



# **Secure Complaint Management System Using Blockchain**

**G.Naga Murali, M.Gopala Krishna, Ch.Sri Sai, M.Charan**

Dept. of CSE, Parul Institute of Engineering and Technology, Vadodara, Gujarat, India

**ABSTRACT:** Criminal activities in India are increasing rapidly, and a significant number of cases go un-reported. Even though online systems exist for storing FIRs (First Information Reports) and NCRs (Non-Cognizable Reports), many complaints are still recorded manually, which leads to inefficiencies and lack of transparency. In most cases, the complainant must physically visit a police station to file a complaint, which discourages reporting and increases the chances of corruption or manipulation.

The Crime and Criminal Tracking Network and Systems (CCTNS), introduced in 2009, attempted to digitize this process. However, it is still largely centralized, making it vulnerable to data manipulation and single points of failure. This creates a need for a more secure, decentralized system that ensures transparency and protects complaint data from unauthorized access.

This project proposes a blockchain-based complaint management system where FIRs and NCRs are securely recorded. Complaint data is encrypted and stored using IPFS (InterPlanetary File System), while hashes are stored on the blockchain. This ensures immutability and prevents tampering. Even if a complaint is denied by authorities, the blockchain record serves as proof.

The system enhances trust between citizens and police by providing a transparent, tamper-proof, and decentralized platform. It is resistant to hacking, data loss, and manipulation, making it a reliable solution for modern complaint management.

**KEYWORDS;** Blockchain, Hashing, Decentralized, FIR, Cryptography, IPFS

## **I. INTRODUCTION**

Blockchain technology has the potential to transform many sectors, including law enforcement and complaint management. Traditional systems for filing police complaints are often slow, bureaucratic, and lack transparency. Victims may face delays, rejection of complaints, or even corruption during the process.

A blockchain-based complaint management system can address these issues by providing a secure and transparent platform for filing and tracking complaints. It ensures that once a complaint is registered, it cannot be altered or deleted, thereby maintaining integrity.

In India, complaints are registered as FIRs or NCRs. However, issues such as refusal to file complaints, bribery, and delays hinder justice. A decentralized system eliminates reliance on a central authority and ensures accountability.

Blockchain acts as a distributed digital ledger where data is stored across multiple nodes. Each transaction is encrypted, timestamped, and linked to previous records, forming a secure chain. This makes it nearly impossible to alter data without consensus. Smart contracts further enhance the system by automating processes. These are self-executing programs that run when predefined conditions are met. They ensure efficiency, reduce manual intervention, and eliminate bias.

Ethereum is used as the blockchain platform in this system. It allows secure execution of smart contracts and ensures transparency while maintaining data privacy.

**Volume 15, Issue 4, April 2026****|DOI: 10.15680/IJRSET.2026.1504228|****II. EXISTING SYSTEM ANALYSIS**

The current complaint management systems, including CCTNS, are centralized. This means all data is stored in a single system, making it vulnerable to hacking, manipulation, and system failures.

Many existing systems only store FIRs and NCRs but not the initial complaint itself. This becomes problematic when police refuse to register a complaint. In such cases, citizens have no proof that they attempted to file a complaint. Additionally, centralized systems often give excessive control to authorities, increasing the risk of misuse and corruption. Data can be altered, deleted, or hidden without detection. These issues highlight the need for a decentralized and transparent system where data integrity is guaranteed, and users do not have to blindly trust authorities.

**III. PROPOSED SYSTEM**

The proposed system is a blockchain-based complaint management platform that allows secure and transparent handling of complaints. It uses decentralized architecture to eliminate single points of failure.

Users can file complaints online by providing details such as personal information, complaint description, and supporting documents. These details are encrypted and stored securely.

The complaint data is stored in IPFS, while its hash is recorded on the blockchain. This ensures immutability and allows verification of data authenticity.

Police officers can access complaints based on their jurisdiction and update their status. All updates are recorded on the blockchain, ensuring transparency.

The system prevents unauthorized access and manipulation while maintaining confidentiality through encryption techniques.

**IV. OBJECTIVE**

The main objective of this system is to develop a decentralized platform that ensures secure, transparent, and tamper-proof complaint management.

It aims to eliminate corruption, prevent data manipulation, and provide users with proof of complaint submission. By using blockchain and encryption, the system guarantees authenticity and integrity of records.

**V. LITERATURE SURVEY**

Several studies have explored blockchain-based solutions for complaint management. Research shows that blockchain can improve transparency, security, and efficiency in handling complaints. Systems developed using Ethereum and IPFS have demonstrated strong resistance to tampering.

Other systems used mobile applications, web portals, and centralized databases, but lacked immutability. Blockchain-based approaches proved more reliable due to their decentralized nature. These studies confirm that blockchain is a suitable technology for secure complaint management systems.

**VI. REQUIREMENT ANALYSIS**

The system operates on a decentralized network of nodes. Each node maintains a copy of the blockchain, ensuring data availability and security.

A consensus mechanism ensures that all nodes agree on the data stored in the system. This prevents manipulation by any single entity.

**Volume 15, Issue 4, April 2026****|DOI: 10.15680/IJRSET.2026.1504228|**

The system uses encryption to secure data and ensure confidentiality. It also supports storage of various types of digital content such as documents and multimedia files.

The user interface is designed to be simple and accessible, allowing users and police officers to interact with the system

**VII. SYSTEM DESIGN**

The system uses the Ethereum blockchain for storing complaint hashes and ensuring immutability. Smart contracts handle complaint registration and updates.

Complaint details are encrypted and stored in IPFS. The hash of the stored data is recorded on the blockchain.

Police officers can register, log in, and manage complaints. Users can track complaint status using unique IDs.

The system ensures transparency while maintaining data privacy through encryption mechanisms.

**VIII. PROPOSED METHODOLOGY**

The system involves two main roles: admin and police officer. The admin registers police officers and monitors system activities. Each officer receives unique login credentials. Users submit complaints through the system interface. Police officers verify the details and store them on the blockchain. Each complaint is encrypted and assigned a unique ID. Supporting documents are stored in IPFS, and their hashes are linked to blockchain records. Officers can update complaint status, and all changes are recorded on the blockchain. This ensures transparency and accountability. The system uses Proof of Work (PoW) to validate transactions and maintain trust.

**IX. OUTPUT AND FUNCTIONALITY**

The system provides separate portals for admin and police officers. Admins can manage officers, track complaints, and monitor system activity. Police officers can register complaints and update their status. Users can verify whether their complaint has been registered and track its progress in real time. Each complaint generates a unique transaction hash, ensuring authenticity and traceability.

**X. CONCLUSION**

The proposed system demonstrates how blockchain can solve major issues in traditional complaint management systems. It eliminates corruption, prevents data tampering, and improves transparency. By using decentralized storage and encryption, the system ensures secure handling of complaints. It builds trust between citizens and authorities and provides a reliable method for complaint management.

**XI. FUTURE SCOPE**

The system can be expanded to state and national levels. Future enhancements may include biometric authentication and integration with Aadhaar for secure identification. Smart contracts can be used to automate processes such as case assignment and escalation. The system has the potential to revolutionize complaint handling by ensuring fairness, security, and transparency.

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