

Sentiment Analysis on Social Media using Machine Learning

Mr. Gavhad Abhijeet¹, Mr. Kamble Rushikesh², Prof. Patade J. M.³

Student, AI&DS Department¹⁻²

Professor, AI&DS Department³

Jaihind College of Engineering Kuran, Pune, India

Abstract: In today's digital world, social media has become a space where millions of people share their thoughts, emotions, and opinions every day. Understanding these sentiments can provide meaningful insights for businesses, organizations, and researchers. This project, titled "Sentiment Analysis of Social Media Using Machine Learning," aims to automatically detect and categorize the emotions expressed in user posts as positive, negative, or neutral. The system gathers data from popular social media platforms and processes it through several steps such as cleaning, tokenization, and removal of unnecessary words. Key text features are then extracted using techniques like TF-IDF and word embeddings, which help the model understand the context of each post. Machine learning algorithms like Naïve Bayes, Logistic Regression, and Support Vector Machine (SVM) are used to train and predict the sentiment of new data. The project evaluates its accuracy using performance measures such as precision, recall, and F1-score. The outcome helps in understanding public opinion trends, brand perception, and user behavior more effectively, showing how machine learning and NLP can make sense of large volumes of online data.

Keywords: Sentiment Analysis, Machine Learning, Natural Language Processing (NLP), Social Media, Text Classification, Opinion Mining, LSTM, BERT

