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POLICE COMPLAINT MANAGEMENT SYSTEM USING BLOCK CHAIN

D.PUSHPA¹, NEERAJ NISHAD², RAMASANI MANMADHA REDDY³, M VIJAYA LAXMI⁴, MOHD SAI⁵

¹ Assistant Professor, Dept of CSE, MALLA REDDY INSTITUTE OF ENGINEERING AND TECHNOLOGY(AUTONOMOUS), Dhulapally, Secundrabad, Hyderabad, Telangana, India.

^{2,3,4,5,6} UG Students, Dept of CSE, MALLA REDDY INSTITUTE OF ENGINEERING AND TECHNOLOGY(AUTONOMOUS), Dhulapally, Secundrabad, Hyderabad, Telangana, India.

ABSTRACT:

With the escalating rates of criminal activities and the persistence of archaic complaint management practices, there is an urgent necessity for an advanced and secure system to handle police complaints. This paper introduces a pioneering solution that leverages blockchain technology to revolutionize police complaint management. The proposed system establishes a decentralized platform that ensures the integrity and immutability of complaint records, mitigating the risks associated with tampering and unauthorized access. By employing encryption and blockchain hashing techniques, the system guarantees the authenticity and timestamping of filed complaints, bolstering the evidentiary value of the records. This novel approach eliminates the reliance on outdated manual processes, allowing complainants to securely file complaints remotely at any time. Furthermore, the decentralized nature of the system eradicates the vulnerability of a single point of failure, enhancing resilience and trust in the complaint management process. This research presents a transformative solution that addresses the prevailing challenges in police complaint management, paving the way for an accountable and transparent law enforcement ecosystem.

Keywords: *ML, crime, efficiency, dataset.*

INTRODUCTION

The effective management of police complaints is crucial for ensuring justice and maintaining law and order in

any society. In India, the process of registering complaints, particularly First Information Reports (FIRs), plays

a pivotal role in initiating investigations and bringing offenders to justice. However, the existing complaint management system faces various challenges, including corruption, delays, and lack of transparency. To address these issues and usher in a new era of accountability and efficiency, this paper proposes the implementation of a blockchain-based police complaint management system. Blockchain technology, known for its decentralized and immutable nature, has the potential to revolutionize the way complaints are handled, ensuring transparency, security, and trust in the process. Currently, the registration of complaints in India involves the submission of an FIR or Non-Cognizable Report (NCR) at a local police station. However, instances of complaints, providing key details such as their name, address, and a narrative of the incident. The decentralized nature of the system removes the

police officers refusing to file complaints, demanding bribes, or deliberately delaying the process hinder justice for the victims. This highlights the pressing need for a transparent system that can eliminate corruption and streamline the complaint registration process. By leveraging the power of blockchain technology, the proposed system aims to address these challenges. Blockchain's inherent characteristics, such as decentralization and immutability, provide a robust framework for managing complaint records. Each complaint, encrypted and timestamped, is stored in a decentralized network of nodes, ensuring the integrity and tamper-proof nature of the data. Through the blockchain-based system, complainants can securely file

dependence on a single point of failure, reducing the risk of manipulation or unauthorized access

¹ Assistant Professor, Dept of CSE, MALLA REDDY INSTITUTE OF ENGINEERING AND TECHNOLOGY(AUTONOMOUS),Dhulapally,Secundrabad, Hyderabad, Telangana, India.

LITERATURE SURVEY

A blockchain-based approach was developed by Antra Gupta et al. (2019) to

safeguard FIR systems. The suggested solution is made to offer a safe and unchangeable record of FIR complaints and associated evidence. The FIR report

and supporting documentation are stored in the system utilizing a smart contract on the blockchain. Only authorized people will be able to see the FIR report and supporting documentation, and once the report has been published on the blockchain, it cannot be changed or removed. Only authorized users would be able to access the encrypted material because the encryption keys would be stored on the blockchain. For the city of Riyadh, K. Tabassum et al. has developed an online system for crime reporting and administration in 2018, with the provision of a consolidated platform for both individuals and law enforcement organizations, is intended to simplify the process of reporting and handling crimes. A web-based application was used in the system's construction to enable online crime reporting by the public. Blockchain technology is used by the system to guarantee the data's security and accuracy. The criminal reports and associated evidence are stored on the blockchain, creating a tamper-proof record of the crime. An online crime reporting and management system has developed for both individuals and law enforcement organizations for the city of Riyadh, it is intended to simplify the

