



IJIRCCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 10, Issue 4, April 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.165



9940 572 462



6381 907 438



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Text Emotion Detection with ML

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ABSTRACT: Emotions play a vital role in human interaction. We recognize emotion of a person from their speech, face gesture, body language and sign actions. Since humans use many text devices to make interactions these days, emotion extraction from the text has drawn a lot of importance. It is therefore crucial that emotions in textual conversation need to be well understood by the machines, which ultimately provide users with emotional awareness feedback. The experimental results proved that Machine learning based text emotion classification provides relatively higher accuracy compared to the existing learning methods.

I. INTRODUCTION

Social media has become an integral part of the people in 21st century. Due to rapid progress in Information & Technology sector, people have access to any kind of information at the click of a button. Moreover, with the invent of smart-phones and 4G networks, even people from the remote areas are getting connected to Tier 1 and Tier 2 cities. With the growing population in countries like India, it has led to tremendous growth in the number of people using social networks. Social networks like Facebook, WhatsApp, Twitter, etc. has eliminated the gap between lives of people. One of the reasons to use these social networks to know the current happenings around them and to express their views and suggestions in the form of likes, share, tweets, polls, email, etc. This has created a new category of people called netizens. Communication via social media is done in the form of text, image, audio and video which contains information and consumes space, memory and Internet bandwidth. All these activities done on social media has resulted into vast amount of information being generated on a daily basis. Social media analysis has become a interesting field of research to understand the behavior and thoughts of people in response to social, economic, cultural, educational and all others activities happening around the world. Social media data is in the form of unstructured data since people are from diverse backgrounds with different race, culture, language and standard of living project their ideas, views, opinions, expressions and so on the Internet. So, it has become a challenge in recent years to extract valuable information from these ever-growing data in the form of posts, emails, blogs, micro-blogs, tweets, reviews, comments, polls and surveys on the Web about an individual, an organization or government in the process of decision-making. These opinionated data not only exist on the Web but also within the large organizations like Google, Microsoft, Hewlett-Packard, SAP and SAS to know the opinions of their employees spread across the continents in the form of customer feedback collected from emails and call centers or results from surveys conducted by organizations. This has created strong interest for research in sentiment analysis.

II. LITERATURE SURVEY

[1] Title : **Text Emotion Recognition application**

Author Pedro Faustini; Thiago Covões Mounika Karna; D. Sujitha Juliet; R. Catherine Joy

• Abstract : Understanding emotion from documents automatically is an interesting research topic in the machine learning field. Nowadays, many applications like email, blog, etc have the ability to suggest joyful or angry expressions from written documents. In spite of being a popular language, Bangla lacks a rich corpus with annotated emotion labels, so recognizing emotion from documents is still not developed as other languages. In this work, we have proposed a new dataset containing Bangla documents with annotation of three emotions- Happy, Sad and Angry. Two

major feature extraction techniques - Bag of Words(BoW) and Word Embedding is used to extract features from the documents.

[2] Title :**Emotion Detection of Contextual Text using Deep learning**

Author :Umar Rashid; Muhammad Waseem Iqbal; Muhammad Akmal Skiandar; Muhammad QasimRaiz; Muhammad Raza Naqvi; Syed

Abstract :In recent years, the data in the form of text is created in very huge amount in day to day conversation on social media. We need a naive approach to analyzed and summarized data to extract meaningful information. Textual dialogue is given in contextual emotion detection. We have to recognize user emotions either it is happy, sad, angry or others. This paper describes Aimens system which detect emotions from textual dialogues. This system used the Long short term memory (LSTM) model based on deep learning to detect the emotions like happy, sad and angry in contextual conversation

II. RELATED WORKS

A. Existing System

The previous further discusses some recent state-of-the-art proposals in the field. discussed in relation to their major contributions, approaches employed, datasets used, results obtained, strengths, and their weaknesses. Also, emotion-labeled data sources are presented to provide neophytes with eligible text datasets for ED. Finally, the previous project presents some open issues and future research direction for text-based Emotion detection

