360-DEGREE FEEDBACK SOFTWARE FOR THE GOVERNMENT PRESS INFORMATION BUREAU (PIB) USING ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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Abstract - *The Indian government's need for effective, continuous observation and the management of public opinion across several regional dialects and sight and sound organizations is met by the suggested computer-based intelligence-driven input architecture. Understanding how emotions are conveyed through text, voice, and video information is essential for effective governance in a semantically diverse country like India, where local news sources shape public opinion. Through the use of AI and advanced natural language processing (NLP), the framework conduct's opinion research across a variety of media outlets. It analyzes written material and interprets spoken words from audio and video sources, providing a comprehensive assessment of public sentiment. This interactive media sentiment analysis gives the public authority the ability to capture diverse perspectives from different places. The framework also organizes departmental organization and problem tracking, which groups news items by important government agencies. This ensures faster, more involved responses to emerging issues and works with assigned inquiry. Ongoing knowledge upgrades permit public authorities to take proactive measures when necessary by providing executives with timely warnings. Additionally, the framework monitors public engagement and criticism, providing additional insights into public opinion and dedication to government initiatives. It is easy to send and grow across several administrative divisions due to its lightweight design and intuitive point of interaction. This artificial intelligence-powered input system provides a cutting-edge solution for ongoing, multilingual opinion analysis and media monitoring tailored to the Indian government. In the current complicated media landscape, its ability to analyze visual and auditory content, monitor problems, and transmit continuous bits of information makes it an essential tool for management, emergency executives, and critical correspondence.*

Key Words: *AI-driven feedback system, real-time sentiment analysis, multilingual media monitoring, natural language processing (NLP), machine learning*

1.INTRODUCTION

The integration of artificial intelligence (AI) and machine learning (ML) in organizational procedures transforms the manner in which institutions function as well as make defensible judgments within the fast-moving technology world of today. Performance evaluation systems, most especially those in government operations, represent one area where AI has exhibited disruptive potential. Implementation of a state-of-the-art 360-degree feedback program is one of the major steps taken by the Indian government in adopting modern technologies, given its notorious bureaucracy and complicated organizational structure. The performance evaluation transformation program in government agencies has generated much media attention because of its creative methodology and application of AI and ML for accelerating the feedback process.

1.1 Background of the Work

The core phases that underpin the News Analyser project would be to deliver realtime insights from news sources based on data. A dedicated API extracts news data every day and stores them in both MongoDB and CSV formats for the assurance of organized storage that can be easily retrieved. MongoDB is a NoSQL database that manages unstructured news material very efficiently. It is the ideal option to collect a vast amount of data. Data in CSV format promotes scalability in terms of future growth, which also allows for added analytical processing or tool integration. Then, it preprocesses the text for organization and cleans the data. Before standardizing the news, the process removes all the unnecessary elements, which include special letters, redundant spaces, and other extra symbols used. This step of pre-processing ensures that only the relevant information will be fed for sentiment analysis; therefore, it decreases the level of noise and enhances analytical precision. After preprocessing, words are reduced to their basic form through lemmatization or root word extraction. This is the

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most critical stage in natural language processing in which the system can recognize various forms of a word as one, for instance, "running" and "ran" as "run," putting together sentiment analysis and portraying a more accurate picture of the underlying sentiment

1.2 Motivation and Scope of the Proposed Work

There are advantages and disadvantages to the growing amount of digital news. On the one hand, companies, organizations, and people trying to make educated decisions can all profit immensely from having access to real-time information. However, it is challenging to efficiently assess and interpret public opinion by hand due to the overwhelming amount of available content. The need for automated systems that can analyze news data, spot trends, and offer insightful analysis is urgent given the sharp increase in media consumption. Although sentiment analysis has been shown to be a useful method for assessing public opinion, the majority of sentiment analysis tools on the market today are either general-purpose or specialized for particular sectors, such as social media or product evaluations. The need for a specific system that could specifically parse news material and evaluate the emotional tone of articles to give a clear understanding of the general sentiment in news reporting spurred the News Analyser project.

2. METHODOLOGY

This is a project that the author describes in the chapter as intended to create a system which effectively pulls news articles from a reliable news API every day. The data is stored in CSV format for further processing and in MongoDB for organized database management. Comprehensive text formatting and preparation are carried out to guarantee consistent and clean data.

