# Implementation on Web-Based Crime Management System Using Blockchain and Machine Learning

**Vaishanvi Dokhe[1], Chaitanya Jadhav[2], Kundan Kapadnis[3], Kruhsna Kapkar[4], Prof. Jyoti Vadje[5]**

[1,2,3,4,5]Department of Computer Engineering
Matoshri College of Engineering & Research Centre, Eklhare, Nashik

**Abstract:**
The increasing complexity of judicial processes requires a secure and efficient digital solution for legal case management. This paper presents a web-based Crime Management System that integrates blockchain and machine learning technologies to improve transparency, security, and decision-making. The system enables police officers to manage cases and evidence securely using blockchain, ensuring data integrity and protection from tampering. Judges can access case details and receive AI-based decision support through machine learning analysis of historical data. Lawyers and stenographers can efficiently manage case progress, records, and schedules. The system also provides automated notifications for important updates and hearing dates. Developed with a user-friendly interface, backend processing, and database management, the proposed solution reduces manual workload, improves coordination, and offers a scalable platform for modern judicial management.

**Key Words:** Crime Management System, Blockchain Technology, Machine Learning, Digital Judicial System, Case Management, Evidence Security, Web-Based Application, Decision Support System, Data Integrity, Judicial Automation.

## INRODUCTION

Crime management and judicial processes play an important role in maintaining law and order in society. These processes involve various stakeholders such as police officers, judges, lawyers, and stenographers who must work together to ensure fair and timely justice. However, traditional judicial systems are mostly manual, time-consuming, and often face problems such as misplaced records, lack of transparency, poor coordination, and delays in case handling.

With the advancement of digital technologies, there is a growing demand for secure and automated systems that can improve judicial operations. Technologies such as blockchain and machine learning provide effective solutions to overcome these challenges. Blockchain helps ensure secure, transparent, and tamper-proof storage of case records and evidence, while machine learning can analyze historical case data to support decision-making.

This paper presents a web-based Crime Management System that combines blockchain and machine learning to build a secure, transparent, and efficient judicial platform. The system provides role-based access to judges, police officers, lawyers, and stenographers, allowing them to manage cases, maintain records, track progress, and receive intelligent decision support. The proposed system aims to reduce manual workload, improve coordination among stakeholders, and enhance the efficiency, reliability, and transparency of the judicial process

## LITERATURE SURVEY

The development of digital crime and judicial management systems has gained attention due to the need for secure, transparent, and efficient legal processes. Researchers have explored technologies such as

blockchain and machine learning to improve case management, evidence security, and judicial decision-making. These technologies help overcome issues found in traditional systems, including data tampering, delays, and poor coordination.

Khan et al. (2021) proposed a blockchain-enabled secure data management system for e-governance, emphasizing data integrity, transparency, and protection against unauthorized changes. Similarly, Li et al. (2020) introduced a blockchain-based electronic evidence management system that ensured authenticity and immutability of legal evidence. Although these approaches improved data security, they mainly focused on storage and lacked broader case management features.
Zhang and Wang (2021) studied the use of machine learning in legal judgment prediction, demonstrating how historical case data can support judicial decision-making. Singh et al. (2023) presented an AI-driven e-judiciary framework that automated tasks such as scheduling, notifications, and decision support. While these systems improved efficiency and accuracy, they required large datasets and advanced computational resources.

Gupta and Sharma (2022) developed a smart court management system combining blockchain and artificial intelligence to improve stakeholder coordination and data security. However, many existing systems focus on individual technologies or lack a complete user-friendly platform. The proposed system addresses these limitations by integrating blockchain, machine learning, and web technologies into a unified solution for secure, transparent, and efficient crime management

**METHODOLOGY**

The proposed Crime Management System integrates web technologies, blockchain, and machine learning to develop a secure and efficient judicial platform. Users such as judges, police officers, lawyers, and stenographers access the system through a web interface with secure login and role-based access.

