueAssignmentAlgorithm:

The Issue Assignment Algorithm is responsible for routing reported issues to the appropriate municipal department. The system analyzes the category and location of the issue and assigns it to the responsible authority automatically.

Steps

1. Identifyissuecategory(roads,sanitation,etc.).
2. Determinelocation ofthe issue.
3. Mapcategorytocorrespondingdepartment.
4. Assign issue to thedepartment.
5. UpdatestatusasAssigned.

4. NaturalLanguageProcessing:

NaturalLanguageProcessing(NLP)isusedtoprocessandanalyzetextual dataprovidedbyusers in issue descriptions. It helps in extracting meaningful information such as keywords and identifying the type of problem. NLP techniques improve accuracy in categorization and duplicate detection.

1. TextPreprocessing
2. Tokenization
3. StopWordRemoval
4. KeywordExtraction

5. Clustering:

Clustering is used to group similar issues based on location or type. This helps authoritiesidentify areas with frequent problems and take preventive actions. Algorithms like K-Means can be used to group issues with similar characteristics.

1. Collect and preprocess issue data.
2. Convert issues into feature vectors.
3. Apply clustering algorithm (e.g., K-Means).
4. Group similar issues together.
5. Analyze clusters for decision-making.

6. Decision Tree/Classification Algorithm:

The Decision Tree algorithm is used to predict and classify civic issues based on input data. It can help determine the type of issue or predict the required action based on features such as description, location, and past data.

Process:

1. Collect training data from past issues.
2. Identify key features (category, location, severity).
3. Build decision rules using tree structure.
4. Classify new issues based on rules.
5. Predict appropriate action or department.

V. EXPERIMENTAL RESULTS AND ANALYSIS

A. Test Procedure:

The Crowd-Sourced Civic Issue Reporting and Resolution System was tested to see how well it works. We did some experiments with people and the people who work for the city. We had 150 people from parts of town and we split them into two groups. One group used the system to report problems and keep track of what was happening with them. The other group did things the way like going to the city office or calling to complain.

We did this for four weeks. People reported all sorts of problems like bad roads, too much garbage, water leaks and streetlights that were not working. The people who used the system sent in their complaints with pictures and maps but the other group just told someone about the problem in person or over the phone. We looked at things like how it took for someone to respond how many problems were actually fixed how much people used the system and how well the system worked. The Crowd-Sourced Civic Issue Reporting and Resolution System was used to report all these problems. We wanted to know if it was better, than the old way.

B. System Efficiency and Response Time:

The new system was tested to see how fast it could handle problems. The results showed that this system is much quicker at dealing with issues than the way of doing things. When people used

the system to report a problem it was looked at. Sent to the right people 40% faster than when they did it by hand. The system can automatically. Assign problems, which helps to stop things from getting delayed and makes everything work better. The system really helps to make things more efficient. The system is very good, at reducing the time it takes to report and deal with issues.

C.Engagementand Satisfaction:

The user engagement was measured by how participants used the system and reported problems. The results showed that users of the proposed system interacted more compared to those using methods. Most users, 85 percent were happy with the system because it allowed real-time tracking sent notifications and made it easy to report issues. On the hand only 60 percent of users of traditional methods were satisfied. These results make it clear that digital platforms like this one get people involved and are more transparent.

D.ImpactofPriority-BasedIssueHandling:

The systems way of prioritizing issues really helped fix things. The system looked at how bad an issue was and how many people reported it. Issues that were really bad or had many reports got fixed before important ones. For example if there was a problem like water leaking or a road being damaged in a busy area it got fixed quickly. The system made sure that resources were used in a way. It also helped the people, in charge of the city make decisions. Over time the system got better at finding issues that kept happening. It helped the authorities focus on areas that had a lot of problems. The system made it easy to fix issues with severity.

