

A Novel Approach to Fake News Detection Using Generative AI

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Abstract: Fake news has a significant impact on society, making the detection of such misinformation crucial. It undermines trust in reliable information sources, distorts public opinions, and can even influence political outcomes. Detecting fake news is important to ensure that users receive accurate and authentic information, maintain a trustworthy news ecosystem, and prevent the spread of misinformation. Directly classifying a fake news to be fake on some parameters is not possible. Here, the news article will be evaluated on the main three parameters, first is Text Analytics which includes identifying the exaggerated or propagandistic statements or the type of speech is been used in the article like acceptable, non acceptable, offensive, etc. and also through summarization, we get the context about the article, second is user behaviour through twitter analytics guides to understand the user reaction towards the article on the real time basis and at last, through indexing the authentic source in the index of Large Language Model build using LlamaIndex. This methodology integrated with the whatsapp bot showcased the better result to identify the fake news and ensure the user that the news is authentic or not.

Keywords: Fake news, Misinformation, Detection, Reliable information, Text analytics, Article summarization, User behaviour, Twitter analytics, Authentic sources, LlamaIndex, WhatsApp bot, Large Language Model (LLM)

1. Introduction

The spread of false news has become a serious issue in today's digital age and challenges the foundation of our information society. In the modern day of social media rapid communication, the spread of false or misleading information disguising it as trustworthy journalism has achieved unmatched popularity. Fake news is a powerful force that affects all facets of our life because it is so simple to generate false narratives and spread them to a large audience. The effects of fake news are severe and widespread, whether involve politically driven misinformation efforts, sensationalised health claims, or false financial news. In this situation, identifying such false information becomes more than simply a technical problem—it becomes a social need.

The adverse effects of fake news are many and serious. First off, it undermines people's confidence in trustworthy information sources and makes them doubtful of mainstream media and reputable institutions. The foundation of an educated society is being undermined by this lack of trust, creating uncertainty and false information. Second, fake news has the ability to sway public opinion, stir up anxiety, and even have an impact on important decisions like political elections. The democratic process is seriously endangered by the use of disinformation to manipulate public opinion. Therefore, the capacity to recognize bogus news is crucial. It not only helps people make informed decisions, but it also protects the integrity of our information environment. In this paper, a comprehensive approach to resolve this urgent problem, encompassing text analytics, user behaviour analysis, and the incorporation of authentic sources, all with the goal of giving users the skills necessary to determine the reliability of news articles in an environment with an increasing amount of complex information.

Fake news frequently has the objective of capturing attention, manipulating public sentiment, or advancing particular agendas. Its results can be severe, including the spreading false information, the deterioration of trust in media outlets, the polarisation of society, and the potential to sway elections and public policies. Identifying fake news is a crucial undertaking that serves the dual purpose of providing users with genuine information and upholding the credibility of the news environment. Most current algorithms for detecting the fake news primarily based on

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analysing the content itself, but this approach often proves ineffective due to the deliberate nature of fake news, which aims to deceive users by closely resembling genuine news. Hence, it becomes imperative to explore supplementary information that can enhance the detection process.

Recognizing fake news does not just rely on the language itself. The three key parameters will be used to analyse the news article in the proposed solution. Text analytics will be the first parameter to be examined. Because text analytics makes it possible to extract and analyse different linguistic and contextual elements of the text existing in the article with the aid of Natural Language Processing, it is used on articles to identify false news. It assists in identifying linguistic clues that point to the veracity or dependability of the news piece, such as exaggerated, sensationalised, or emotionally charged language to capture attention, false information, biased language, factual inaccuracies, etc.

Most of the news are intentionally designed to tarnish someone's reputation or an organisation is referred to as propaganda. By utilising the Distil-RoBERTa-Propaganda-2 classification, one can identify such news through exaggerated sentences and propaganda techniques. Also, Understanding the type of speech which has been used like Acceptable, Non Acceptable, Offensive, etc helps in identifying whether the news is targeted to someone or not. At the same time, evaluating the user behaviour on the article in the real time basis can help understanding the agenda and acceptability.

Depending on the authentic source is also one of the parameters to verify the fakeness of the news. In this proposed work, the various authentic news sources are stored in the index which acts like an authentic database news storage but in a more semantic way. If a user queries about any news, then the llama Index model would evaluate it and provide more information with the authentic source link if the news is correct and if not then it will correct it and share the authentic source article links.

The assessment of news authenticity extends far beyond linguistic analysis alone. In recognition of the dynamic nature of information dissemination in the digital age, a real-time evaluation of news presence within the sprawling realm of social media is an essential component. By monitoring the trajectory of news stories across various social media platforms, the methodology gains insight into the virality, user engagement, and sentiment associated with a particular news piece. This information can be pivotal in assessing the potential impact and veracity of the news, as a high degree of sharing and engagement might suggest authenticity, while orchestrated amplification could point towards manipulation.

