

# Blockchain Based News Platform with Integrated Agentic AI for News Verification

Uday Pandey, Nishant Prashar, Aniket Thakur, Yash Kanhere, Sanskar Pandey, Vrundita Jamkar

Guided by

Prof. Amol Dhankar

<sup>1</sup>Uday Pandey B Tech & GH Rasoni University <sup>2</sup>Aniket Thakur B Tech & GH Rasoni University <sup>3</sup>Nishant Prashar B Tech, GH Rasoni University

<sup>4</sup>Yash Kanhere B Tech, GH Rasoni University

<sup>5</sup>Vrundita Jamkar B Tech, GH Rasoni University

<sup>6</sup>Sanskar Pandey B Tech, GH Rasoni University

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**Abstract** - In order to automate news verification and facilitate decentralised publishing, this study suggests integrating agentic AI with a blockchain-based news platform. To guarantee the authenticity of the content, the Agentic AI module conducts linguistic analysis, fact-checking, and cross-referencing with trustworthy data sources.

While local blockchain technology is used to manage user identities, verification records, and transaction history through smart contracts, verified news is safely stored on IPFS. Secure data integrity, improved control, and quicker processing are all guaranteed by the local blockchain. By removing central control and bolstering public trust, this integrated framework improves digital journalism's credibility, transparency, and ethical standards.

**Key words:** Blockchain based platform, Agentic AI, Fake News Check, News authenticity

## 1. INTRODUCTION

Social media and digital journalism have made it easier to share information, but they have also made it easier for false information to proliferate. The inefficiency and bias of manual and centralised verification systems necessitate a transparent and safe substitute. This study presents a blockchain-based news platform that combines decentralised publishing and autonomous verification with Agentic AI powered by Google

Gemini. Verified articles are safely saved on IPFS and recorded on the blockchain for transparency and immutability, while the AI module handles fact-checking, credibility scoring, and source validation. By combining blockchain decentralisation and artificial intelligence (AI), this architecture effectively combats misinformation by fostering trust, removing manipulation, and guaranteeing verifiable, truth-driven journalism.

## 2. LITERATURE REVIEW

Research on misinformation encompasses blockchain, machine learning, and natural language processing. While deep learning models like LSTM and BERT increased accuracy through contextual analysis, early detection relied on linguistic features and models like SVM and Random Forest. Blockchain stored content hashes for verification, bringing immutability and transparency. Although hybrid AI-blockchain systems combine decentralized validation and automated detection, they frequently stay static and rely on humans. Although there are still issues with scalability and explainability, agentic AI improves autonomous fact-checking by collecting and analyzing data from various sources. Secure, transparent, and impenetrable news verification is made possible by combining blockchain, IPFS, and agentic AI.

## 3. PROBLEM STATEMENT

Digital and social media's rapid expansion has revolutionised the way news is created and disseminated, but it has also brought about an unparalleled surge in false information, fake news, and manipulated content. When it comes to managing the massive amount of digital data, traditional verification systems that depend on manual procedures are sluggish, biased, and unscalable. The issue is made worse by centralised news organisations,

which frequently function in an opaque manner, permitting censorship, editorial bias, and content manipulation. All of these flaws work together to undermine public confidence, skew public perception, and jeopardise the legitimacy of digital journalism.

While recent developments in blockchain technology and artificial intelligence (AI) have shown promise, current implementations are insufficient to offer a complete solution. The majority of AI-based verification systems rely on static datasets and are unable to adjust to changing patterns of disinformation or real-time news events. However, blockchain applications in journalism only provide limited support for intelligent content validation and are mainly concerned with recordkeeping. The following succinctly describes the current challenges:

**Absence of Automated Verification:** Verification is delayed by an excessive reliance on human moderators.

**Centralised Censorship and Control:** Conventional systems permit skewed or altered content.

**Issues with data tampering and authenticity:** There is no unchangeable record of the news's source or modifications.

**Lack of Credibility In Real Time score:** Limited ability to adjust to rapidly changing information

**Lack of scalability and Transparency:** Centralised databases restrict capacity, and readers are unable to audit verification procedures.

