WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Design and Implementation of an Opinion Mining-Based System for Detecting Fake Product Reviews

Rutvik Sakpal[1], Yogesh More[2], Pratik Kadam[3], Onkar Wagh[4], Prof. Akash Dodke[5]

[1, 2, 3, 4, 5]*Dept. of Information Technology Engineering*

ABSTRACT:

It aims to detect fake reviews of products by analyzing the sentiments expressed in reviews. The system uses machine learning techniques to automatically identify and classify reviews as genuine or fake. The system also provides a visualization of the analysis results to help users better understand the patterns and trends of product reviews. The proposed system can be useful for e-commerce websites to maintain the credibility of their product reviews and protect their customers from being deceived by fake reviews. The system utilizes a hybrid approach for opinion mining, which combines both lexicon-based and machine learning-based methods to achieve higher accuracy in fake review detection. The lexicon-based approach is used to extract the sentiment of the reviews, while the machine learning-based approach is used to classify the reviews as genuine or fake. The system also incorporates a feedback mechanism to allow users to report suspected fake reviews, which can further improve the accuracy of the system.

I. INTRODUCTION

In recent years, the growth of e-commerce has led to a significant increase in the number of product reviews available online. While product reviews can be helpful for customers in making informed purchasing decisions, they can also be misleading if they are fake. Fake reviews can artificially inflate the rating of a product and mislead customers into buying a product that may not meet their expectations. As a result, detecting fake reviews has become a crucial task for e-commerce websites to maintain the credibility of their product reviews and protect their customers.Opinion mining, also known as sentiment analysis, is a technique that analyzes the sentiments expressed in text data to extract opinions and attitudes. In the context of product reviews, opinion mining can be used to identify fake reviews by analyzing the sentiments expressed in the reviews. Machine learning techniques can be used to automatically classify reviews as genuine or fake based on the sentiment analysis results.In this context, we propose an opinion mining based on fake product review monitoring system. The system aims to detect fake reviews of products by analyzing the sentiments expressed in reviews. The system uses a hybrid approach that combines both lexicon-based and machine learning-based methods to achieve higher accuracy in fake review detection. The system also provides a visualization of the analysis results to help users better understand the patterns and trends of product reviews. The proposed system could be useful for e-commerce websites to maintain the credibility of their product reviews and protect their customers from being deceived by fake reviews.

II. LITERATURE REVIEW

M. Abi Priya, S. Hema, R. Dhivya Praba [1]

Before investing in a product, people often look for reviews on the internet to get different opinions. However, it can be difficult for users to distinguish between genuine and fake reviews. Some companies post good reviews themselves to create a false impression of their products, making it challenging for users to know whether a review is authentic or not. To address this issue, an application called "Fake Product Review Monitoring and Removal for Genuine Online Product Reviews Using IP Address Tracking" has been introduced. This system uses IP address tracking to identify fake reviews posted by users who provide false feedback about a product. Users can log in to the application using their credentials, view various products, and provide reviews. The system then checks the IP address of the user to determine whether the review is genuine or fake. If it identifies fake reviews from the same IP address, the system will discard them. This allows users to find authentic reviews of products and make informed decisions about their purchases. This system can benefit both consumers and companies by promoting fairness and accuracy in online product reviews..

Ata-Ur-Rehman , Nazir M. Danish , Sarfraz M. Tanzeel , Nasir Usama , Aslam Muhammad , Martinez-Enriquez A. M. , Adrees Muhammad [2]

The trend of online shopping is increasing, and more people are interested in purchasing products from online stores for the convenience it offers. However, customers often face the challenge of receiving low-quality products when shopping online. To make informed purchasing decisions, customers rely on the ratings and reviews of products provided by other customers. A single negative review can discourage potential buyers from purchasing a

product, but it may also be a fake review. To address this issue, we proposed an Intelligent Interface called the Fake Product Review Monitoring and Removal System (FaRMS). FaRMS analyzes reviews and provides customers with original ratings for products from e-commerce websites such as Amazon, Flipkart, and Daraz. The system is unique in that it can analyze reviews written in Urdu and Roman Urdu, in addition to English. Previous systems cannot analyze reviews in multiple languages `or handle reviews from multiple e-commerce websites. Using intelligent learning techniques, the proposed system achieved an 87% accuracy in detecting fake reviews written in English, which is higher than that of previous systems.