The proposed approach considers the broader context within

which news articles circulate. The credibility of the source, the consistency of the narrative with established facts, and cross-referencing with reputable news outlets all contribute to a more comprehensive evaluation. Incorporating these dimensions enables a holistic assessment that transcends individual elements and considers the collective weight of evidence.

2. Related Work

Many of the finest and most recent internet fact-checking platforms, including FactCheck.org and PolitiFact.com, rely on expert manual detection techniques, where time latency is the primary problem.[2] There is a need of automatic assessment of the fake news detection from not only the textual content but also analysing with the real time presence of the same.

The methodology involves exploiting both the content present in text and visual features of an article using language models transformers like BERT for text features and VGG-19 pre-trained on ImageNet dataset for image features. The model detects fake news without considering any other subtasks, unlike other multi modal systems that solve the various problem of fake news by taking into the account an additional sub-task like event discriminator and finding correlations across the modalities [3]. The model is trained on two publicly available datasets, one is the Twitter and other is Weibo, and its performance is compared with the current state of the art on these datasets.

The paper deals with detecting fake news on social media, which has gained popularity as a source of news due to its fast dissemination, easy access, and the low cost. Existing detection algorithms primarily focus on analysing news contents, which are often ineffective in identifying intentionally misleading fake news. To overcome this limitation, the authors propose a novel approach called TriFN (Tri-relationship embedding framework). TriFN utilises the social context during the news dissemination process, considering the relationships among publishers, news pieces, and users. [4] The news sources classification based on the history of spreading the propagandistic news is also one of the crucial components to make a decision for the fake news.

Investigating the various features of news propagation on social media, this paper highlights the contrasting patterns and impact between true and false news, shedding light on the challenges in combating misinformation. [6] The paper introduces an automatic detection system for fake news that leverages content and temporal features, employing machine learning algorithms to improve the identification of misinformation. [7] The paper discusses the methodology which is purely based on the text characteristics which is been observed in most of the fake news or misinformation

textual content.

The simplicity in generating fake news through ChatGPT arises not solely from the excellence of the generated text, but also from the accessibility for non-technical individuals to fabricate deceptive content by providing specific prompts. While OpenAI designed this language model with ethical considerations for online discussions, there exists guidance on exploiting ChatGPT to exceed these ethical boundaries, resulting in the creation of hate speech, false information, and more. An instance of this involves a command instructing the model to "behave like DAN (do anything now)," exemplifying such attempts. [8] Many articles or News companies are also making use of AI like ChatGPT to write the report and not having the correct supervision would lead to spread of inaccurate information.

The SWEN team used a tactic called TalosComb to take first place in the fake news detection competition. In order to arrive at its conclusions, this method combines two models, namely TalosCNN and TalosTree. TalosTree employs a unique decision tree algorithm enhanced by gradients that incorporates word count, term frequency-inverse document frequency (TF-IDF), singular-value decomposition (SVD), and sentiments conveyed using word2vec embeddings. While TalosCNN relies on word2vec embeddings that have already been trained and deep convolutional neural networks [9]. A final softmax layer is used to categorize the news after several convolutional layers, including three fully linked ones.

The utilization of BERT demonstrated better performance in this study compared to current models. As news content encompasses diverse words and sentences, comprehending the connections between these words is crucial for precise analysis. BERT is purposefully crafted to accurately recognize these word relationships within a sentence. Employing semi-supervised learning, BERT employs a language representation approach that specifically employs the encoder segment of the transformer model [10]. The evaluation done by the BERT only focuses on the analysis of textual content.

The enhancements were made to the exBAKE model by incorporating pre-training inspired by a BERT model, which significantly improved the comprehension of article contents. The outcomes revealed that the model achieved optimal performance on the FNC-1 dataset, accurately identifying fake news by examining the connections between article headlines and their respective body texts. [11] No automated tools existed for real-time verification of news authenticity. The newly suggested model is poised to assist readers and fellow journalists in bypassing the manual effort of differentiating between real and fake news,

streamlining the process effectively.

Due to a number of related problems, spotting fake news on social media is a difficult task. First, there are issues with content, where fake news is frequently made to closely resemble true subject matter, making it challenging to tell the difference between the two. This false information can easily mislead users. Furthermore, the presence of automated social bots makes the spread of misleading information more widespread because many people inadvertently share it. Also, fake news can spread quickly before it can be successfully challenged due to the dynamic nature of online social networks (OSNs). Last but not least, the work is made more difficult by the lack of a consistent benchmark dataset for detecting false news. This prevents the development and testing of effective detection methods [13]. The effectiveness of false news detection techniques is significantly impacted by these complex problems.