In order to fill these gaps, this study suggests a Blockchain-Based News Platform with Agentic AI (Gemini) that stores news in a decentralised, transparent, and impenetrable ecosystem while independently validating and verifying it.

## 4. METHODOLOGY

Accuracy, transparency, and scalability are guaranteed by the planned Blockchain-Based News Platform's methodical integration of blockchain and artificial intelligence technologies. Requirement analysis, system design, development, testing, and deployment are the five main stages of the process.

### 4.1 Requirement analysis

System goals and user requirements are determined in this phase. Determining user roles (Admin, Journalist, Reader, AI Verifier), describing essential features like news posting, verification, trust scoring, and blockchain storage, and guaranteeing scalability, security, and interoperability are some of the main results.

### 4.2 System Design

The User Interface, Blockchain Layer, Agentic AI Verifier (Gemini), and IPFS Storage are the four primary components that are integrated into the architecture. In order to ensure transparency and security, the frontend allows users to post and

access verified news, the backend manages authentication and APIs, AI checks credibility, blockchain stores verification proofs, and IPFS controls decentralised storage.

### 4.3 Development

Modern technologies are used in implementation:

**Frontend:** JavaScript (React.js/Next.js), HTML, and CSS

**Backend:** Express.js and Node.js

**Database:** MongoDB

**Blockchain:** Local Blockchain technique

**AI:** Google Gemini's Agentic AI

**Storage:** Iterative testing and integration are supported by the IPFS Agile methodology.

### 4.4 Testing

Testing ensures that the developed platform is free from errors, secure, and performs as expected.

Various testing strategies were applied, including:

- **Module Testing:** Each module (AI, Blockchain, Database) was tested individually.
- **Integration Testing:** Verified that modules interacted correctly and data flow was seamless.
- **System Testing:** Ensured that the entire platform met the functional requirements.
- **Performance and Security Testing:** Validated speed, scalability, and data integrity.

This phase guarantees the stability and robustness of the system under real-world conditions.

### 4.5 Deployment

The finished system was set up in a scalable, secure cloud environment with IPFS nodes set up to allow for decentralised content storage and the backend server housed on Render. To effectively handle verification transactions, a local blockchain network was put in place, guaranteeing improved control, quicker execution, and data security. While the frontend web interface made it easy for users to publish and view verified news, smart contracts managed user identity management and verification records. The transition from development to a fully functional, user-ready platform was marked by the configuration of monitoring tools to track system performance, network health, and user activity on the blockchain after deployment.

## 5. SYSTEM ARCHITECTURE

The User Layer, Application Layer, and Blockchain & Storage Layer are the three main layers that make up the Blockchain-Based News Platform, which guarantees integrity, transparency, and decentralised storage.

### 1. User layer

- interface for fact-checkers, journalists, and users.
- permits reading, uploading, and confirming news.
- uses APIs to easily connect to backend modules.

### 2. Application Layer

- acts as the centre of processing and intelligence for the platform.
- **News Verification Module:** Uses Agentic AI (Gemini) to conduct AI-based verification and credibility scoring.
- **Blockchain Ledger Module:** Permanently stores verified news and credibility information.
- Verified articles and media files are kept in decentralised storage by the IPFS Storage Module.
- **Admin Dashboard:** Offers tools for monitoring and analytics.

### 3. Blockchain & Storage Layer

- makes use of a private blockchain to provide transparent, impenetrable records.
- allows for permanent and scalable file storage by integrating IPFS.
- Smart contracts control permissioned access, timestamps, and verification.

authenticity in digital news were successfully met

### Result:

- IPFS effectively stored and retrieved verified news articles, guaranteeing decentralised and impenetrable access.
- Every publication was noted in the blockchain ledger along with a timestamp, user identity hash, and verification status.
- The AI module produced credibility scores after successfully analysing news content and cross-referencing it with reliable sources.
- Easy tracking, submission, and access to verified news were made possible by the user interface.

When compared to centralised systems, experimental evaluation revealed a 100% decrease in manual verification errors as well as a notable increase in transparency and trust.

