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A Review on Automated Media Monitoring and Feedback System for the Government of India

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Abstract: In the digital age, media monitoring has become essential for governments to assess public sentiment, track news coverage, and respond to emerging issues effectively. This paper presents an Automated Media Monitoring and Feedback System designed specifically for the Government of India. The proposed system leverages artificial intelligence, natural language processing (NLP), and big data analytics to systematically analyze media sources, including news articles, social media platforms, and public discourse. The system aims to provide real- time insights, sentiment analysis, and actionable feedback to policymakers, enabling data- driven decision-making. It incorporates machine learning algorithms to identify trends, detect misinformation, and assess the impact of government policies. By streamlining media monitoring, the system enhances transparency, responsiveness, and strategic communication. The paper also discusses challenges such as data security, ethical considerations, and the need for unbiased analysis. This research contributes to the development of advanced governance tools that improve policy effectiveness and public trust.

Keywords: Natural Language Processing (NLP), Big Data Analytics ,Sentiment Analysis, Misinformation Detection, Public Sentiment Analysis

I. INTRODUCTION

In today's fast-paced digital era, the Government of India faces increasing challenges in tracking public opinion, managing its image, and responding effectively to news cycles across multiple media platforms. The rapid dissemination of information-whether accurate or misleading-can have a significant impact on public perception and policy response. Traditional manual monitoring methods are no longer sufficient to keep pace with the volume and speed of online news, television coverage, and social media activity. To address this challenge, the government requires an Automated Media Monitoring and Feedback System—a robust, intelligent framework capable of continuously tracking, analyzing, and interpreting media content in real-time. Such a system leverages modern technologies including Artificial Intelligence (AI), Natural Language Processing (NLP), Web Scraping, and Machine Learning (ML) to process vast amounts of data from various news sources and deliver actionable insights to policymakers and administrative units. This research aims to design and implement a scalable system that not only identifies relevant government-related content but also classifies it based on **departmental relevance** and **sentiment polarity** (favorable, unfavorable, or neutral). The system can then generate automatic alerts and feedback reports for concerned departments, enabling them to act promptly-whether it's responding to misinformation, improving service delivery, or refining communication Moreover, the proposed solution supports multilingual data processing to reflect India's linguistic diversity, ensuring that regional sentiments and news are also accurately captured. By bridging the gap between information inflow and actionable governance, this system can become an essential tool for evidence-based policy-making, proactive public communication, and crisis management

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II. LITERATURE SURVEY

The paper [1] titled "Twitter data sentiment analysis of tourism in Thailand during the COVID-19 pandemic using machine learning," published in the International Conference on Advanced Informatics: Concepts, Theory and Applications (ICAICTA) in 2022, presents a study on the impact of the COVID-19 pandemic on Thailand's tourism industry. Authors Hadi Permana and Ayu Purwarianti conducted sentiment analysis of English-language tweets to understand public sentiment towards tourism in Thailand during the pandemic. Their findings indicate that the support vector machine algorithm achieved a maximum accuracy of 77.4% for sentiment analysis, providing valuable insights into the perceptions and attitudes of Twitter users towards Thailand's tourism sector during a challenging period marked by the global health crisis.

The paper [2] titled "News Classification using Natural Language Processing," published in the International Conference on Intelligent Engineering and Management (ICIEM) in 2022, presents a study conducted by authors K. Yasaswi and M. Sreya. The study aims to build a robust machine learning (ML) and natural language processing (NLP) model designed to distinguish between genuine and fake news articles. By addressing the impact of misinformation on society and media integrity, the research contributes to the ongoing efforts to combat the spread of false information and promote trustworthiness in news dissemination. Through the development of advanced ML and NLP techniques, the study seeks to enhance the accuracy and efficiency of news classification systems, thereby enabling more effective detection and mitigation of fake news content.

The paper [3] titled "Using Distilled BERT Models for Fake News Detection," presented at the International Conference on Intelligent Technologies (CONIT) in 2023 by authors Vyom Garg, Yatharth Mago, and Aruna Bhat, investigates the application of distilled BERT models for detecting fake news. By leveraging advanced natural language processing (NLP) techniques, the research aims to enhance the efficiency and effectiveness of fake news detection, addressing the significant challenge of misinformation proliferation in the digital era. The study underscores the importance of ensuring information credibility in online news sources and demonstrates the potential of distilled BERT models in discerning fake news from genuine content. Through empirical analysis and evaluation, the research showcases the efficacy of these models in 6 I²IT, Department of Computer Engineering 2023-24 combating misinformation, thereby contributing to the preservation of media integrity and societal trust in online information sources.