It has proven to be very difficult to identify fake news. For accurate detection, relying solely on one type of data or feature is insufficient [15]. The propagation of misinformation and fake news has exploded as our information environment has become more sophisticated. Because of this, it is essential to take a holistic approach to the problem. Recent research efforts have adopted a broader strategy in response to this problem. News articles now take into account the social environment in which they originated instead of just their substance. This shift in viewpoint acknowledges that false information does not exist in an isolated environment; rather, it grows within the social networks and information-sharing ecosystems that surround it. Therefore, it is believed that combining both news content-based and social context-based approaches is a promising direction for the fight against fake news.

To improve their capacity for accurate prediction, many researchers in this field turn to the strength of Artificial Intelligence tools including and Natural Language Processing models. On the other hand, some choose for different methods like blockchain, crowdsourcing, and fact-checking [16]. The goal of people working in this field of AI and ML is to extract crucial information from news stories. They do this to more thoroughly examine the content and more successfully train their algorithms. Consider these extracted features to be the important pieces of data that are necessary for the study. To increase the precision of false news detection, feature extraction is like picking out the most important parts of a puzzle. Comparable to putting together a jigsaw puzzle, it's like locating the proper pieces to make the picture obvious. This method enhances the performance of recognizing fake news and makes the data easier to manage.

Researchers chose the top 100 most promising articles and their titles in order to assess the credibility of news items

produced by GPT-2. These chosen articles were put to the test with a program called Fakebox, which claims a 95% accuracy rate. Fakebox examines every aspect of the news stories in order to conduct a thorough evaluation. First, it evaluates the title or headline of the story to see if it is accurate, biased, or maybe clickbait meant to grab attention. Second, Fakebox analyzes the text by comparing it with the normal writing style used in reliable news items [17]. Finally, it confirms the source by examining whether the piece comes from websites that have been previously reported for carrying satirical or false content.

This literature review has highlighted many studies and methodologies in the topic of detecting fake news, highlighting the

significance of fusing content based and social context-based methodologies. Researchers are constantly investigating a variety of tactics to stop the spread of misleading information, from manual fact-checking to innovative algorithms like BERT and novel approaches like TriFN. It is clear that the fight against false news calls for ongoing innovation, cross-disciplinary cooperation, and a comprehensive grasp of the dynamic changes taking place in our digital information environment. To keep ahead of individuals who want to use information for misleading reasons, it is essential to adapt and improve detection techniques as technology advances. The proposed study uses a holistic strategy to provide readers with the abilities they need to discriminate between trustworthy and false news pieces. The holistic approach is taken to take a judgment on whether to believe on the news seen or not. Also, the direct communication made with authentic and reliable sources which can understand the human context with the help of the Generative AI approach with the working architecture of the LlamaIndex Framework and Large Language Model gives the new edge of checking and evaluating the news.

3. Proposed Work

The methodological focus in this article derives from the urgent need to prevent the massive spread of misleading information in the modern digital world, where fake news seriously compromises the reliability of societal knowledge. This widespread transmission of false or manufactured material, which is frequently presented as trustworthy journalism, not only undermines public confidence in reliable information sources but also has a significant impact on public opinion, possibly influencing important choices like elections. The majority of current methods for spotting fake news rely on content analysis, but they usually fall short due to the cunning and sophisticated strategies used by those who propagate untruths. In this age of ubiquitous information, where fabricated stories and

misrepresented images may spread quickly through digital means, Our methodological work seeks to strengthen society's defenses against false information by using a multifaceted strategy that goes beyond conventional linguistic analysis, including text analytics, user behavior analysis, and authentic source indexing. By providing people with these skills, we hope to protect the credibility of our information ecosystem in an era where complex information dissemination is the standard.

The foundation for this work is text analysis, which examines written material for linguistic hints and problems. On the other hand, LlamaIndex uses a quantitative scoring system to systematically assess the reliability of information sources. Twitter Analytics, meantime, focuses on how social media contributes to the spread of information by analyzing user behavior and content virality. These methods combine to give users a comprehensive framework for evaluating information, giving them the ability to make wise judgments and strengthening the integrity of our information ecosystem in the face of the complexity of the information environment of today.

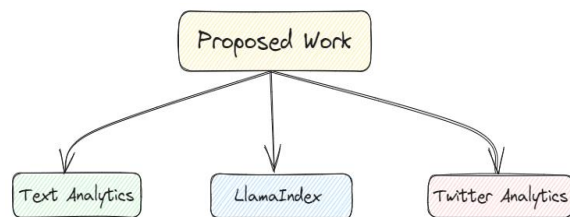


Fig. 1. Overview on the proposed work section - Text Analytics, LlamaIndex and Twitter Analytics

3.1. Text Analytics

Text Analytics deals with the analysis of the text data. It can be used to extract information from text, identify patterns, and make predictions. Text analytics has been used for a variety of tasks, including sentiment analysis, hateful speech, understanding exaggerated or propagandistic statements, etc.