process of reporting and handling crimes. (Iyer A. et.al., 2016) In 2017, to register FIRs and use an SOS (emergency) system online, Shivaganesh Pillai. et.al. aims to improve citizen convenience and accessibility in the FIR registration and emergency reporting process by allowing citizens to register FIRs online through a web-based application. The program is connected to a backend server that stores the FIR reports and associated evidence in a database. Also, the platform has an SOS feature that enables citizens to report situations and get prompt assistance from law enforcement. In 2019 Sanjay Misra. et.al., developed an electronic reporting system for the police in Nigeria to make Nigeria's reporting and administration of crime more effective and efficient. Which uses a web-based application that enables online crime reporting from the public. The server stores the crime reports and associated evidence in a database. The criminal reports and associated evidence are stored on the blockchain, creating a tamper-proof record of the crime. A tool that helps law enforcement organizations handle and investigate crimes is also included in the system. The service includes in-the-moment updates on crime activity, including details on the locations

of law enforcement agencies and the state of the investigation. An e-police system to improve the e-government services in Bangladesh was developed in 2012. The suggested method has been contributing to increase the effectiveness and efficiency of Bangladesh's law enforcement organizations, which would ultimately result in a society that is safer and more secure. (Mollah Muhammad Islam. et.al., 2012).

IMPLEMENTATION

The methodology for implementing a FIR system using blockchain technology typically involves the following steps:

System requirements analysis: This involves understanding the requirements and needs of the stakeholders involved in the FIR system. This would include understanding the data elements to be captured, the different user roles and permissions, and the necessary security measures.

A. Design: This involves designing the system architecture and database schema. The design should ensure that the system is scalable, secure, and easily accessible.

B. The creation of smart contracts: Smart contracts are the foundational element of a blockchain-based system. The details of

the agreement between the buyer and seller are directly encoded into lines of code in smart contracts, which are self-executing contracts. To record the regulations regulating the FIR system and guarantee that it operates as planned, the smart contract code would need to be built.

C. Integration: Once the smart contracts have been developed, they need to be integrated into the blockchain network. This involves deploying the smart contracts onto the blockchain network and ensuring that they function as intended.

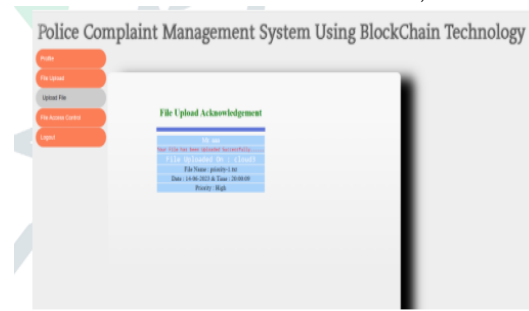
D. Testing: Once the system is integrated, it should be tested to ensure that it functions as intended. This would include testing for security vulnerabilities, data accuracy, and user experience.

E. Deployment: After testing, the system can be deployed to production. The deployment process should ensure that the system is easily accessible, scalable, and secure.

G. Maintenance: Once the system is deployed, it needs to be maintained to ensure that it continues to function as intended. This would include regular

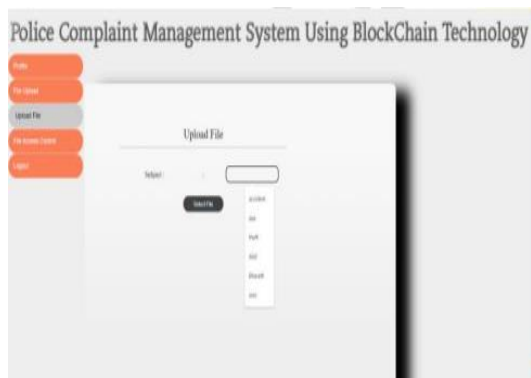
updates to the smart contracts, monitoring for security vulnerabilities, and addressing any system issues that arise.

The proposed system offers significant improvements over the existing complaint management system by providing a high level of abstraction. This abstraction simplifies the user experience and ensures easy utilization for stakeholders. Users, including police personnel and complainants, can navigate the system effortlessly without requiring extensive training. The system's intuitive design streamlines file uploading, access control, and complaint tracking. The advantages of the system's high level of abstraction include increased user adoption, improved operational efficiency for police personnel, and a user-centric complaint management process.



CONCLUSION

In conclusion, implementing a blockchain-based system for managing police complaints can significantly improve the process of transparency, security, and effectiveness. This system can offer a tamper-proof and auditable record of complaints by utilizing the immutable and decentralized characteristics of blockchain, which can promote confidence between law enforcement organizations and the people they serve. Ultimately, this study emphasizes how blockchain technology has the potential to increase law enforcement's effectiveness and accountability.



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