E.ComparativeAnalysisofwithTraditionalMethods:

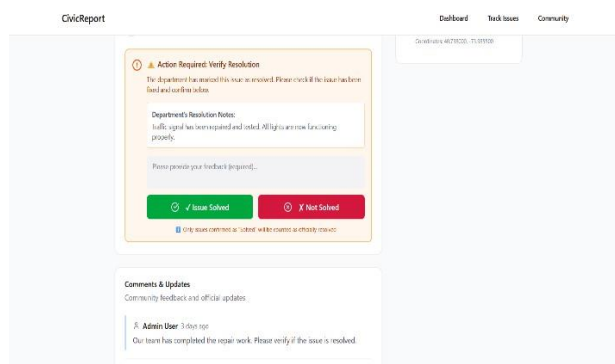
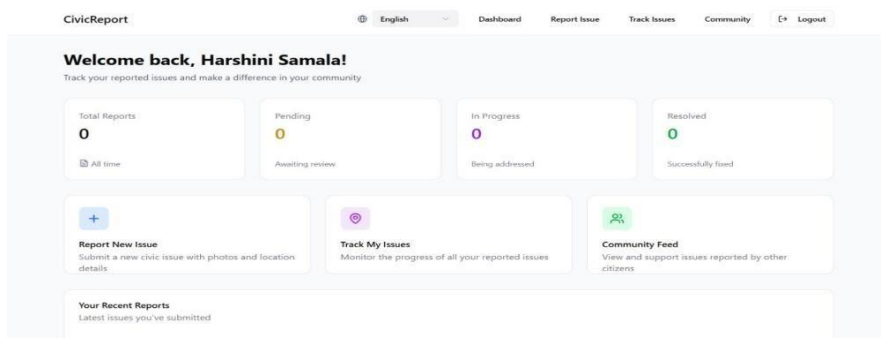
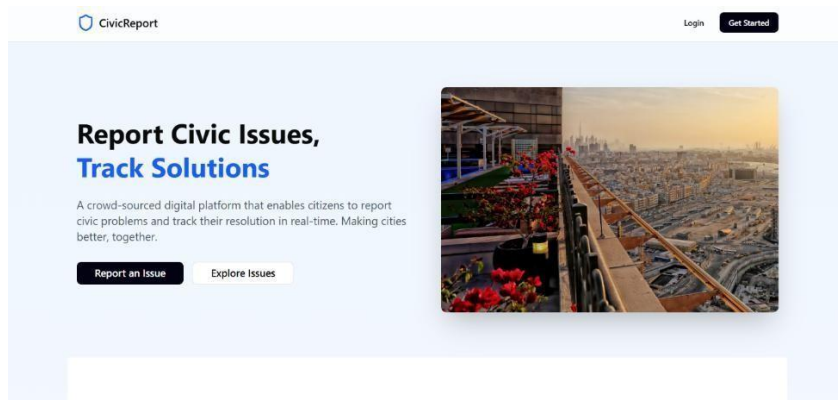
The proposed system was compared to ways of reporting civic issues. We looked at things like response time, resolution rate, user engagement and transparency. The results showed that our system did better than methods in every way. It helped people report issues faster.

Metric	Proposed Model	Traditional Complaint System	Mobile Reporting Apps	Manual Government System	Hybrid Model
Issue Detection Accuracy (%)	90	75	82	65	88
User Participation Rate (%)	88	70	80	60	85
Response Time Efficiency (%)	85	68	78	55	82
Real-Time Tracking (%)	91	65	83	50	87
System Adaptability (%)	89	74	81	66	86

Table I: Comparative Analysis of Civic Issue Reporting Systems

The proposed system is really good at solving issues. It does a job of identifying problems. A lot of people use the proposed system so we get a lot of user participation. The proposed system is also very fast. It solves a lot of issues. The proposed system is better than systems and manual systems. The proposed system gives us updates away and it works very well. The proposed system helps us report problems quickly. It helps us fix public problems better. The proposed system is good, at solving issues and it is very helpful.