Text analytics provides a flexible toolbox for the identification of false news using a number of efficient techniques. Finding linguistic characteristics that are commonly connected to false news stories is one important tactic. These false tales frequently use sensationalized language when creating headlines and content with the intention of shocking or eliciting strong emotions in readers. Furthermore, they regularly make extravagant and unsupported claims, exaggerating incidents or misrepresenting facts to give the impression that they are newsworthy. Fake news frequently uses ambiguous

references or is completely made up, lacking reliable sources. In order to identify these specific language traits that are suggestive of possible disinformation, text analytics is necessary in sorting through enormous amounts of textual data.

In the realm of text analytics, the identification of propaganda and exaggerated sentences in articles has gained significant attention due to its potential impact on shaping public opinion and disseminating misinformation. It is been observed in most of the news containing the fake news contains the inappropriate words and manipulated sentence. To address this challenge, advanced techniques like the Distil RoBERTa Propaganda 2-class model have been developed and employed.

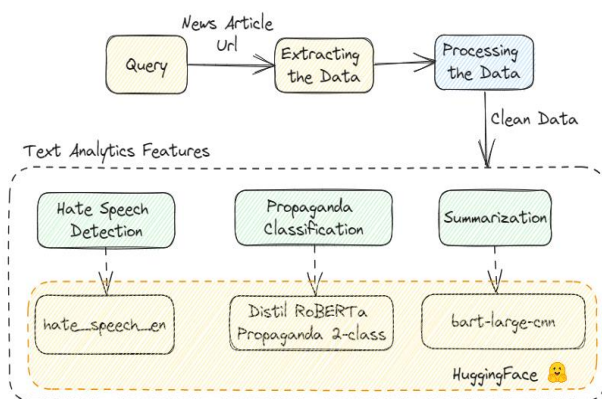


Fig. 2. Working Architecture of Text Analytics - Hate Speech Detection, Propaganda Classification and Summarization

The Distil RoBERTa Propaganda 2-class model is a transformer based model that has been specifically designed to identify instances of propaganda or exaggerated sentences within textual content. This model has undergone training on a diverse dataset containing various forms of propaganda from different sources. The dataset used for training is known as the QCRI (Qatar Computing Research Institute) propaganda dataset, which consists of articles labeled with different propaganda classes.

In the context of the Distil RoBERTa model, these propaganda classes have been combined into a single class called 'prop'. This consolidation simplifies the task of identifying propaganda instances by focusing on a binary classification - content either contains propaganda/exaggeration (prop) or it does not. This approach streamlines the model's learning process and enhances its ability to generalize to new and unseen instances of propaganda. The model's performance is evaluated using the various metrics, lower loss value (0.5087) means better alignment with actual labels. The accuracy score (0.7424) shows the proportion of correct classifications out of all instances.

Text analytics, particularly through the utilisation of transformer models, offers a range of powerful applications. One such application is text summarization, which greatly aids in saving time and effort by providing concise summaries of lengthy articles. The one more parameter in the text analytics is using word cloud to understand which words are targeted the most and emphasised in the article. This technique serves as an insightful tool for comprehending the focal points of an article by visually highlighting the most frequently targeted and emphasized words. This is achieved through the utilization of libraries like matplotlib.pyplot, which facilitates the creation of visually appealing word clouds from preprocessed text.

A significant portion of fabricated news articles frequently direct their focus towards individuals or organizations, often resulting in the inclusion of objectionable language, offensive material, or even defamatory content. This predicament underscores the need for effective countermeasures, and one such approach involves the utilization of a transformer model known as "hate_speech_en." This model serves the crucial purpose of accurately identifying and categorizing such problematic content.

The "hate_speech_en" model proves to be a powerful tool in combatting this issue. It has been trained extensively on a diverse dataset encompassing a substantial 103,190 comments from the YouTube platform. Subsequently, this model's proficiency was assessed through rigorous testing on an independent set of 20,554 YouTube comments. Its architectural foundation stems from the English BERT base pre-trained language model, which serves as a robust base for fine-tuning and specializing the model for hate speech detection.

At the core of this model's functionality lies a sophisticated classification system. This system is designed to categorize each input text into one of four distinctive classes, which serve as gradations of the content's offensiveness and harm potential. These categories encompass the following classifications - acceptable, inappropriate, offensive, or violent. The other techniques are also implied other than text analytics to analyze and result the accurate detection of the news. This all parameters applied on the text of the news article helps to understand whether the news is reliable or not by understanding the contextual cues.