In Previous, the existing system is based on logistic regression

- *K-NN, Adaboostclassifier and many more to verify. Further, machine learning algorithms*
- *K-NN classifier resulted the best performance with an average accuracy of 64.08%*
- *Adaboost classifier resulted the best performance with an average accuracy of 67.08%.*

III. PROPOSED SYSTEM

This Project investigates the effectiveness Support Vector Classifier, LinearSVC, Random Forest Classifier, of mechanism for identification of textual emotions. The study was carried out on 'Emotion classification' dataset with six emotional groups. In machine learning, the detection of textual emotions is the problem of content-based classification, which is the task of natural language processing. Detecting a person's emotions is a difficult task, but detecting the emotions using text written by a person is even more difficult as a human can express his emotions in any form. we propose for emotion classification in English sentences where emotions are treated as generalized concepts extracted from the sentences.

Data collection and preprocessing

Our approach makes use of two annotated datasets where each sentence is annotated with one of the six emotions emotion labels. We decided to choose this dataset as blog posts offer variety in writing styles, choice and arrangement of words and topics. Pre-processing refers to the transformations applied to our data before providing the data to the algorithm. Data Preprocessing technique is used to convert the raw data into an understandable data set. In other words, whenever the information is gathered from various sources it is collected in raw format that isn't possible for the analysis. Text preprocessing is **a method to clean the text data and make it ready to feed data to the model**. Text data contains noise in various forms like emotions, punctuation, text in a different case.

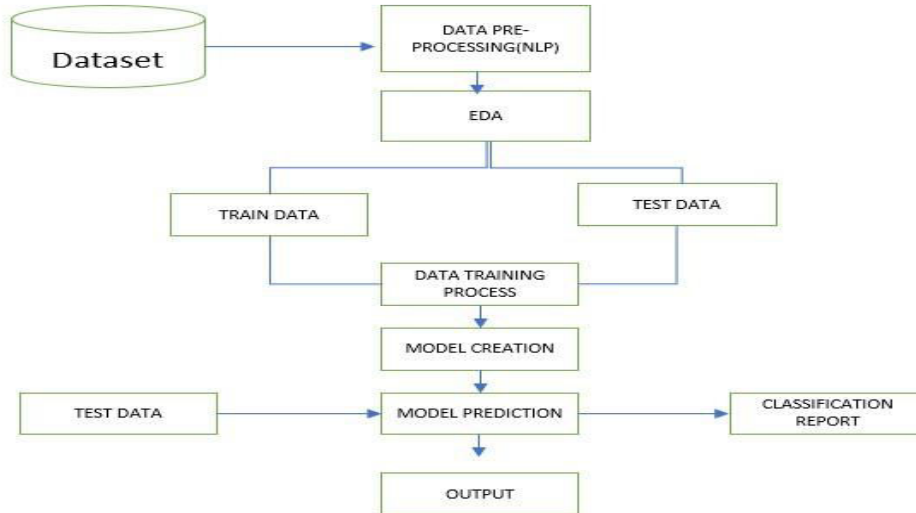


Fig 1:Flow Diagram

PREDICTION MODEL

Predictive modeling is a statistical technique using machine learning and data mining to predict and forecast likely future outcomes with the aid of historical and existing data. It works by analyzing current and historical data and projecting what it learns on a model generated to forecast likely outcomes.

Machine learning is a way of identifying patterns in data and using them to automatically make predictions or decisions. The main methods of machine learning you will focus on are classification. Here we predict Text emotion case etc.. by algorithm performance.

IV. CONCLUSION

Throughout this study we discussed our work on the to identify emotions based on text., SVC, Nested Linear SVC methods can be used to identify emotions in multiclass based on the results of the discussion and evaluation conducted in the previous section. Random Forest Classifier has the best accuracy among accuracy methods. Decision Tree Classifier has the best average performance in terms of efficiency, sensitivity and f1score at 84.7%, 74.2%, and 94.1% respectively. In this work, we introduced a new approach for classifying emotions from textual data based on a fine grained level. Our contribution lies in performing complex syntactic and semantic analysis of the sentence and using various ontologies such as Wordnet and Concept Net in the process of emotion recognition

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Impact Factor: 8.165

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