VI. OUTPUT:



VII. DISCUSSION:

a. Civic Issue Reporting System Implementation:

Experimental results show that the Crowd-Sourced Civic Issue Reporting and Resolution System really helps in reporting and solving problems quickly. The system lets people report issues away using a digital platform. They can give descriptions add images and share location details. This helps in getting issues to the people quickly. Unlike methods this system reduces delays. Users can also see how their complaints are being handled. This makes things more transparent. Municipal authorities get data, from this system. The data is well organized and categorized. This helps authorities make decisions faster and use resources better. The system reduces the work that has to be done. It makes managing services more effective. The Crowd-Sourced Civic Issue Reporting and Resolution System is really helpful. It improves how civic problems are reported and solved.

b. Comparison of Traditional Reporting Methods:

The proposed system is a lot better than the way of reporting civic issues. Usually people had to go to the offices or make phone calls to report problems. This took a time and it was hard to keep track of what was happening. Sometimes this led to people getting confused. Nobody being responsible for fixing the problems. The proposed system is different because it is organized and automatic. When people report issues they get put into categories. Someone is assigned to take care of them. The system keeps track of everything so people can see what is happening with their complaints. The people in charge can also see all the complaints in one place, which makes it easier for them to do their jobs. This makes it a lot easier for citizens and authorities to talk to each other and fix problems quickly. The proposed system is really good at helping people get their issues resolved faster. The proposed system is also very good, for citizens because they get updates away and this helps the proposed system work better for everyone.

c. Potential Challenges and Limitations:

The system has some things about it but it also has some problems. One big worry is keeping user information and location details safe from people who should not see them. The system also needs information from users to work properly so if the information is not complete or correct it can cause problems. We also need people and authorities to use the system all the time because if they do not it will not work well. The system needs a database that can handle a lot of information and that needs to be checked all the time. Sometimes people do not know how to use the system because they do not understand technology so they will not use it. That is why we need to update the system teach users how to use it and make it better all the times so it works well and is fair. The system needs to be good, at what it does so we need to work on the system and make sure it is working right. The system is important so we need to make sure the system is working well.

VIII. CONCLUSION:

The Crowd-Sourced Civic Issue Reporting and Resolution System is a way to deal with civic problems in cities. It uses technology to let people report issues as they happen. The system is easy to use. People can even upload pictures and say where the problem is. This helps make sure that the problems are reported correctly. The system helps citizens and city officials talk to each other better. It is like a window where people can see what is happening with the issues they reported. The system can even automatically sort out which issues are most important. This means that the big problems get fixed quickly. The city officials can also use the system to look at all the issues and make decisions about how to plan the city. This system is better than the way of doing things. It saves time. Makes sure that everything is done fairly. People do not have to fill out lots of paperwork and wait for a time to get things done. The Crowd-Sourced Civic Issue Reporting and Resolution System helps make cities better places to live. It makes sure that the city is run well and that people can participate in making their city a great place. The Crowd-Sourced Civic Issue Reporting and Resolution System is good, for everyone.