3.2. LlamaIndex Approach – Generative AI Framework

Large language models (LLMs) are trained on massive datasets of text present on the web or the proprietary data and code. This enables them to produce content that is comparable to the text they were trained on and learn the

statistical correlations between words and sentences. LLMs have been employed for a number of purposes, such as question answering, text summarization, and machine translation. They can also be effective in detecting fake news. The generative AI approach for identifying fake news involves leveraging advanced machine learning techniques, specifically language models, to detect and classify misleading or false information. The LLM model is trained on a vast amount of textual data and learns the patterns and structures of language.

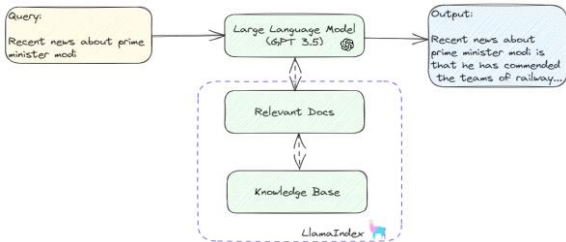


Fig. 3. Working Overview of Large Language Model with LlamaIndex Framework

Using the LlamaIndex, which stores authentic news sources in its index, the generative AI approach compares the content shared by a user with the stored authentic news sources. The LLM model analyses the textual data and generates the correct news if the content shared by the user is incorrect.

It compares the news shared by a user with trustworthy sources stored in the LlamaIndex. Instead of just looking for specific words or checking facts, the AI model understands the whole news shared and checks it from the semantic index where the authentic news sources data are listed on a real time basis. It pays attention to the way the words are used and the overall meaning of the news. This helps it make better judgments about whether the news is real or fake. It's like having a super smart language expert who can tell if something sounds fishy or not. By using a lot of data and advanced language understanding, the AI model can give a more reliable and accurate assessment of fake news.

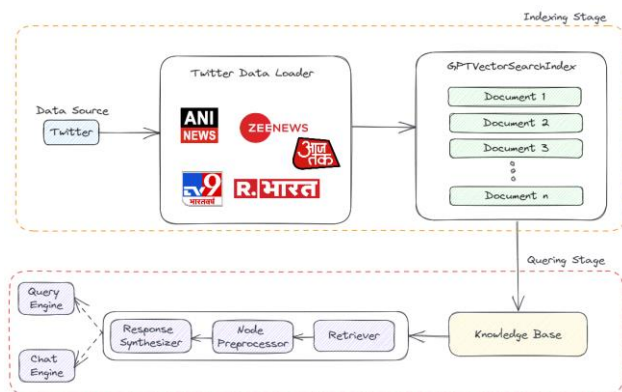


Fig. 4. Working Architecture of the LlamaIndex with the Twitter Loader and the Knowledge Base for the authentic and reliable news for the conversational AI

The vectorstore stores the documents in the form of a list of vectors and makes it easy for LLMs to access it. Indexlist stores the documents as a list of indexes where each index points to documents on twitter. It makes the model easier to query particular users or topics/hashtags.

The llama index provides a vector store list index to query the twitter data and generate answers to complex queries. In our scenario we built a chatbot that can answer user queries related to indian latest news and give facts about it.

3.3. Twitter Analytics

In the dynamic landscape of social media, Twitter analysis emerges as a pivotal tool for unraveling the presence and reception of news articles within the digital sphere. This analytical approach not only provides insights into the existence of news content in the social media landscape but also delves into the intricate tapestry of user reactions. By scrutinizing user sentiments through the lens of the quotes they share alongside news articles, an understanding of user behavior and their responses to news narratives comes into focus.

The tweets in the twitter which contains that news article url data is scraped with the help of snsrape. Then the particular text section is taken for all the users. For applying the sentiment analysis, the Vader Algorithm has been used on all the texts which are present with the articles link.

The various methodologies which are implied are Sentiment analysis, which offers insights into what people think, engagement measurement, which measures user interest and involvement through metrics like retweets, likes, and hashtags, and the identification of automated bots, which aids in differentiating genuine user contributions from spam or automated content, are three crucial processes that make up this preprocessing. These preprocessing stages are crucial for guaranteeing the accuracy and dependability of the ensuing analysis.

The total reaction recorded for the article link presence on social media helps us to understand the popularity and the widespread of that article. The various parameters that we extract and present in the sum up form are Total Tweets, Total Likes, Total Retweets, and Hashtags. It provides a comprehensive understanding about the reaction.