Rakibul Hassan,Md. Rabiul Islam [3]

Today, online reviews are a critical element of e-commerce and businesses. Consumers rely heavily on the reviews provided by other users to make informed decisions about purchasing products online. However, this has led to opportunistic individuals or groups manipulating reviews for their own gain, leading to fake reviews. To combat this issue, a new paper has introduced semi-supervised and supervised text mining models that can effectively detect fake online reviews.The proposed models have been tested on a dataset containing hotel reviews, and the results have been compared to assess their efficiency. This study is essential to help online platforms and businesses to maintain their reputation and provide genuine reviews to their customers. The proposed models can help detect and remove fake reviews, leading to more accurate and reliable information for the customers. As the number of online transactions and businesses continues to grow, detecting fake reviews has become crucial to maintaining the credibility of online platforms.

Viresh Gupta , Aayush Aggarwal , and Tanmoy Chakraborty [4]

Opinion spam in the form of reviews is often witnessed in online marketplaces. Groups of people are frequently hired to promote or impede specific brands by writing highly positive or negative reviews. Some previous studies attempted to analyze such opinion spam groups, but little has been explored to spot those targeting a brand as a whole, rather than just its products. This composition collected reviews from the Amazon product review point and labeled a set of 923 seeker critic groups manually. The groups were extracted by frequent itemset mining over brand similarities, clustering users together if they have mutually reviewed (products of) many brands. The authors hypothesized that the nature of the reviewer groups is dependent on eight features specific to a (group, brand) pair. They developed a point- grounded supervised model to classify seeker groups as revolutionist realities.. Multiple classifiers were run to determine whether a group shows signs of extremity based on the reviews written by its users. The best classifier turned out to be a three-layer perception-based one. The authors further studied the behaviors of such groups in detail to better understand the dynamics of brand-level opinion fraud. These behaviors included consistency in ratings, review sentiment, verified purchase, review dates, and helpful votes received on reviews. Surprisingly, they observed many verified reviewers showing extreme sentiment, which led to ways to circumvent the existing mechanisms in place to prevent unofficial incentives on Amazon.

Rutuja B. Ardak, 2 Prof. Girish S. Thakare [5]

For the past few decades, online shopping has become a trend that provides us all with a convenient option. Due to the growing demand and need for online shopping and online businesses, businessmen have to rely on Computer Science and technology to understand customer requirements. However, due to the expanding scope of consumers on the internet, it becomes challenging for interested personnel to gather necessary reviews for evaluating a product. In addition, fake reviews always exist, which create difficulties for both customers and product manufacturers in considering customer requirements.As e-commerce is growing popular day by day, the number of reviews received from customers about a product grows rapidly, which can reach up to thousands for a popular product. This creates difficulty for potential customers to read and decide whether to buy the product or not. This paper presents a method that uses data mining to work on genuine product reviews by genuine customers, informs manufacturers and other customers about the reviews being positive or negative, and blacklists fake accounts. The user has to first log in using their email account for verification, and then they will receive a summary of reviews based on the desired products and different features of the product. After reviewing the product, the comment will be automatically checked to determine whether it is positive or negative. Similarly, fake accounts will be blacklisted and denied further access. Finally, the reviews will be updated for further information to be viewed. Based on experimental analysis and surveys, this technique for review monitoring has proven to be effective and efficient.

Carloine El Fiorenza , Aditya Singh Kashyap , Kartikey Chauhan , Kishan Mokaria , Aashutosh Chandra [6]

In today's digital world, online reviews have become a crucial factor in the sale of a product. People tend to check reviews before purchasing any product to get an idea of its pros and cons. With the abundance of options available for the same product from different manufacturers and sellers, it is necessary to evaluate the reviews to make an informed decision. However, not all reviews are genuine, and fake reviews can impact on the reputation of both the product and the website. Hence, online marketplaces use a fake review detection system to spot any fraudulent activity.The fake review detection system helps in detecting any patterns in the reviews given by customers. With the growing number of products being sold online, it is not possible for websites to verify each product and sale manually. Therefore, an automated system is used to spot fake reviews. These reviews can be written by hired individuals, competitors, or even customers with a hidden agenda. The system is designed to identify any suspicious patterns in the reviews, such as similar language or reviews posted from the same IP address.The detection of fake reviews is crucial for maintaining the integrity of the product and the website. If customers find that the reviews are fake, they might lose trust in the website and the products being sold. Moreover, it is essential to keep the reputation of the website intact, as it is directly related to the sales of the products. Hence, the use of a fake review detection system is becoming increasingly necessary.In conclusion, online reviews play a significant role in the sales of a product, and detecting fake reviews has become a critical aspect for online marketplaces. The use of a fake review detection system helps in identifying fraudulent activities and maintaining the reputation of the website and the products being sold.

