**INTRODUCTION**

Automatic emotion recognition, pattern recognition and computer vision have become significantly important in Artificial Intelligence lately with applications is a wide range of areas. Recently, social media platforms such as Twitter have generated enormous amounts of structured, unstructured and semi-structured data. One of the most recent example is COVID-19 infodemic that shows misinformation in social media can be far more important and devastating than a disaster such as a pendemic.

There is a need to analyze to accurately assign sentiment classes on a large scale. To perform such tasks, accurate NLP techniques and machine learning (ML) models for text classification are required. Twitter provides an opportunity to its users to analyze its data on a large and broader point of view. Efficient methods are important to automatically label text data due to its noisy nature. In the past many studies have been performed on Twitter sentiment classification [1]. As Twitter is very fast and an efficient micro-blogging examination that facilitates the end users to transmit small posts are said to be tweets. Twitter is a highly demanding app in the world and is a successful platform in social media.

Free account can be created by using Twitter that can provide an enormous audience potential. With the purpose of business and marketing, Twitter can be proved as the best platform, through which one can get in touch with very rich and famous personalities like stars and celebrities, so their purchasing can be very charming for them as well as for advertisers. Using Twitter, every celebrity is linked with fans as well as to grant a communication to followers. Such a platform is one of the superlative approaches for lovers as well. But, it has a short note range; only 140 letters for each post and it can type a post or link on the website since it has no cost and also open as the advertisements as well. There is no problem with clusters of personal ads which are similar to other social networking sites. It is quick because as a tweet is posted on Twitter, the public who is subsequent to respective business will get it without delay.

Companies and advertisers can compose utilization of this source to check the diverse operational point of views which are very considerable. With help of this, they will obtain an immediate response from their followers. Remarkably, a lot of businesses with the intention of purchase, Twitter followers increase their deals. Twitter facilitates the followers by making them identify regarding fresh business, products, services, websites, blogs, eBooks etc. Consequently, Twitter clients might tick lying on link and also optimistically endow in a manufactured goods or examine the products presented and to get share in pro\_t. It is extremely effortless to utilize as people can follow to get the news and updates, as organizations can tweet or re-tweet, they can mark favorite or selected people to send the tweets, also know how to propel the posts plus to b able to endow their money and instance through it. Academy, Industry, super bowls and Grammy Awards of such major Sports and Entertainment events generate a lot of buzz in the global world by using it.

Competition is rising among different products on Twitter. People love to express their feelings about a particular product on social networks like twitter. Product owners are ready to spend more money on social media platforms to better advertise their products and to generate more revenue. When a person shares experience about a product, it helps the owner to change their market strategy, selling schemes, and improving the quality. Customer reviews serve as a feedback to the owners or manufacturers too .The data generated in such a way is of large amount and requires an analysis expert team to classify the customer sentiment from the reviews. Experts can make a human error in sentiment analysis, therefore it requires machine learning and ensemble learning classifiers to accurately classify the sentiment of the customers.

This study compare various machine learning models for emotion recognition by tweet classification using Tf and TF-IDF. This research presents a voting classifier (LR-SGD) and aims to estimate the performance of famous ML classifiers on twitter datasets. The key contributions are as follows: \_

. Machine learning-based classifiers including support vector machine (SVM), Decision Tree Classifier (DTC), Naive Bayes (NB), Random Forest (RF), Gradient Boosting Machine (GBM) and Logistic Regression (LR) trained on Twitter dataset are compared for emotion recognition. \_

. A voting classifier (VC) designed to classify tweets which combines LR and SGD and outperformed using TF-IDF. \_

. The proposed model stability is further validated by applying it on two different datasets, one binary dataset (containing hatred or non hatred classes) and other multi-class dataset (containing product reviews having 1 to 5 ratings).

The rest of the paper is organized as follows. Section II discusses literature related to the current research work. Section III presents the proposed methodology as well as a detailed description of th tweet dataset used in the experiment. Results are presented in Section IV and the stability of proposed model is given in Section V. Section VI finally conclude the research work and also suggest future work.