A Mini Project Report on

FAKE NEWS PREDICTION SYSTEM

T.E. - I.T Engineering

Submitted By

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CERTIFICATE

This to certify that the Mini Project report on Loan Prediction System has been submitted by **Kritika Donde (20104102)**, **Disha Panchal (20104126)** and **Lakshit Patil (20104043)** who are a Bonafede students of A. P. Shah Institute of Technology, Thane, Mumbai, as a partial fulfilment of the requirement for the degree in **Information Technology**, during the academic year **2022-2023** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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ABSTRACT

The fake news prediction system is an innovative technology that utilizes machine learning algorithms to analyze and identify misleading information in news articles. This system is designed to assist in combating the spread of false information on social media platforms and news websites. By predicting the likelihood of a news article being fake, the system can provide users with a reliable source of information and help them make informed decisions. The system uses various features, such as text analysis and source credibility, to make predictions. The proposed system has the potential to improve the accuracy and speed of fake news detection, which is crucial in today's digital age where misinformation can spread rapidly and have serious consequences. By identifying key features and patterns within the text, such as sources, tone, and factual accuracy, the system can generate accurate predictions about the veracity of news stories. This system has the potential to help combat the spread of misinformation and promote more accurate and trustworthy journalism.

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CHAPTER 1

INTRODUCTION

The Fake News Prediction System, a revolutionary tool designed to help combat the spread of misinformation and propaganda. In today's digital age, fake news can spread like wildfire and have serious consequences for individuals, organizations, and even entire societies. That's why it's more important than ever to have tools that can accurately identify fake news and help us make informed decisions based on credible information.

Our system utilizes advanced machine learning algorithms to analyze news articles and predict their likelihood of being fake. We have trained our system on a vast amount of data to ensure that it can recognize patterns and identify key indicators of fake news. With the help of our system, you can feel more confident in the news you consume and avoid falling prey to misinformation. So join us in the fight against fake news and use our system to stay informed and empowered.

The Fake News Prediction System is not just a tool for individual users, but it can also be used by news organizations, social media platforms, and government agencies to help identify and flag fake news before it spreads. By using our system, these entities can take proactive measures to prevent the spread of fake news and protect their audience from potentially harmful content.

Our system can also provide insights into the characteristics and patterns of fake news, which can be valuable in understanding the motivations and strategies of those who create and spread it. This information can be used to develop more effective strategies for combating fake news and promoting accurate information. At the core of our system is a commitment to accuracy and transparency. We believe that access to reliable and trustworthy information is essential for a healthy democracy and society. That's why we have designed our system to be as transparent as possible, providing users with detailed explanations of how the system works and how it arrives at its predictions.

In conclusion, the Fake News Prediction System is a powerful tool that can help combat the spread of fake news and promote accurate information. We believe that by working together, we can create a safer and more informed digital environment for all.

- Problem Identified :

- The problem is to develop a fake news prediction system that can effectively distinguish between genuine news and fake news. The system should be able to analyze news articles, social media posts, and other sources of information to determine whether the content is true or false.

- The system should be able to analyze various factors, such as the credibility of the source, the verifiability of the information, the use of emotional language or sensationalism, and any biases or inconsistencies in the content. The system should also be able to adapt and learn from new examples of fake news, as well as feedback from users.

- Solution Proposed :

- The goal of the system is to reduce the spread of fake news, which has become a significant problem in recent years.

- Ultimately, the goal is to create a reliable and accurate system that can help individuals and organizations make informed decisions based on credible information.

1.1 Purpose :

- To identify and prevent the spread of false information: The primary purpose of a fake news prediction system is to identify and prevent the spread of false information. This can help individuals, organizations, and governments avoid making decisions based on inaccurate information.

- To maintain credibility and trust: In today's world, credibility and trust are important factors in establishing the legitimacy of news sources. A fake news prediction system can help news organizations maintain their credibility and trustworthiness by identifying and flagging potentially false stories.

- To protect the public from harm: False information can have serious consequences, especially when it comes to public health or safety. A fake news prediction system can help protect the public from harm by identifying and debunking false information that could lead to dangerous actions.