IX. REFERENCES:

1. Kurian Binu, Vinay K, Midhun R, Athul V Pillai, and Shereena Thampi, "Smart reporter –A Crowdsourced Complaint Resolution System," International Journal of Engineering Research & Technology (IJERT), Vol. 15, Issue 01, January 2026.
2. Nivetha V., Sri Balaji P., Praveen Kumar S., Kamallesh B., and Kirithiga R., "Crowdsourced Civic Issue Report and Resolution System by AI and ML," ISJEM Journal, 2025.
3. Agostini, A., et al., "A Web and Mobile City Maintenance Reporting Solution," Procedia Technology, Vol. 9, pp. 226-235, 2013.
4. Lee, M., Wang, J., Janzen, S., Winter, S., & Harlow, J., "Crowdsourcing Behavior in Reporting Civic Issues: The Case of Boston's 311 Systems," Academy of Management Annual Meeting Proceedings, 2021.
5. Madyatmadja, E. D., Sianipar, C. P. M., Wijaya, C., & Sembiring, D. J. M., "Classifying Crowdsourced Citizen Complaints through Data Mining," Informatics Journal, 2023.
6. Pak, B., Chua, A., & Vande Moere, A., "Fix My Street Brussels: Socio-Demographic Inequality in Crowdsourced Civic Participation," arXiv Research Paper, 2017.
7. Kumar, S., Atreja, S., Singh, A., & Jain, M., "Adversarial Adaptation of Scene Graph Models for Understanding Civic Issues," arXiv Research Paper, 2019.
8. Shama, F., Aziz, A., & Dey, L. B. M., "City Solution: A Complaint Task Distributive Mobile Application for Smart City Corporation using Deep Learning," arXiv, 2024.
9. S. Mahyar et al., "Community Click: Capturing and Reporting Community Feedback from Town Halls to Improve Inclusivity," ACM Research Study, 2020.
10. S. Agostini et al., "The Role of Crowdsourced Data and Participatory Mapping in Public Issue Reporting," Applied Geography Journal, 2021.
11. Shanthi, Dr. D., G. Ashok, Chitrika Biswal, Sangem Udharika, Sri Varshini, and Gopireddi Sindhu. 2025. "AI-Driven Adaptive IT Training: A Personalized Learning Framework For Enhanced Knowledge Retention And Engagement". Metallurgical and Materials Engineering, May, 136-45. <https://metall-mater-eng.com/index.php/home/article/view/1567>.
12. Shanthi, D., Aryan, S. R., Harshitha, K., & Malgireddy, S. (2023, December). Smart Helmet. In International Conference on Advances in Computational Intelligence (pp. 1-17). Cham: Springer Nature Switzerland.

13. Shanthi, D., G. Narsimha, and R.K. Mohanthy. 2015. Human Intelligence vs. Artificial Intelligence. *International Journal of Electronics Communication and Computer Engineering* 6 (5): 30–34.
14. P. Endla, A. R, S. Suneel, A. P. Singh, P. A and D.Shanthi, "MedSensePathway: A Hybrid Framework for Real-Time Diagnosis of Malarial Parasites using Medical Imaging," 2025 9th International Conference on Electronics, Communication and Aerospace Technology (ICECA), Coimbatore, India, 2025, pp. 1972-1978, doi:10.1109/ICECA66444.2025.11382939 .
15. Todupunuri, A. (2025). IMPROVING CUSTOMER EXPERIENCE WITH MODERN BANKING SOLUTIONS. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5120615>
16. Babburi, S. (2024). Explainable AI Framework for Policy-Compliant Anomaly Detection in Data Pipelines.
17. Gaddam, S. Integrating Analytics into the Development Process: Bridging the Gap between Data Insights and Design Execution.
18. Reddy, S. K. R. Developing a Modular AI Framework to Enhance Scalability and Personalization in Next-Generation Reward Platforms.
19. Poojari, R. INTELLIGENT SYSTEMS+B108 AND APPLICATIONS IN ENGINEERING.
20. Vasagam, M. (2024, August 30). Ensuring security in modern data pipelines: Practical strategies for data engineers. *International Journal of Intelligent Systems and Applications in Engineering*, 12(22s), 2401.
21. Santthosh Saai Reddy Purmani. (2026). Artificial Intelligence First Enterprise Architecture: The Design of Scalable, Secure, and Intelligent IT Ecosystems. *American Journal of AI Cyber Computing Management*, 6(1(2)), 1–8. [https://doi.org/10.64751/ajaccm.2026.v6.n1\(2\).pp1-8](https://doi.org/10.64751/ajaccm.2026.v6.n1(2).pp1-8)
22. Cyril, H. P., & Kumara, S. (2026, February). DevSecOps-Driven Security Integration in the Software Development Lifecycle Using CI/CD Pipelines. In 2026 IEEE 5th International Conference on AI in Cybersecurity (ICAIC) (pp. 1-6). IEEE.
23. Kotte, G. (2025). Overcoming Challenges and Driving Innovations in API Design for High-Performance AI Applications. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.5283649>
24. Mahtabi, M., Roshan, M., Muhit, M. M. I., Behvar, A., & Haghshenas, M. (2026). Cryogenic ultrasonic fatigue: Mechanisms, advancements, and insights. *Cryogenics*, 153, 104257. <https://doi.org/10.1016/j.cryogenics.2025.104257>
25. Viswanathan, V. (2024). Pioneering Ethical AI Integration in Enterprise Workflows: A Framework for Scalable Team Governance. Available at SSRN 5375619.
26. Akhilaiswarya, B., Sree, B. T., Lilly, K., Chowdary, K. H., & Sruthi, M. (2023). Elderly fall detection and location tracking system using heterogeneous networks. *Journal of Engineering Sciences*, 14(05).
27. Viswanathan, V. (2025). Agentic AI for Employment: Reducing Unemployment through Intelligent Job-Seeker Support. *LEX LOCALIS–Journal of Local Self-Government*.
28. Mudusu, S. K. (2026, February 9). AI-augmented data quality engineering. *InfoWorld (Foundry Expert Contributor Network)*.
29. Viswanathan, V., Shah, A. K., Kubam, C. S., Dontu, S., Gandhi, A., & Singla, P. (2025, August). Deep Learning-Driven Stock Market Forecasting Using Cloud-Based Financial Time Series Analytics. In 2025 International Conference on Emerging Trends in Networks and Computer Communications (ETNCC) (pp. 1-6). IEEE.
30. Sruthi, M. V., Soundararajan, K., & Sree, V. U. (2012). Accurate Multimodality Registration of medical images. *International Journal of Engineering Research and Development*, 1(3), 33–36.