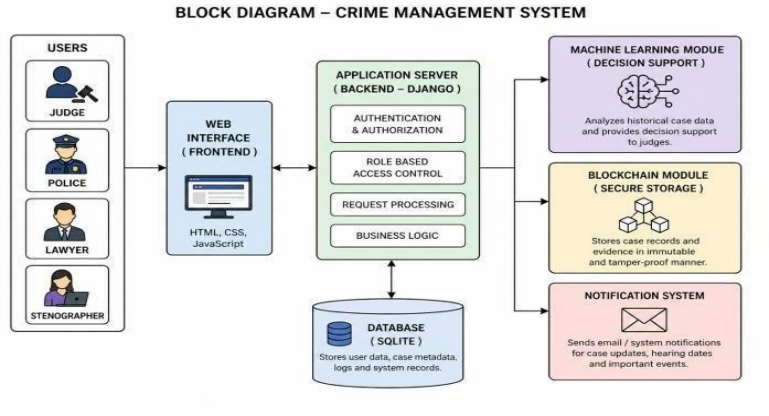
Police officers can create and manage cases by entering details, involved individuals, and supporting evidence. The case information is securely stored using blockchain technology, ensuring immutability, transparency, and protection from unauthorized modifications.

Judges can review assigned cases, examine evidence, and access previous records through their dashboard. A machine learning module provides decision support by analyzing historical case data, helping judges make faster and more consistent decisions.

Stenographers are responsible for updating hearing details and maintaining case proceedings, while lawyers can monitor case progress and schedules. All important updates are securely recorded to maintain authenticity and traceability.

The backend is developed using Django for request handling and data processing, while SQLite manages structured data. The system also includes automated notifications for important updates and is designed for cloud deployment, enabling scalable and remote access for all users

## BLOCK DIAGRAM




## OBJECTIVE

1. To develop a secure Crime Management System that stores case data and evidence using blockchain technology to prevent tampering.
2. To provide an efficient platform for judges, police, lawyers, and stenographers to manage and access case information based on their roles.
3. To implement machine learning techniques that assist judges by providing decision support based on historical case data.
4. To automate case updates and notifications, ensuring all stakeholders are informed about hearing dates and case progress in real time.
5. To improve the overall efficiency, transparency, and reliability of the judicial process by reducing manual work and errors.

## PROBLEM DEFINATIONS

The current crime and judicial management system is slow, manual, and inefficient. Case records can be misplaced or tampered with, and there is poor coordination between police, judges, and lawyers. This leads to delays, lack of transparency, and difficulty in tracking case progress. Therefore, there is a need for a secure, automated, and centralized system to manage cases efficiently and reliably.

## IMPLEMENTAION

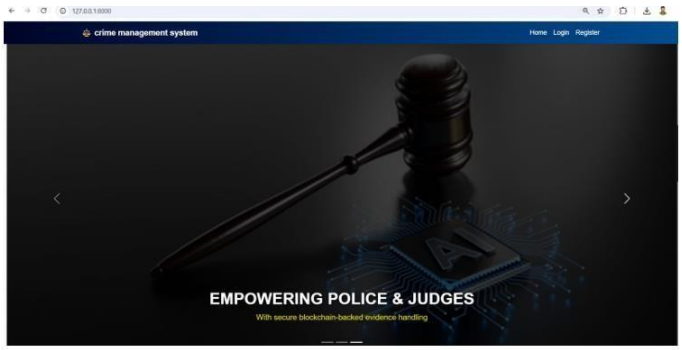



**Fig: Home Page**

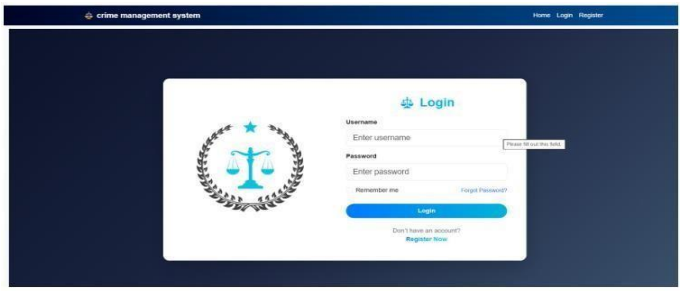



**Fig: Login Page**

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