- To promote media literacy: A fake news prediction system can also help promote media literacy by teaching individuals how to identify and evaluate sources of information. This can empower people to make informed decisions and avoid being deceived by false information.

1.2 Problem Statement :

The problem that a fake news prediction system aims to address is the proliferation of false information in today's digital age. With the rise of social media and the internet, it has become increasingly easy for false information to spread rapidly and reach a large audience. This false information, also known as "fake news," can be intentionally or unintentionally created, but in both cases, it can have serious consequences for individuals, organizations, and society as a whole.

The fake news prediction system seeks to address this problem by using artificial intelligence and machine learning algorithms to identify and flag potentially false information. This involves analyzing various factors, such as the source of the information, the language used, and the verifiability of the claims made.

1.3 Objectives:

- To develop user friendly interface for the customer.
- The primary objective of a fake news prediction system is to identify false information
- To develop a system which can help reduce the spread of fake news.
- To construct A fake news prediction system which can also help improve media literacy. By providing users with information about the accuracy and reliability of various sources.
- To classify information accurately.

1.4 Scope:

- Can play important role in promoting truth and accuracy in the information that we consume online.
- Can be useful for the user to get the accurate prediction of the whether the news is real or fake.
- Can help to identify and prevent the spread of fake news, these systems can promote transparency in the media.
- Can help mitigate the harmful effects of fake news and prevent it from causing panic or misinformation.
- Can also be used by individuals to help them identify and avoid fake news, protecting themselves and others from the potential harm caused by false information.

CHAPTER 2

Literature Review

Sr.no	Title	Author(s)	Year	Algorithms	Limitations	Result
1	Fake News Detection on Social Media: A Data Mining Perspective	M. Al-Qudah, and I. Alsmadi	2021	Combination of linguistic features and deep learning techniques	The dataset used is not diverse enough,consisting only of political news. The proposed model is not compared to other state-of-the-art models for fake news detection.	Achieved an accuracy of 92.7% on the dataset used in the study.
2	Identifying and Analyzing Political Fake News in Social Media	R. Fan, X. Li, and Y. Liang	2019	Multi-modal deep learning model using text and image features	-The dataset used is limited to political news.The model may not perform well with fake news that do not contain any images.	Achieved an F1-score of 0.845 for identifying political fake news.
3	Fake News Detection on Twitter using Hybrid CNN and RNN Models	V. Khandelwal and D. Batra	2018	Hybrid convolutional neural network and recurrent neural network model	The model is not compared to other state-of-the-art models for fake news detection.The dataset used is limited to fake news related to US presidential election 2016.	Achieved an accuracy of 91.14% in identifying fake news on the dataset

CHAPTER 3

PROPOSED SYSTEM

3.1 Features and Functionality

1. Text analysis: The system may analyze the text of news articles or social media posts to detect patterns and characteristics that are commonly found in fake news.
2. Source verification: The system may verify the source of the news article or social media post to determine if it is from a credible source or if it has been created by a known fake news source.
3. User feedback: The system may allow users to send feedback regarding any mistakes, which can help improve the system's accuracy over time.
4. Real-time analysis: The system may be able to analyze news articles or social media posts in real-time, allowing it to quickly identify and flag fake news as it is published.

3.2 Algorithm Working flowchart

The Passive-Aggressive algorithms are a family of Machine learning algorithms that are not very well known by beginners and even intermediate Machine Learning enthusiasts. However, they can be very useful and efficient for certain applications.

How Passive-Aggressive Algorithms Work: Passive-Aggressive algorithms are called so because :

- **Passive:** If the prediction is correct, keep the model and do not make any changes. i.e., the data in the example is not enough to cause any changes in the model.
- **Aggressive:** If the prediction is incorrect, make changes to the model. i.e., some change to the model may correct it.