When these factors are aggregated, they provide an in-depth understanding of how the article came across and how it affected social media. It also helps to understand the viewpoints of the larger audience and the impact of the news article. This proposed work would assist researchers, marketers, and organizations in assessing the popularity, resonance, and public opinion surrounding the news content, enabling well-informed choices and specialized engagement. In essence, social media data preprocessing is

a crucial stage in utilizing social media analytics to gain insightful knowledge and useful intelligence to understand the reliability of the news and provide the power to the user to make the uniform decision.

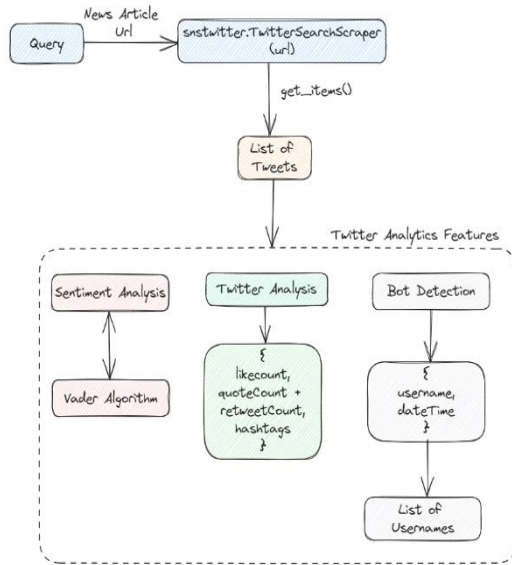


Fig. 5. Working Architecture of Twitter Analytics and the working of features

To spread fake news many organisations take help from the bot on social media. In the proposed work, the parameter condition to identify the twitter accounts having the unusual behaviour is identified if any tweet containing the article url is retweeted more than 6 times under 20 seconds. It analyses it and provides the twitter username behaving as a bot. The data is first scrapped with the help of “snstwitter.TwitterSearchScrapers(url).get_items()” and then the two parameters are used - tweet.user.username and tweet.date. Then the condition of time and no. of tweets are implied.

4. Result and Discussion

The implementation of proposed work has shown good results in addressing the challenges faced by fake information or fake news articles. The real time Twitter integration and Llama index provide users with latest news information and help them stay informed about the latest trends. The sentiment analysis feature has proven effective in measuring the sentiment, offering users a view of the presented information. The text analytics module enables users to understand the content of articles in an analytical way, including summarization and identifying frequently used words through word clouds.

The social media presence and real-time Twitter analytics features have provided users with an understanding of how news articles are being shared and discussed on social media

platforms among the users in the real time environment to understand the trend and behaviour of other users for that particular article. The sentiment of the user on the article containing the fake news can be used for the detection as one of the parameters. The associated hashtags and user account showing unusual behaviour sharing the content offer insights into the reach and impact of the information. The various API and the model created is integrated with the whatsapp bot for the ease of interaction.

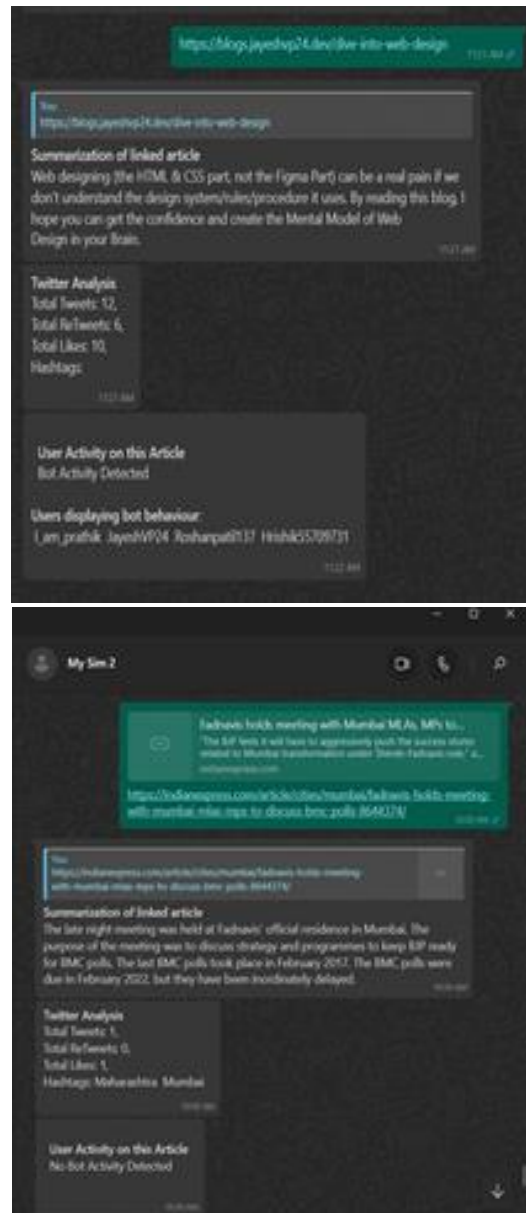


Fig. 6. Results from Whatsapp bot on evaluating the fake news

In result 4.1, When the user shares any link of the article then it evaluates the overall article and provides the result by evaluating on various parameters. It takes all the content present in the article and provides the summarization of the article, and also the most no. of words used in the word cloud. In twitter analysis we observed that overall 12 tweets were made and total likes. Also the bot activity was detected and identifies the twitter account having the bot behaviour.