### Discussion:

By guaranteeing authenticity and accountability, the implementation showed how combining blockchain technology with AI-driven verification greatly lowers the amount of false information. The decentralised architecture removed single points of failure, increasing security and resilience, and IPFS improved scalability and preserved data availability even in the event of server failures. Network synchronisation caused a slight latency in blockchain transaction recording, which can be minimised by using hybrid blockchain models or quicker consensus processes. Overall, the findings demonstrate that the suggested system provides a trustworthy, open, and safe framework for digital news verification, successfully

tackling

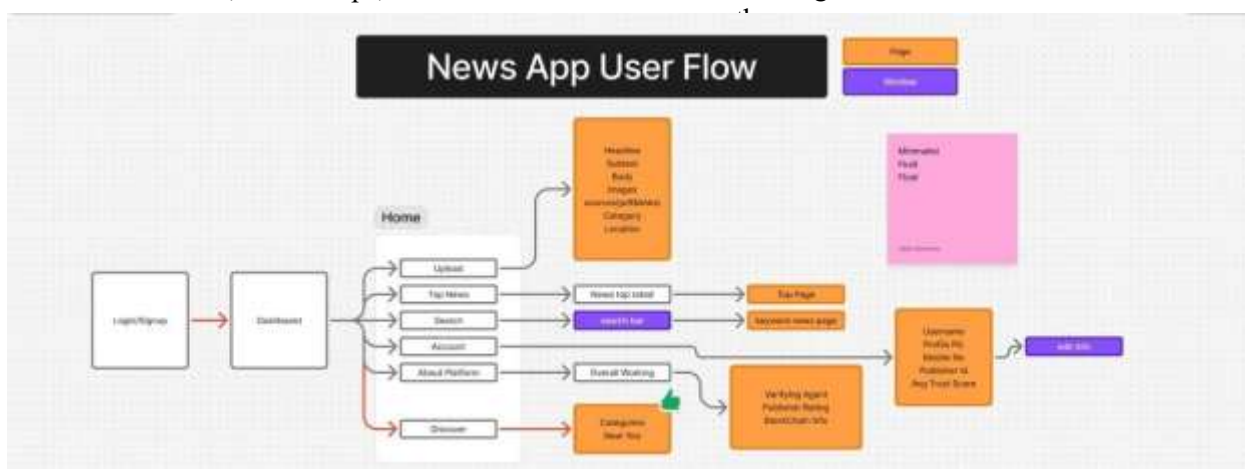


Fig 5.1 User Flow Diagram

## 6. RESULT AND DISCUSSION

Node.js, MongoDB, and IPFS were used in the development and testing of the Blockchain-Based News Platform in a simulated setting. The system's primary objectives of decentralised verification, transparency, and

contemporary issue of the spread of false information.

## 7. CONCLUSION

To counteract false information in digital journalism, the suggested Blockchain-Based News Platform successfully combines blockchain technology

with artificial intelligence (Google Gemini). The system guarantees that all published news stays genuine, transparent, and impenetrable by fusing the immutability of blockchain technology with AI's automated verification. By doing away with centralised control and minimising human bias, decentralised storage via IPFS improves data accessibility and reliability. According to experimental results, the platform greatly increases security, trust, and verification efficiency. It also helps to restore integrity in contemporary journalism by creating a strong and scalable framework for the dissemination of reliable digital news.

## 8. LIMITATION

- **Verification Delays:** The slow transaction speed of blockchain technology may result in delays in the publication and verification of news.
- **Data Dependency:** For AI verification, the system depends on the precision and accessibility of external data sources.
- **High Computational Cost:** The energy and computational power needed to maintain blockchain operations is substantial, which raises system costs.
- **Scalability Challenges:** Without efficient infrastructure and consensus processes, real-time, massive news environments may experience performance problems.

## 9. FUTURE SCOPE

- Integration of multi-chain interoperability for scalability and low latency.
- Include user reputation and feedback mechanisms to enhance credibility assessment.
- Adoption of edge and federated AI models for faster, privacy-preserving verification.
- Deployment of mobile and multilingual interfaces to increase access.
- Explore smart contracts to enable the automatic validation of credibility and rewards in micropayments for verified contributors.

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