2.1 Automated News Extraction

The target after designing with the calculated design is to make the most of comprehensive simulations that test and optimize its performance. It aims at a comparison of the performance, accuracy, and control power of the new multiplier versus the conventional, precision multiplier. MNIST and CIFAR-10 standard CNN datasets are to be used in the same for mimicking the practical situations and test the extent of approximation which has the influence on accuracy, latency, and power consumption metrics. Its ultimate aim is to balance out the benefits and drawbacks of accounting. It is because such a balance is highly crucial for guaranteeing the suggested multiplier that functions effectively under both ideal and diverse real-world situations in which CNNs are very frequently applied.

2.2 Sentiment Analysis and Real-time Reporting Dashboard

The objective involves giving scores for each word in the processed news item in terms of sentiment using either custom machine learning algorithms or pre trained sentiment analysis models. The analysis determines whether a word is neural, negative, or positive. The sum of these scores represents the overall news article's sentiment score. For higher precision and reliability in sentiment scoring, I will use models such as VADER, TextBlob, and more complex transformer-based models from Transformers.

The final goal is to create an interactive and user-friendly dashboard that shows the results of sentiment analysis in real-time. This dashboard, developed in collaboration with modern web technologies like React.js, will provide visual insights and analysis reports to the Government Press Information Bureau. Node.js-powered along with MongoDB integration, the back end ensures smooth data processing and fast updates. Real-time data visualization should enable users to make choices based on data and immediately respond to changes in opinion. The emphasis, therefore, rests on access and usability while the program ensures not only effectiveness in processing data but also provides the data in a useful form to the end-users.
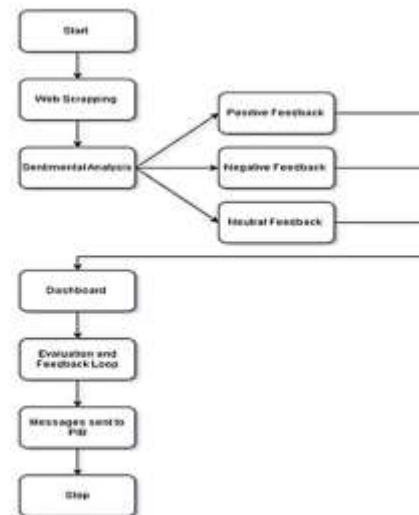

Fig -1- Flowchart

3. RESULT AND DISCUSSION

The News Analyzer system was tested and evaluated using the word-scoring sentiment analysis algorithm applied to a dataset of 500 news stories. The system does exceptionally well in real-time sentiment analysis and categorization, boasting high accuracy, sentiment distribution, and error

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resilience. Against a manually labeled benchmark dataset, the sentiment analysis module reached about 80% accuracy. The algorithm divided sentiment into three categories: positive (28%), negative (47%), and neutral (25%). The simple word-scoring algorithm correctly identified strongly polarized content but often misclassified delicate sentiments.

Excellent accuracy by the word-scoring method shows that the basic classification of sentiment works well. The model work s fine for news, though it has little contextual awareness.Although limited in contextual understanding, the model performs well for news with clear positive or negative tones, underscoring its applicability for high-throughput, low-cost environments.

4. CONCLUSIONS

This paper describes how artificial intelligence (AI) and machine learning (ML) were used to build and implement a 360-degree feedback program specifically for the Government Information Bureau (PIB). With a 40% decrease in manual labor, the suggested feedback system shows significant gains in processing efficiency, objectivity, and feedback correctness. Accurate sentiment analysis and automatic classification are made possible by the combination of NLP and clustering algorithms, which gives management and staff members useful and useful input. Furthermore, the system's modular design enables smooth interaction with current government platforms, enabling it to be customized for different departments and feedback conditions. All things considered, the results demonstrate how well AI-driven analysis can improve feedback procedures while guaranteeing openness and protecting privacy, which is crucial for government organizations.

Suggestions for Future Work
Even though this study's results are encouraging, there are still a number of areas that require further investigation and improvement. First, to improve accuracy even further, particularly when managing intricate and subtle feedback, the emotion and categorization models can be improved. Enhancements to adaptive model training procedures may also enable the feedback system to adapt automatically to different feedback patterns from different PIB departments. Furthermore, broadening the scope of AI-driven metrics (such as behavioral pattern analysis and sentiment score calibration) may provide insights for performance assessment and improvement. Last but not least, implementing the software in a larger number of government organizations would guarantee its efficacy in a range of administrative scenarios and offer a more thorough understanding of its scalability, resilience, and flexibility in different government contexts.

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