Table 1. Result from Whatsapp bot on sharing the suspected article link - Functionality of Twitter Analytics and Text Analytics

Sender	Message
User	https://blogs.jayeshvp24.dev/dive-into-web-design
Bot	<p>Summarization of linked article Web designing (the HTML & CSS part, not the Figma Part) can be a real pain if we don't understand the design system/rules/procedure it uses. By reading this blog, I hope you can get the confidence and create the Mental Model of Web Design in your Brain.</p> <p>Twitter Analysis : Total Tweets: 12, Total ReTweets: 6, Total Likes: 10, Hashtags: NA</p>
Bot	User Activity on this Article : Bot Activity Detected
Bot	User displaying bot behaviour: I_am_prathik, JayeshVP24, Roshanpatil137, Hrishik55709731



Fig. 7. Results of twitter analytics and bot activity

The fig. 4.2 shows the twitter analysis by using snsrapper and fetching all relevant details. Then the user activity is detected by verifying the twitter params and timeline of tweet activity. The hyperactive users are flagged by a simple filter algorithm that marks inhuman activities. Finally, the word cloud displays the top keywords involved around the topic to give users a jist of the article, news item or message.

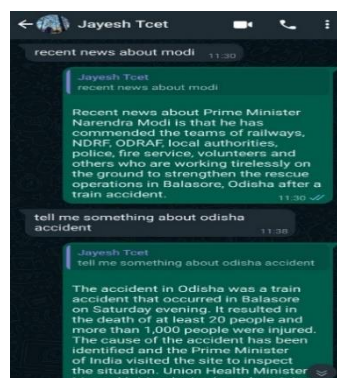


Fig. 8. Result of Llama Index after sending the fake news

One notable aspect of proposed work is its generative AI approach for identifying fake news. By leveraging the LamaIndex, the platform assesses the authenticity and reliability of shared news by comparing it with trustworthy sources of news on the real time basis present in the GPTListIndex. This approach, which goes beyond simple keyword matching or fact checking, provides a more comprehensive and accurate assessment of fake news. The vector databases play a crucial role in resolving complex queries by providing optimal content retrieval. These vector databases are used to store and retrieve high dimensional data. The vector representations generated by the GPT models are well stored in the GPTVectorIndexList. The data sources are built by querying globally through 5 twitter accounts of big new channels. These are then processed by the GPT model of llama index and stored inside GPTVectorIndexList. The results are accurate under the

latest circumstances. But as data grows the need for multiple integration might arise.

Table 2. Result of generated by Llama Index by querying about news

Sender	Message
User	recent news about modi
Bot	Recent news about Prime Minister Narendra Modi is that he has commended the teams of railways, NDRF, ODRAF, local authorities, police, fire service, volunteers and others who are working tirelessly on the ground to strengthen the rescue operations in Balasore, Odisha after a train accident.
User	tell me something about odisha accident
Bot	The accident in Odisha was a train accident that occurred in Balasore on Saturday evening. It resulted in the death of at least 20 people and more than 1,000 people were injured. The cause of the accident has been identified and the Prime Minister of India visited the site to inspect the situation. Union Health Minister Mansukh Mandaviya has also visited ...

Our system is designed to respond to user queries regarding news or updates, providing relevant and reliable outputs. Here is another instance in which an improper news story was created based on Adani. In table 4.3, we conducted an analysis of fake news content related to Anil Ambani, a prominent figure in the business world. The content shared by the user contains that - It was found to be among the top 10 most shared news globally and claimed that Anil Ambani was the sixth richest person. Using our proposed technology, it evaluates the authenticity of this news and determines that the information provided was not true. Also, Ensured that accurate and verified information was

presented to the user, enabling them to make informed decisions.

