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PREFACE

This thesis was submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Computer Science and Engineering awarded by GITAM University. The work presented in this thesis is the culmination of 4 years of work under the supervision of Dr. Thammi Reddy, Professor, Department of Computer Science and Engineering, GITAM Institute of Technology, GITAM University.

ABSTRACT
Stock market is often viewed as a way to grow the wealth for the individuals or a company. Investors need a greater insight to know the company in which they can invest in, by analysing the company performance. With the advancement of information technology and analytical software, there is a scope for prediction of future stock values. