

Mini-Project – 2B Web based on ML (ITM 601)

PROPOSAL

LIGMA- Live Insights on General Mood & Attitudes

T. E. Information Technology

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AICTE Approved | NAAC A+ grade: 03 programs are NBA Accredited: ISO
9001:2015 Certified
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Mini Project Proposal

Project Title	LIGMA-Live Insights on General Mood & Attitudes
Project Members	Tanmay Bhatkar, Sahil Bangera, Mazin Bangi, Shannen Anthony
Situation/Problem/Opportunity/Need	Understanding public sentiment towards government policies is vital, especially as traditional surveys in India are increasingly seen as outdated and unreliable. A real-time sentiment analysis tool is needed which can leverage social media, forums, news, and other data sources and offer transparent, actionable insights, empowering policymakers to make more informed decisions.
Problem Statement	Develop a sentiment analysis tool using a fine-tuned BERT model to quantify public opinion on government policies, laws, and decisions by analyzing text from platforms like X (formerly Twitter) and news articles. An interactive dashboard will visualize sentiment trends, helping policymakers, researchers, and analysts make data-driven decisions in governance and policy formulation.
Objectives	Aggregate Sentiment: Compute overall sentiment from X and news. Aspect Categorization: Break down opinions by economy, governance, and social policies. Balanced Insights: Leverage diverse sources for comprehensive analysis. Visualization: Present trends via interactive word clouds. Nuanced Analysis: Use BERT for fine-grained, context-aware sentiment. Comparative Trends: Track sentiment changes across demographics and events. Custom Analytics: Offer user-specific filters for targeted exploration.
Method /Approach (Steps/Modules/Proposed Work/Architectural Dia.)	The system extracts text from X (Twitter) and news articles via APIs and web scraping, storing structured and unstructured data in NoSQL databases with timestamps and source tags. Preprocessing of data(tokens, embeddings) for model compatibility. BERT ensures context-aware analysis, and interactive dashboards present insights with trends, heatmaps, and filters.
Success Criteria (Advantages / Performance Metrics)	The success of the tool will be driven by its accuracy and precision in sentiment analysis, providing real-time insights with aspect-specific breakdowns. It will ensure interpretability through clear visualizations and explainability methods, enabling decision-makers to easily understand and act on the data.
Resources (People, Time, hardware / software resources, dataset, online survey with google form, cost, other)	The project involves four members and a project guide, utilizing Python and tools like Hugging Face (BERT) for sentiment analysis, Selenium for tweets data collection, BeautifulSoup for news scraping, MongoDB for storage, Pandas and NumPy for processing, NLTK and SpaCy for NLP, PyTorch for model training, and Matplotlib, Seaborn for visualization
Risk and Dependencies	Risks: Data Quality & Availability, Model Bias & Overfitting Dependencies: External Data Sources
Remark (can be continued as BE Project/Outhouse Project)	
References (IEEE Format)	[1] P. Verma and S. Jamwal, "Mining Public Opinion on Indian Government Policies using R," International Journal of Innovative Technology and Exploring Engineering (IJITEE), vol. 9, no. 3, pp. Jan. 2020. [Online]. Available: https://www.ijitee.org/wp-content/uploads/papers/v9i3/C8150019320.pdf . Accessed: Feb. 3, 2025. [2] D. Nath, S. K. Dwivedi, and A. P. Dwivedi, "Unveiling the Impact of Indian Government Policies using Aspect-Based Sentiment Analysis with Multi-Criteria Decision-Making and Hybrid Deep Learning," International Journal of Intelligent Systems and Applications in Engineering (IJISAE), Jun. 2024. [Online]. Available: https://www.ijisae.org/index.php/IJISAE/article/view/6395/5218 . Accessed: Feb. 3, 2025.