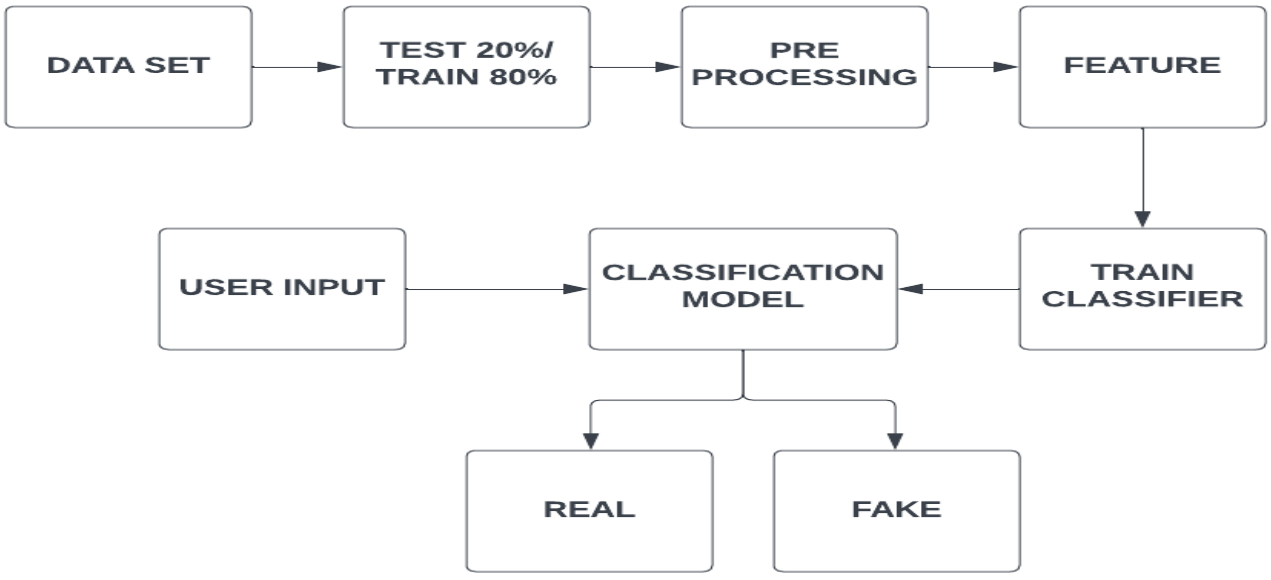


Fig. 1: Algorithm Working Flowchart

CHAPTER 4

REQUIREMENT ANALYSIS

Importance of Requirements Gathering:

Requirements gathering is the process of identifying and documenting the needs, goals, and expectations of stakeholders for a particular system. This process is essential for the development of any software system, including a fake news detection system, because it ensures that the system is designed to meet the specific needs and requirements of its users.

Need Analysis:

- Understanding user needs: Requirements gathering helps to identify the specific needs of users for a fake news prediction system. For example, what types of sources should be included in the system, what types of content should be flagged as potentially fake, and what types of feedback should users be able to provide. This information can help to design a system that meets the needs of its users.
- Defining system functionality: Requirements gathering helps to define the functionality of a fake news prediction system. This includes identifying what types of analysis the system should perform, what data sources should be used, and how the system should integrate with other systems. This information can help to ensure that the system is designed to meet the specific needs of its users.
- Setting priorities: Requirements gathering helps to identify the priorities for a fake news prediction system. This includes identifying which features are most important to users and which features can be prioritized for future development. This information can help to ensure that the system is developed in a way that meets the most critical needs of its users first.

Functional Requirements:

Some of the functional requirements for a fake news prediction system are:

User Interface: The system must have a user-friendly interface to allow users to interact with the system and input the news articles they want to verify.

News Verification: The system must be able to verify the authenticity of the news articles provided by the user by analyzing various factors, such as the source of the news, the language used, the tone, and the context.

Classification: The system must be able to classify news articles as real or fake, based on the features extracted from the data.

Alert System: The system must have an alert system to notify the user if the news article is fake and provide evidence to support the classification.