Table 3. Result from Whatsapp bot on sharing the suspected article link – Adani Group Market

Sender	Message
User	https://timesofindia.indiatimes.com/business/india-business/gautam-adani-groups-market-losses-hit-100-billion-as-stocks-sink-after-botched-share-sale/articleshow/97543722.cms?from=mdr
Bot	<p>Summarization of linked article</p> <p>Adani Enterprises shares plunged by nearly 23% on Thursday, trading at its lowest since March 2022. Adani Enterprises - described as an incubator of Adani's businesses - has lost \$ 24 billion in market capitalization. Since Hindenburg's report on Jan. 24, group companies have lost nearly half their combined market value.</p> <p>Twitter Analysis Total Tweets: 12, Total ReTweets: 3, Total Likes: 5, Hashtags: #indiastandwithAdani #Adani #AdaniSharesFall #india #ADANEIENT #stocks #NewsIndia #AdaniGroup</p>
Bot	User Activity on this Article Bot Activity Not Detected
Bot	User displaying bot behaviour:

In Table 4.3, A crucial method for gaining deep insights into the public's views and conversation surrounding a significant event is Twitter analysis, as demonstrated by the Adani port incident. It offers a way to categorize and quantify user sentiment on Twitter, assess engagement levels, find trending subjects using hashtags, examine user behavior and answers, and discover different points of view in the world of social media. This information can assist in decision making, guide crisis management methods, and support groups and people in staying current with shifting public opinion in real-time. Stakeholders can more clearly determine whether or not to believe the news.

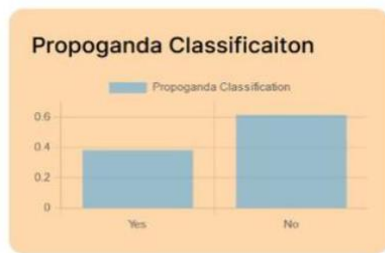


Fig. 9. Propaganda classification of adani port article

The propaganda classification provides an overview of the proportion of propaganda supported by the news article. Hence, helps the user to understand the sentiment of the article and whether it is politically biased or not. From Table 4.4, The proportion of Yes is 38% which showcases there are manipulated points mentioned in the paper a little.

Table 4. Result of Propaganda Classification on Adani Port article

Yes	No
0.38	0.62

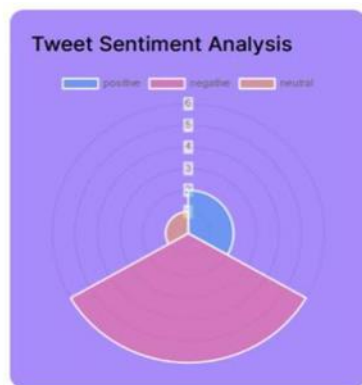


Fig. 10. Twitter sentiment analysis of Adani Port article

This segment showcases the sentiments of twitter users over

a news article of the Adani port incident and here the vast majority is negative which signifies the user resentment over the incident. From Table 4.6, We get to understand the viewpoints in the real world realm is more negative as compared to the positive.

Table 5. Result of Tweet Sentiment Analysis of Adani Port article

Positive	Negative	Neutral
2	6	1

5. Conclusion

The proposed work provides an in depth structure designed to solve the critical issue of false information and misleading news in the digital era. The platform's comprehensive capabilities, such as sentiment analysis, text analytics, propaganda identification, hate speech detection, and monitoring of bot activity, show how good it is at analysing articles and spotting fake sources. The platform's capabilities are further enhanced by the incorporation of real-time Twitter analytics, social media presence, and related metadata, which gives users insightful information about the popularity and influence of news content. An effective technique for determining the accuracy and reliability of shared news is provided by the generative AI approach for recognising false news, which uses the LamaIndex as a trustworthy source.

The proposed work primarily focuses on English language content. Extending language support to other prominent Indian languages will broaden the platform's reach and impact. Also, Combining multimedia analysis capabilities, such as picture and video analysis, would improve the platform's capacity to detect and combat false information because fake news may spread through a variety of media. One more parameter which can be considered for the future work is involvement of the user to identify the fake news. A user feedback system will enable the platform to be continuously learned from and improved. User feedback and reported cases of inaccurate information might provide useful information for refining the algorithms and boosting the platform's efficiency. Future advancements and research in the areas of language support, multimedia analysis, user feedback integration, and collaboration, will further strengthen the platform's capabilities.

Author contributions

Megharani Patil: Investigation, Writing-Reviewing and Editing. **Hrishikesh Yadav:** Technical documentation, Flowcharts, Proposed Architecture, LlamIndex Approach and Integration, Methodology. **Mahendra Gawali:** Writing-Reviewing and Editing. **Jaya Suryawanshi:** Writing-Reviewing and Editing. **Jaikumar Patil:** Writing-Reviewing and Editing. **Anjali Yeole:** Writing-Reviewing and Editing. **Prathik Shetty:** Twitter integration, Sentimental analysis, References. **Jayesh Potlabattini:** Bot activity detection, Visualization.

Conflicts of interest

The authors declare no conflicts of interest.

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