The paper [4] titled "Target-level sentiment analysis for news articles," published in Knowledge Based Systems in 2022 by authors Neli Blagus and Marko Bajec, introduces a novel approach to target-level sentiment analysis in Slovene news articles. The study presents a new annotated dataset specifically designed for coreference-based sentiment prediction, enabling more accurate and granular analysis of sentiment at the target level within news content. By addressing the nuances of sentiment analysis in news articles, particularly in the Slovene language context, the research contributes to advancing the field of natural language processing (NLP) and sentiment analysis. The development of this annotated dataset provides researchers and practitioners with valuable resources for training and evaluating sentiment analysis models tailored to the complexities of news discourse, ultimately enhancing our understanding of sentiment dynamics in media content.

The paper [5] titled "Policy Text Classification Algorithm Based on BERT," presented at the 11th International Conference of Information and Communication Technology (ICTech) in 2022 by authors Bihui Yu and Chen Deng, introduces a novel text classification algorithm that harnesses the capabilities of BERT, a state-of-the-art natural language processing model. The algorithm is specifically designed for classifying policy texts, which are known for their complexity and diverse content. By leveraging BERT's advanced language understanding capabilities, the algorithm aims to improve the accuracy and efficiency of policy text classification tasks, thereby facilitating more effective analysis and interpretation of policy documents. This research contributes to the advancement of text classification techniques, particularly in the domain of policy analysis, and demonstrates the potential of BERT-based models in addressing real-world challenges in information processing and analysis.

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III. PROPOSED SYSTEM

The proposed system is an AI-based automated platform that continuously monitors, analyzes, and generates feedback from media content relevant to the Government of India. Its key components and workflow are outlined below: Automated Web Scraping

- Collects real-time news articles from multiple online sources including national and regional news websites.
- Supports multiple Indian languages for inclusive coverage.

Media Content Categorization

- Filters and organizes news data by department or ministry (e.g., Health, Education, Transport).
- Uses rule-based or machine learning classification models.

Sentiment Analysis

- Uses Natural Language Processing (NLP) techniques to classify news into **favorable**, **unfavorable**, or **neutral** sentiment categories.
- Helps identify potential public relations risks or success stories.

Fake News Detection (Optional Extension)

Detects and flags misinformation or disinformation using credibility scoring and fact-checking APIs.

Feedback Notification System

- Sends instant alerts and summaries via Email, SMS, or a mobile application to the concerned departments or PIB officials.
- Helps in proactive governance and quick response.

User Interface Dashboard

- Displays categorized media articles, sentiment trends, department-wise summaries, and historical data graphs.
- Enables authorized officials to explore data and generate reports.

Multilingual Support

- Processes and analyzes content in English, Hindi, Marathi, and other Indian languages.
- Leverages models like mBERT or IndicBERT for cross-lingual understanding.

Scalability and Cloud Deployment

- The system is designed to scale and can be deployed on cloud platforms (e.g., AWS, Azure).
- Ensures reliability, real-time processing, and 24/7 availability.



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V. SYSTEM REQUIREMENTS

Software Requirements:-

- NLP Models: The system should integrate BERT, SentiBERT, and Multilingual BERT for language understanding and sentiment analysis.
- Database: A database system for storing news articles, user data, and system logs.
- Notification Services: Integration with email, SMS, and in-app notification services for real-time alerts.
- **Jupyter Notebook** The Government News Tracking System should integrate with Python Jupyter notebooks for advanced data analysis, visualization, and model development. Jupyter notebooks will be used for custom data analysis, scripting, and machine learning tasks.

Hardware Requirements:-

- **CPU:** 8.0 GHz or equivalent (laptops), Core 8 (desktops)
- **RAM**: 8 GB HDD: Minimum,1 TB 7200 RPM
- Free Space: 6 GB or at least 10% free space (whichever is greater)

VI. SCOPE

- Enables real-time monitoring of national and regional news across multiple online platforms.
- Provides sentiment analysis (favorable, unfavorable, neutral) to assess public opinion on government activities.
- Supports multilingual content processing (e.g., Hindi, English, Marathi), ensuring regional language inclusion.
- Offers department-wise categorization of news articles for targeted feedback and alerts.
- Facilitates proactive governance through early identification of misinformation or negative publicity.
- Generates automated alerts and reports for officials via email, SMS, or mobile apps.
- Assists in evidence-based policy decisions by providing insights from media trends.
- Designed for scalability, allowing integration with social media and international news in future versions.
- Helps in crisis management by detecting emerging issues early through continuous media scanning.
- Provides a dashboard interface for easy access, visualization, and filtering of media feedback data.

VII. CONCLUSION

The proposed Automated Media Monitoring and Feedback System offers an innovative and efficient solution for tracking and analyzing media content relevant to government operations. By integrating advanced technologies such as web scraping, natural language processing, machine learning, and sentiment analysis, the system enables real-time evaluation of news coverage across multiple languages and regions.

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