CHAPTER 5

PROJECT DESIGN

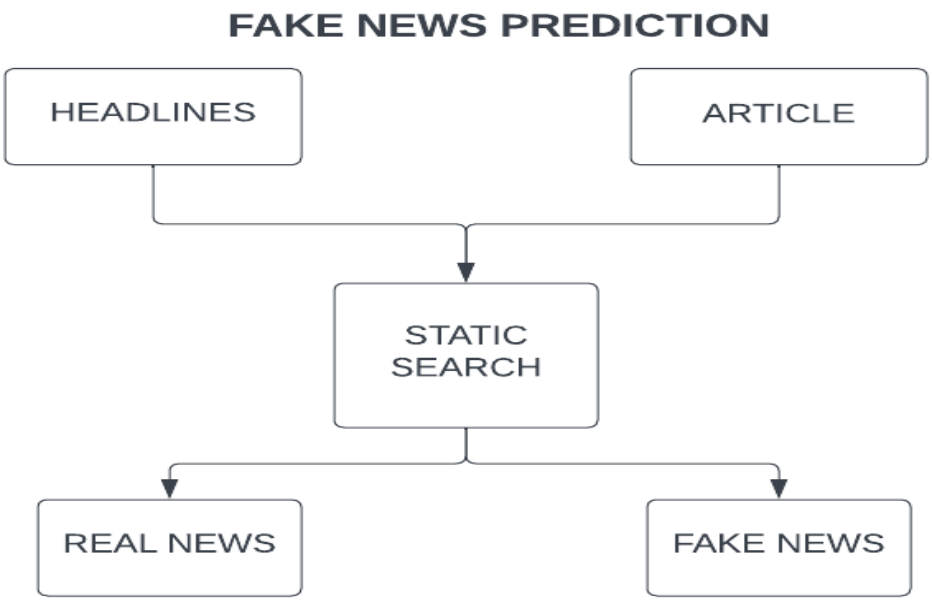


Fig. 2: System Design Flow Diagram

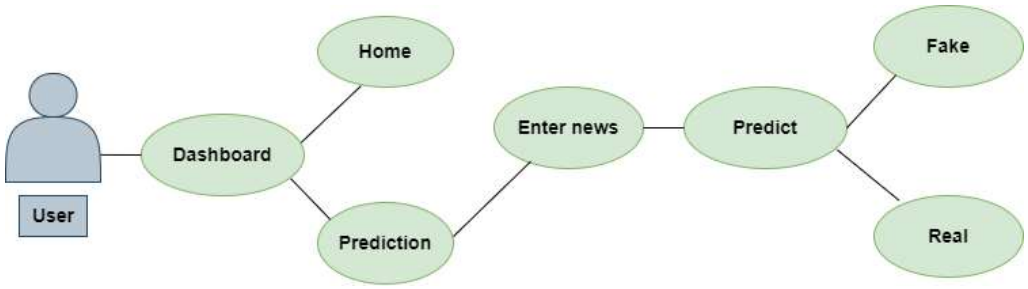


Fig. 3: Use Case Diagram

CHAPTER 6

TECHNICAL SPECIFICATION

Development: VS Code

VS Code also known as Visual Studio Code is a source code editor made by Microsoft for Windows, Linux, MacOS. It has various features such as Debugging, Syntax highlighting, extension, intelligent code completion.

Frontend: Html, CSS, JavaScript

As a web developer, the three main languages we use to build websites are HTML, CSS, and JavaScript. JavaScript is the programming language, we use HTML to structure the site, and we use CSS to design and layout the web page. These days, CSS has become more than just a design language, though. You can actually implement animations and smooth transitions with just CSS.

Backend: Jupyter Notebook

Project Jupyter is a project to develop open-source software, open standards, and services for interactive computing across multiple programming languages. It was spun off from IPython in 2014 by Fernando Pérez and Brian Granger.

OS : Windows

Windows is a **graphical operating system** developed by Microsoft. It allows users to view and store files, run the software, play games, watch videos, and provides a way to connect to the internet. It was released for both home computing and professional works.

