CHAPTER 3
OVERVIEW OF THE PREDICTION ALGORITHMS FOR EFFECTIVE STOCK MARKET PREDICTION

Now a days, growth of internet has become tremendous and dynamic in nature. This is a platform for common people to express their emotions, opinions, attitudes and feelings through online social media factors. From the factors, subjective information is extracted and sentiment analysis of the contents are analysed. Opinion analysis of text contents plays an important role to predict the polarity values like positive, negative and neutral. In general, sentiment analysis is performed for social media contents like RSS feeds, Tweets and news bias.

Stock market prediction is a challenging problem and unstable in nature. In order to take decisions about the fall and rise of the stock prices, past and current information are considered. Sentiment analysis influences certain fields like political, social, stock market and psychological factors. Prediction of stock market value is greatly affected by sentiment analysis. Sentiment analysis provides efficient, simple and effective solution for making decisions about of the stock market prices and gives guidance to stock holders as such or when to buy or sell their stock market values. Literature reveals that stock market analysis is performed based on sentiment analysis. Also literature survey does the sentiment analysis of RSS news feeds, tweets and news bias. Figure 3.1 shows an overview of prediction algorithms for effective stock market prediction.

3.1 CONTRIBUTION OF THE THESIS

In today's scenario, prediction of sentiment analysis plays a vital role in stock market forecasting. Opinions, emotions, and feelings of the social media web users influence the prediction of stock market prices. They greatly affect the entire company stock values because both stock prices and sentiments are dynamic in nature.
An overview of prediction algorithms for effective stock market prediction is shown in Figure 3.1.
The sentiments of common people are collected from various social media factors like RSS feeds, tweets and news bias through online websites. By considering the sentiment analysis of these factors, an effective system is proposed to identify the rise and fall of the stock market values. The prediction algorithms give guidance to stock market investors by correlating the sentiments of common people with hybrid mathematical model which consists of stock level indicators to predict the behavior of stock market as to when to buy or sell their stocks.

The overall focus of the work is to enhance the accuracy of prediction of stock values along with sentiment analysis. For a particular period of time, news events are collected which are incorporated with the sentiments and moods of common people. This will give more improvement in the prediction process of stock market values. The algorithm mainly focuses on the correlation between sentiment analysis of social media contents and stock market values for a particular period of time.

The contribution of this thesis involves developing prediction algorithms for effective stock market prediction. This thesis considers news articles and social media factors which affect the stock market application very much.

a) Sentence level Sentiment Score (SSS) algorithm focuses on prediction of stock market values with Really Simple Syndication (RSS) news feeds and mathematical model. The mathematical model involves Moving Average (MA) stock level indicator for the prediction of stock prices using sensex data.

b) Social Media contents Sentiment (SMCS) Algorithm is introduced to forecast the stock market values by incorporating the sentiments of social media contents of RSS feeds and tweets along with various stock level indicators like Moving average, Moving Average Convergence or Divergence, Stochastic RSI for a particular period of time. Twitter is
known as real-time micro blogging platform. The experimental study has shown significant improvement of 19.74 % in prediction accuracy.

c) To improve the prediction accuracy more and minimize the inaccurate forecast of stock prices, an algorithm called sentence polarity calculation is introduced. In this algorithm, sentiment analysis of social media factors like RSS feeds, tweets and news bias is carried out along with mathematical model of stock level indicators like Moving average, Moving Average Convergence or Divergence, Stochastic RSI for certain period of time. News bias is one of the social media factors which has the ability to reflect the opinion of people about particular topic. In general, news websites are expected to provide fair, unbiased, reasonable and impartial news. To perform better prediction of stock market values, a model has been designed and implemented. The model designed has shown step by step improvement in each algorithm.