Public Issues and Rectification Portal

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Abstract—This paper outlines the modernization of traditional government processes through the development of a secure block chain based e-portal. Utilizing block chain technology, the platform ensures that complaints are securely recorded and cannot be altered. Additionally, it includes the creation of a user-friendly website for individuals to raise complaints about public issues. The website's front-end is built using HTML, CSS, and the React JS framework, while the back-end is supported by Node JS. The database functionality is managed byMongo DB / SQL and AWS, with PHP and Hashing concepts used to enhance data security. The paper further describes the implementation of a dashboard, accessible via a sign-in page, designed to collect user credentials. Once logged in, users can access personalized pages and provide supporting evidence for their concerns in the form of image or PDF files. These complaints are then routed to the appropriate departments (e.g., Department of Environment - DoE, Tamil Nadu Electricity Board– TNEB, etc.) Users receive an acknowledgment number after their submission. Once the department rectified the issues, they send a proof to the users for their confirmation via WhatsApp or Gmail for enabling two way communication.

Keywords:Block chain, User-friendly, Front/Back end, Mongo DB / SQL, Hashing, Two way communication.

I. INTRODUCTION

Imagine a transparent and efficient system for reporting and resolving public issues, powered by the security and immutability of blockchain technology. This is the essence of the proposed web application: a public issues and rectification portal that leverages blockchain to empower citizens and enhance government accountability. Here's a glimpse into what this application could offer: Citizens:

Report issues related to infrastructure, sanitation, healthcare, etc., with evidence submission (photos, videos) for better understanding. Track the progress of their reported issues in real-time on a tamper-proof blockchain ledger. Up-vote and comment on issues reported by others to raise their visibility and importance.

Government Agencies:

- Receiving the Complaint Reports:This involves setting up a system or platform where citizens can submit reports or complaints regarding issues they encounter in their communities. The system should be user-friendly and accessible to all residents, allowing them to provide detailed information about the problem they're experiencing. Reports may cover a wide range of issues such as potholes, streetlight outages, garbage collection problems, drainage leakage, etc. It's essential to ensure that the reports are verified to avoid misinformation or false claims. Citizens may be required to provide supporting evidence such as photos, videos, or location details to verify their reports.

- Tracking Process:Once reports are submitted, they should be tracked and managed through a centralized platform or database. Each report should be assigned a unique identifier for easy tracking and reference. The platform should allow for real-time monitoring of the status of reported issues, from submission to resolution. It should also facilitate communication between citizens and government officials, allowing for updates on the progress of reported issues and resolution timelines.

Block chain Technology:

To enhance transparency and accountability by demonstrating their responsiveness to public in which Blockchain technology plays a crucial role in this system by providing:

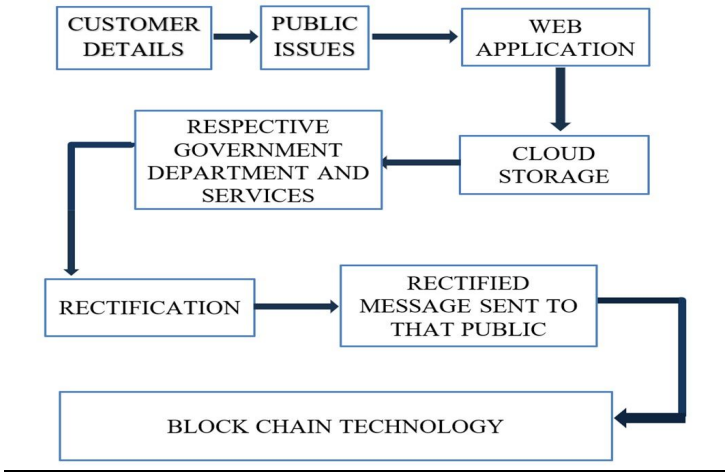
Immutability: Records of reported issues and their resolution process are unchangeable, ensuring transparency and preventing manipulation.

Decentralization: Data is not stored in a single location, making it resistant to tampering and censor ship.

Security: Strong cryptographic protocols ensure the confidentiality and integrity of reported information.

This innovative web application has the potential to revolutionize citizen engagement and improve government responsiveness, ultimately leading to a more efficient and accountable public service delivery system.

BLOCK DIAGRAM :



2.1.1 : SOFTWARE DESIGN:

This will involve layering the different parts of the system to create a comprehensive architecture.

Frontend (User Interface):

Technology stack: HTML, CSS, Bootstrap, JavaScript and a modern frontend framework like React.

- Functionality:Citizens report their issues with fields for location, description, issue category, and the ability to upload supporting evidence (images, videos).Overall, the front-end of the rectification portal aims to provide a user-friendly and accessible platform for citizens to report their concerns and contribute to improving their community.

- Issue Dashboard:A visual display of reported issues (both personal and community-wide). The issue dashboard can provide citizens with a valuable tool to stay informed about community concerns and track the progress of reported issues, fostering asense of transparency and accountability within the rectification process.

- Progress Tracking: The progress tracking system aims to provide citizens with clear and timely information about the status of their reported issues. This ensures transparency and accountability within the rectification process. The progress tracking system empowers citizens to track the resolution of their concerns and fosters trust in the responsiveness of government agencies.

