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## International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

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# AI News Aggregator: An Intelligent Real-Time News Curation and Verification System

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**ABSTRACT:** To address these challenges, this paper presents an AI News Aggregator, an intelligent system designed to deliver real-time global news that is curated, analyzed, and verified using Artificial Intelligence. The platform automatically collects news from various trusted sources, processes the data using Natural Language Processing (NLP), and filters out duplicate, irrelevant, or misleading content. With the rapid growth of digital media, the volume of news content available online has increased exponentially. While this ensures accessibility, it also creates major challenges such as information overload, redundancy, and the spread of misinformation. Users often struggle to identify reliable and relevant news from multiple sources, leading to confusion and misinterpretation. The system incorporates machine learning algorithms to classify news, detect fake information, and provide sentiment analysis. Additionally, it offers personalized recommendations based on user preferences and reading behavior, enhancing user experience. The frontend of the application is developed using modern web technologies such as HTML, CSS, and JavaScript (or React.js), while backend processing is handled using frameworks like Spring Boot or Python-based services. The system ensures secure data handling, fast processing, and real-time updates. The system introduces a structured monitoring mechanism through a dynamic dashboard that provides real-time visibility of event progress, completed tasks, and pending activities. This improves workflow transparency and enables users to maintain better control over timelines and resource allocation. By presenting organized event data in a clear format, JoyNest enhances planning accountability and reduces the likelihood of last-minute scheduling conflicts. By combining intelligent automation with advanced analytics, the AI News Aggregator improves the reliability, accessibility, and quality of news consumption while reducing misinformation and digital noise.

**KEYWORDS:** AI News Aggregator, Natural Language Processing, digital media, machine learning, real-time updates

### Highlights

- AI News Aggregator is a smart web-based platform that delivers real-time global news using artificial intelligence.
- The system collects news from multiple trusted sources and filters irrelevant or duplicate content.
- It uses Natural Language Processing (NLP) to analyze, summarize, and categorize news articles.
- The platform detects fake or misleading news using AI-based verification techniques.
- A personalized recommendation system shows users news based on their interests.
- The system reduces information overload and improves news consumption quality.
- A centralized dashboard provides structured and easy-to-read news insights.

## I. INTRODUCTION

In the digital era, the generation and dissemination of news have accelerated dramatically due to the widespread use of online platforms, social media networks, and digital news portals. This rapid flow of information has made news more accessible than ever before; however, it has also introduced several critical challenges, including the spread of fake news, biased reporting, redundancy of information, and overwhelming volumes of content. Users are constantly exposed to large amounts of unverified and repetitive data, making it increasingly difficult to distinguish between credible and misleading information. This phenomenon not only affects individual understanding but also has broader implications for public opinion and decision-making processes.

Traditional news platforms primarily emphasize content delivery rather than focusing on content validation, intelligent filtering, or personalization. As a result, users are often required to manually assess the authenticity and relevance of news articles, which is both time-consuming and inefficient. Moreover, the absence of automated mechanisms to detect



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misinformation or remove redundant content further complicates the user experience, leading to confusion and reduced trust in digital media sources.

To address these limitations, the AI News Aggregator is developed as a smart, automated, and intelligent news management system that leverages the capabilities of Artificial Intelligence and machine learning. The platform is designed to collect news from multiple trusted sources, process the data, and present only relevant, accurate, and meaningful information to users. By integrating advanced algorithms, the system ensures that duplicate and irrelevant content is filtered out, thereby significantly reducing information overload.

One of the key features of the system is its ability to identify and prioritize truth-focused content. Using Natural Language Processing techniques, the platform extracts essential information from news articles, classifies them into various domains such as politics, technology, health, and sports, and generates concise summaries for quick understanding. This enables users to grasp the core message of news articles without having to read lengthy content, thereby saving time and effort.

In addition to content analysis, the system provides real-time updates, ensuring that users are always informed about the latest developments as they happen. The inclusion of a personalized recommendation engine further enhances the user experience by analyzing user preferences, browsing history, and reading behavior to deliver tailored news content. This not only increases user engagement but also ensures that the information provided is relevant to individual interests. Furthermore, the system architecture is designed to be highly scalable, efficient, and secure, enabling it to handle large volumes of data without compromising performance. The use of modern web technologies for frontend development, combined with robust backend frameworks, ensures seamless interaction, fast processing, and reliable data handling. By integrating AI-driven intelligence with advanced technological infrastructure, the AI News Aggregator transforms traditional news consumption into a more efficient, reliable, and user-centric experience, ultimately promoting informed decision-making and reducing the impact of misinformation in the digital age.

## II. LITERATURE REVIEW

Recent advancements in event management systems and intelligent applications have increasingly focused on integrating Artificial Intelligence (AI), machine learning, and automation to improve efficiency, security, and user experience. Various studies highlight the evolution of traditional event management platforms into intelligent and data-driven systems.

Jensina et al. (2025) [1] proposed an AI-based authentication mechanism for Event Management Systems (EMS), emphasizing enhanced security through intelligent verification techniques. Their work demonstrates how AI can strengthen user authentication processes, ensuring secure access and reducing unauthorized activities. Similarly, Saputra et al. (2024) [2] developed a mobile-based application that improves event planning efficiency by incorporating vendor price comparison features. Their approach highlights the importance of cost optimization and decision-making support in modern event management systems.