Amit Sawant,Shraddha Bhange,Shruti Desai,Akash Pandey [7]

The presence of users on an e-commerce website is vital for its growth and credibility. Users express their opinion and experience with a product through reviews. The credibility of a product is determined by the reviews it receives. However, in recent times, companies tend to provide positive reviews to their own products in order to boost their sales. On the other hand, some users tend to give fake negative reviews to degrade a product. Therefore, it is essential to develop a system that can detect such fake reviews, whether positive or negative. These reviews play a crucial role in the progress of an e-commerce website as they help to overcome any negative aspects and improve customer satisfaction. A trustworthy review system can enhance customer loyalty and boost sales for the company. The detection of fake reviews also protects the reputation of the e-commerce website and ensures that customers can make informed decisions about their purchases. Therefore, it is imperative for e-commerce websites to invest in reliable review detection systems.

III. CONCLUSION

The proposed opinion mining based fake product review monitoring system is a useful tool for e-commerce websites to maintain the credibility of their product reviews and protect their customers from being deceived by fake reviews. The system uses a hybrid approach that combines both lexicon-based and machine learning-based methods to achieve higher accuracy in fake review detection. The system also provides a visualization of the analysis results to help users better understand the patterns and trends of product reviews.The system's effectiveness in detecting fake reviews can be further improved by incorporating a feedback mechanism that allows users to report suspected fake reviews. The feedback mechanism can also help to continuously train the machine learning model to improve its accuracy in detecting fake reviews. Overall, the proposed system provides an efficient and effective way to monitor product reviews and ensure their authenticity, which is crucial for maintaining the trust and credibility of e-commerce websites.

IV. ACKNOWLEDGMENT

It gives us great pleasure in presenting the preliminary project report on ‘Opinion Mining Based Fake Product Review Monitoring System’. We'd like to take this occasion to thank our internal companion for giving me all the help and guidance we demanded. We're really thankful to them for their kind support. Their valuable suggestions were very helpful.We are also grateful to HOD, Head of Information Technology Engineering Department, Anantrao Pawar College of Engineering and Research, Pune for his indispensable support and suggestions.

REFERENCES

[1] Syed Mohammed Anas, Santoshi Kumari.” Opinion Mining based Fake Product review Monitoring and Removal System” Sixth International Conference on Inventive Computation Technologies [ICICT 2021].IEEE

[2] Ata-Ur-Rehman , Nazir M. Danish , Sarfraz M. Tanzeel , Nasir Usama ,” Intelligent Interface for Fake Product Review Monitoring and Removal ”International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE), [ICICT 2019].IEEE

[3] Rakibul Hassan, Md. Rabiul Islam. Detection of fake online reviews using semi-supervised and supervised learning. International Conference on Electrical, Computer and Communication Engineering [ECCE 2019], IEEE

[4] .Rakibul Hassan, Md. Rabiul Islam. Impact of Sentiment Analysis in Fake Online Review Detection. International Conference on Electrical, Computer and Communication Engineering [ECCE 2019], IEEE

[5] Rutuja.B.Ardak,Prof,Ganesh.A.Thakare. Supervised Machine Learning Approach to Detect Fake Online Reviews. International Conference on Inventive Computation Technologies [ICICT 2020].IEEE

[6] M.Abi Priya , S.Hema, R.Dhivya Praba.” Fake Product Review Monitoring and Removal for Genuine Online Product Review Using IP Address Tracking.International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (IJAREEIE) “

[7] Anusha Sinha, Nishant Arora, Shipra Singh, Mohita Cheema, Akthar Nazir. “Fake Product Review Monitoring Using Opinion Mining.International Journal of Pure and Applied Mathematics” IJPAM 2018

[8] Rutuja B. Ardak, Prof. Girish S. Thakare. “A Review On Fake Product Review Detection And Removal Techniques “International Journal of Creative Research Thoughts (IJCRT) 2021”

[9] Carloine El Fiorenza , Aditya Singh Kashyap , Kartikey Chauhan , Kishan Mokaria , Aashutosh Chandra.”Fake Product Review Monitoring and Removal for Genuine Online Reviews ”Journal of Network Communications and Emerging Technologies (JNCET) Volume 8, Issue 4, April (2018)

[10] Amit Sawant, Shruti Desai ,Shraddha Bhange,Akash Pandey “Fake Product Review Monitoring and Removal for Proper Rating” International Journal of Engineering Research & Technology (IJERT) Vol. 8 Issue 03, March-2019