- Up voting/Commenting: Citizens can “up vote” issues which they consider important or impactful within their community.This can be implemented through like buttons or star rating and also beable to provide feedback. By incorporating this system, the rectification portal fosters citizen engagement and facilitates two-way communication between citizens and government agencies.

- Authentication:By implementing a robust and layered authentication system, the rectification portal safeguards the privacy and security of users’ information and ensures authorized access for government officials for efficient management of reported issues.

Backend (Server-side Logic):

- Technology stack:A suitable backend framework (Node.js) with PHP (Connecting with server) and a database(MySQL, or a NoSQL option like MongoDB).

- Functionality:The backend system plays a crucial role in handling the process of receiving, storing, and routing reported issues efficiently.

- Blockchain Integration:Integrating blockchain technology into the rectification portal in backend presents a unique approach with potential benefits in terms of transparency and immutability. This could potentiallyincrease trust in the rectification process by providing citizens with an immutable record of their reported issues.

- Access Control:RBAC (Role-Based Access Control) is a crucial security mechanism for the rectification portal’s backend, ensuring only authorized government agencies can access and modify sensitive information.By implementing RBAC, the rectification portal backend can ensure secure and controlled access to sensitive information, safeguarding data integrity and fostering trust in the overall system.

- Notifications:By establishing a robust notification system, the rectification portal fosters transparency and improves citizen engagement. Keeping citizens informed about the progress of their reported issues promotes trust in the rectification process and encourages further participation.

Blockchain Layer:

- Selection:Choose a blockchain platform suitable for the project's needs, considering factors like Smart Contracts, Permission Model, Scalability.

- Functionality:Securely record the issue description, evidence, location, timestamps, and the associated government agency.

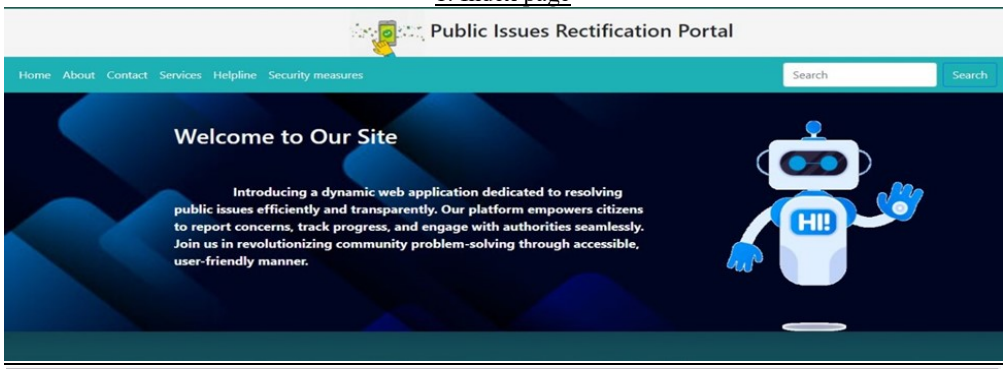
- Status Updates: Add immutable records of any progress updates made on the issues.

- Transparency: Provide public access to view the blockchain ledger of issue records (depending on the chosen permission model).

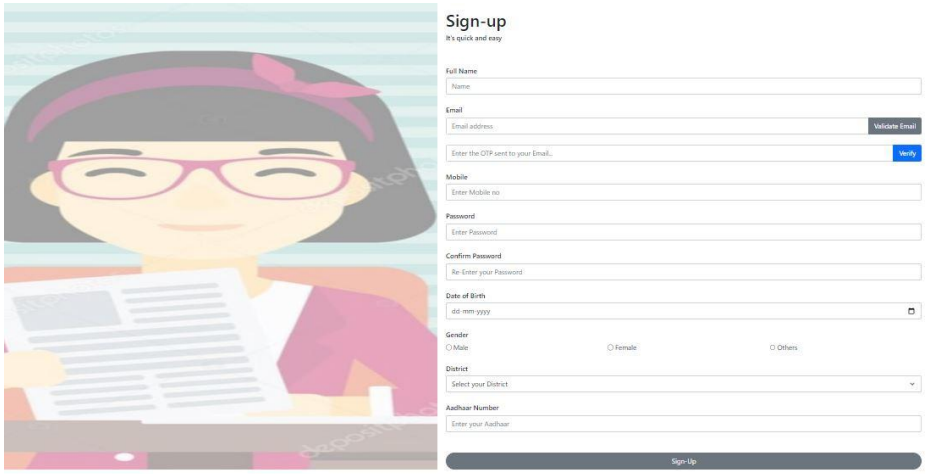
- Additional Considerations
  - Security: Implement robust security measures like encryption and multi-factor authentication across the web application and the blockchain interactions.
  - Usability: Design the interface to be user-friendly and accessible, even for those with limited technical knowledge.
  - Scalability:Ensure the architecture can handle a growing number of users and reported issues.

3.1.1 :PROPOSED METHOD :

1. Index page



2.Registration page



II. CONCLUSION :

The development of the Public Issues Rectification Portal has addressed a critical need for a platform to facilitate the reporting and resolution of public issues. Through the implementation of user-friendly interfaces, real-time communication channels, and efficient issue tracking mechanisms, the portal has demonstrated its potential to streamline the process of issue rectification and enhance public engagement.

Moving forward, further enhancements and integration with government agencies and relevant stakeholders could amplify the impact of the portal, making it a valuable tool for both the public and authorities in addressing and resolving public issues effectively.

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