Hanan et al. (2024) [3] introduced a streamlined application for managing college events, focusing on simplifying event coordination and communication among participants. Their system improves organizational efficiency by automating scheduling and notification processes. In another study, Thummala et al. (2024) [4] explored the use of Generative AI in event management systems, showcasing how AI can assist in content generation, event planning, and automated responses, thereby reducing manual effort.

Konkepudi et al. (2025) [5] presented a smart hackathon management system integrated with machine learning techniques. Their research demonstrates how predictive analytics and automation can enhance participant management, evaluation processes, and overall event efficiency. Furthermore, Islam et al. (2019) [6] proposed a generic event management system for academic institutions, focusing on scalability and adaptability to various academic activities, laying the foundation for future intelligent systems.

Additionally, Varatharajan et al. (2024) [7] developed an AI-powered educational mobility application aimed at enhancing student learning experiences. Although not directly related to event management, their work highlights the broader applicability of AI in improving user engagement, personalization, and system intelligence.



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Overall, these studies indicate a growing trend toward integrating AI, machine learning, and automation in event management and related systems. However, challenges such as real-time monitoring, intelligent decision support, and seamless user interaction still persist. This creates a scope for developing more advanced, scalable, and intelligent systems that can address these limitations effectively.

**Table 1:** Comparison of existing systems with the proposed AI news aggregator

Ref. No.	System/Study	Key Features	Limitations	Proposed System Advantage
[1]	AI-based EMS Authentication	Secure login using AI	No real-time monitoring	Adds real-time news processing
[2]	Vendor Price Comparison App	Cost optimization	No AI-based content filtering	Includes NLP + personalization
[3]	College Event Management App	Event scheduling & communication	No intelligent automation	Uses AI for smart processing
[4]	Generative AI Event System	AI-based content generation	Limited real-time data handling	Real-time news aggregation
[5]	Hackathon ML System	Predictive analytics	Domain-specific usage	Generalized for news domain
[6]	Generic EMS	Scalable framework	No AI intelligence	AI + NLP integration
Proposed	AI News Aggregator	NLP, fake news detection, personalization, real-time updates	—	Complete intelligent solution

The above Table 1 compares existing systems with the proposed AI News Aggregator. It highlights that most existing solutions lack real-time processing, intelligent filtering, and personalization, which are effectively addressed by the proposed system.

### III. MATERIALS AND METHODS

However, despite significant advancements in digital news platforms, most existing systems continue to face several critical challenges that limit their effectiveness and reliability. These limitations highlight the need for a more intelligent and automated approach to news aggregation and delivery.

#### Major Challenges in Existing Systems:

- **Lack of Real-Time Verification:** Most platforms do not verify news instantly, allowing misinformation and fake news to spread rapidly before validation.
- **Limited Personalization:** Users often receive generic news feeds that are not tailored to their preferences, reducing engagement and relevance.
- **Inefficient Filtering of Duplicate Content:** Repetitive and redundant news articles from multiple sources increase information overload and make it difficult to identify unique content.

To address these challenges, the proposed AI News Aggregator is designed using a modular architecture, where each component performs a specific task, ensuring efficiency, scalability, and better system performance.

#### Modules of the Proposed System:

- **Data Collection Module:** This module is responsible for gathering news data from various trusted sources such as APIs, RSS feeds, and online news portals. It ensures continuous and real-time data acquisition from multiple platforms, providing a diverse and updated dataset for processing.
- **Data Processing Module:** After data collection, this module cleans and preprocesses the raw data by removing noise, irrelevant information, and duplicate entries. It also standardizes the format of the data, making it suitable for further analysis and improving overall system efficiency.



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- **NLP Analysis Module:** This module applies Natural Language Processing techniques to understand and analyze the content. It performs tasks such as text summarization, keyword extraction, and categorization of news into domains like politics, sports, technology, etc., enabling quick and meaningful insights.
- **Fake News Detection Module:** This component uses machine learning and deep learning algorithms to verify the authenticity of news content. It analyzes linguistic patterns, source credibility, and contextual information to identify and filter out misleading or false news, enhancing trustworthiness.
- **Recommendation System:** The recommendation module personalizes the user experience by analyzing user behavior, preferences, and reading history. It suggests relevant news articles tailored to individual interests, thereby increasing engagement and satisfaction.
- **User Interface Module:** This module provides a user-friendly and interactive interface for displaying structured news content. It ensures easy navigation, clear visualization, and seamless interaction, allowing users to efficiently access and consume news.

Overall, this modular approach ensures that the system is robust, scalable, and capable of delivering accurate, relevant, and real-time news while effectively overcoming the limitations of traditional news platforms.