31. Viswanathan, V., Polagani, S. S., Agarwal, R., Akula, S., Dey, S., & Kashyap, R. (2025, September). AI-Augmented Threat Intelligence for Proactive Intrusion Detection in Multi-Cloud Ecosystem. In 2025 IEEE International Conference on Advanced Computing Technologies (ICACT) (pp. 567-572). IEEE.
32. Mudusu, S. K., & Gentyala, S. (2026). Zero-Trust Data Pipelines for AI Systems: A Framework for Secure, Verifiable, and Auditable Data Engineering. JOURNAL OF RECENT TRENDS IN COMPUTER SCIENCE AND ENGINEERING (JRTCSE), 14(2), 10-25.
33. DEVARASETTY, N. (2023). SCALABLE DATA ENGINEERING APPROACHES FOR AI-DRIVEN INDUSTRIAL IOT APPLICATIONS. INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH AND MANAGEMENT, 11(06), 954-968.
34. Agrawal, A. M., Gajula, S., Shinde, R. P., Shah, H., & Ghosh, H. (2025, July). Machine Translation for Long Sequences with Enhanced Attention Mechanisms. In 2025 5th International Conference on Electrical, Computer and Energy Technologies (ICECET) (pp. 1-6). IEEE.
35. Dayal, P. S., Chandra, B. R., Keerthi, M., Sruthi, M., Venkatesh, K., Appalaraju, G., & Eswari, G. (2013). Design of Pyramidal Horn Antenna at 10GHz Using WIPL-D Optimizer. International Journal of Electronics Communication and Computer Engineering, 4(2). Maturi, S. Y. (2023). Crowdsourced frontier: Unveiling autonomous adversarial cybercapabilities via open AI competition. International Journal of Intelligent Systems and Applications in Engineering, 11(1s), 275–284.
36. Hassan, T., Karim, M. F., Jeelani, H., Behnam, E., Green, R., & Syed, F. J. (2025). Optimizing Medical Question-Answering Systems: A Comparative Study of Fine-Tuned and Zero-Shot Large Language Models with RAG Framework. arXiv preprint arXiv:2512.05863.
37. Manoharan, D. (2026). Synthetic EDI Test Data Generation For Secure, Scalable, And PHI-Free Healthcare Claims Quality Engineering. Journal of International Crisis and Risk Communication Research, 9(1).
38. Ravishankara, M. (2026, February). CircuChain: Disentangling Competence and Compliance in LLM Circuit Analysis. In SoutheastCon 2026 (pp. 1-7). IEEE.
39. Sruthi, M. V., Sree, V. U., & Soundararajan, K. (2012). Specific removal of motion artifacts in medical image processing. IJECCE, 3(3), 227-229.