CHAPTER 7

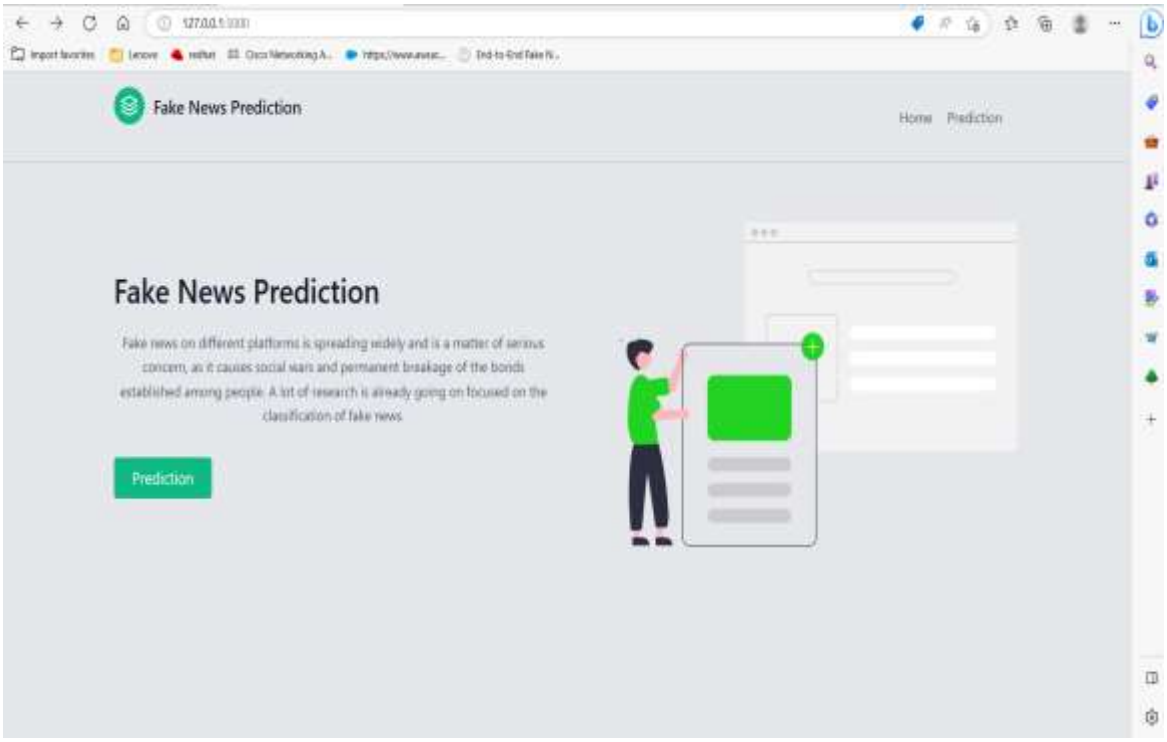
PROJECT SCHEDULING

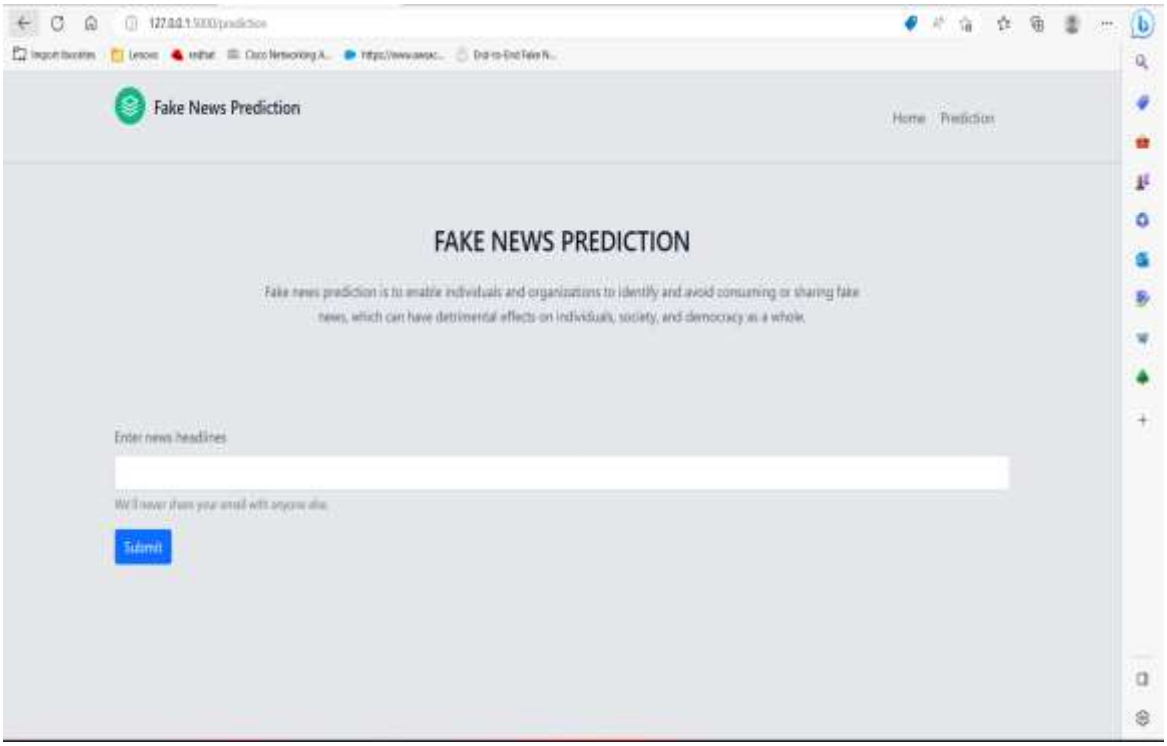
Sr.no	Group Members	Time Duration	Work to be done
1	**Kritika Donde** **Disha Panchal** **Lakshit Patil**	1St week of January 2nd week of January	Work on the project ideas & GUI framework Implemented the GUI
2	**Kritika Donde** **Disha Panchal** **Lakshit Patil**	3rd week of January	Implemented the GUI integreated with HTML, CSS, JS
3	**Kritika Donde** **Disha Panchal** **Lakshit Patil**	By the end of February month	Learned Passive Aggressive Algo and implemented it in the project

CHAPTER 9

RESULT AND DISCUSSION

Result





CHAPTER 10

CONCLUSION AND FUTURE SCOPE

Conclusion:

In conclusion, a fake news prediction system has significant potential to help address the growing problem of misinformation and fake news in today's digital world. By using machine learning algorithms to analyze the content of news articles, social media posts, and other online content, the system can identify patterns and characteristics that are associated with fake news, and make predictions about the likelihood of the information being false.

Such a system can be used by journalists, fact-checkers, social media platforms, and individuals to help detect and remove fake news before it spreads widely. The system's accuracy can be improved with the use of more advanced machine learning algorithms and techniques, and the system can be made more responsive and capable of processing large amounts of data in real-time.

Future developments in the field of fake news prediction systems could include integrating the system with social media platforms, providing multilingual support, and collaborating with fact-checking organizations. Ultimately, the development and use of a fake news prediction system can play an important role in promoting truth and accuracy in the information that we consume online, and in protecting individuals and society from the potential harm caused by false information.

Future Scope:

The future scope for a fake news prediction system is quite significant, as the issue of misinformation and fake news continues to grow in importance in today's digital world. Here are some potential areas of future development for such a system:

- Improved accuracy: One area of focus for future development is to improve the accuracy of the system's predictions. This could be achieved by incorporating more advanced machine learning algorithms and techniques, as well as by increasing the amount and variety of data used to train the system.

- Multilingual support: As the internet becomes increasingly global, a fake news prediction system that can analyze and detect fake news in multiple languages will become more important.

- Integration with social media platforms: Social media platforms have a significant role to play in the spread of fake news, so integrating a fake news prediction system with these platforms could be highly beneficial. This would allow the system to flag potential fake news stories as they are shared, potentially limiting the spread of false information.

- Collaboration with fact-checking organizations: Collaboration with fact-checking organizations could also be a useful area of future development. By working together, these organizations and the fake news prediction system could help to identify and remove fake news more effectively.

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