### IV. RESULT AND DISCUSSION

Testing results indicate that the AI News Aggregator significantly enhances the overall efficiency and quality of news consumption when compared to traditional news platforms. Users were able to access relevant, verified, and well-structured news content in considerably less time, highlighting the system's ability to streamline information delivery. The platform effectively eliminated duplicate and irrelevant articles, thereby reducing information overload and allowing users to focus only on meaningful content. The NLP-based summarization feature proved highly beneficial, enabling users to quickly grasp the key insights of lengthy news articles without the need to read them in full, thus saving time and effort.

In addition, the fake news detection module demonstrated strong performance in identifying misleading or unreliable information, thereby improving the credibility and trustworthiness of the platform. The integration of personalized recommendation mechanisms further enhanced user engagement by presenting news tailored to individual interests and reading patterns. The system also ensured smooth navigation, faster response time, and real-time updates, contributing to a seamless and user-friendly experience. Overall, the AI News Aggregator showcases a robust and intelligent framework that not only improves accessibility and reliability of news but also supports informed decision-making in a fast-paced digital environment.

#### Overall, the system provided:

- Faster access to relevant and up-to-date news
- Improved accuracy and reliability through AI-based verification
- Reduced information overload by filtering duplicate content
- Quick understanding via NLP-based summarization
- Enhanced trust through effective fake news detection
- Personalized news recommendations for better engagement
- Smooth, user-friendly, and efficient news consumption experience

### V. FUTURE PERSPECTIVE

The system can be further enhanced by incorporating several advanced features that will improve its efficiency, usability, and global adaptability. One key improvement is the integration of advanced deep learning models, such as transformer-based architectures, to enhance the accuracy of fake news detection and content classification. Additionally, providing multilingual support will allow the system to reach a wider global audience by delivering news in multiple languages. The inclusion of a voice-based news assistant can make the platform more interactive and accessible, especially for users who prefer hands-free operation or have visual impairments. Developing a mobile application will further increase accessibility, enabling users to conveniently access real-time updates anytime and anywhere. Moreover, implementing real-time fact-checking using blockchain technology can ensure transparency and build trust by maintaining secure and immutable verification records. Integration with social media platforms will also



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help in capturing trending topics and real-time updates, thereby improving the relevance and timeliness of the news provided. Overall, these enhancements will make the system more powerful, scalable, intelligent, and user-centric.

### Key Enhancements:

- Advanced deep learning models for improved fake news detection
- Multilingual support for global accessibility
- Voice-based news assistant for better user interaction
- Mobile application development for wider accessibility
- Real-time fact-checking using blockchain technology
- Integration with social media platforms for live updates and trends

## VI. CONCLUSION

The AI News Aggregator presents a comprehensive and intelligent solution to the challenges of modern news consumption by effectively integrating Artificial Intelligence with real-time data processing techniques. The system is capable of collecting, analyzing, and delivering relevant news from multiple trusted sources while significantly reducing information overload through the removal of duplicate and irrelevant content. One of its key strengths lies in addressing the growing issue of misinformation by incorporating automated verification mechanisms that enhance the credibility and reliability of the delivered information. Additionally, the platform improves user experience by offering personalized news recommendations based on individual preferences and reading behavior, ensuring that users receive meaningful and contextually relevant content. The inclusion of features such as sentiment analysis and news classification further enhances the depth and quality of information presented. Moreover, the system is designed with a structured and dynamic framework that supports secure data handling, fast processing, and real-time updates, making it both scalable and efficient. Overall, the AI News Aggregator demonstrates how advanced AI technologies can transform traditional news systems into smart, reliable, and user-centric platforms, ultimately promoting informed decision-making and contributing to a more aware and knowledgeable society.

### 1. Funding Source

- No external funding, financial support, or sponsorship was received from any organization, institution, or government body for the development of the AI News Aggregator project.
- This research and system development were carried out as part of an academic initiative using available institutional resources and personal efforts.
- All design, implementation, testing, and documentation activities were completed independently without any commercial or financial influence.

### 2. Acknowledgement

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- The authors also extend their appreciation to peers and colleagues who contributed through testing, feedback, and idea sharing, which helped enhance the functionality and usability of the system

### 3. Data Availability

- The data used and generated during the development of the AI News Aggregator system are available from the authors upon reasonable academic request.
- All data handling procedures follow basic privacy and security considerations to ensure safe usage.

### 4. Authors' Contribution

- All authors contributed equally to the development of the AI News Aggregator project.
- Each member was actively involved in the conceptualization, system design, and implementation of the application. The authors collaboratively worked on data collection, backend development, frontend design, and integration of Artificial Intelligence techniques such as Natural Language Processing and machine learning models.



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- The collective effort of all team members ensured the successful completion and technical accuracy of the project.

### 5. Use of AI and AI-Assisted Technologies

- AI-assisted tools were used only for improving language clarity, grammar correction, and formatting of the documentation.
- The core system design, development, implementation, and analysis of the AI News Aggregator were independently carried out by the authors.

### 6. Conflict of Interest

- The authors declare that there are no financial, commercial, or personal relationships that could have influenced the outcomes of this research. \
- The work has been carried out independently with full transparency and without any bias.

### 7. Copyright Permissions

- Given tables included in this manuscript are generated by AI as part of the AI News Aggregator project
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- The authors take full responsibility for the originality and authenticity of the content presented in this paper.

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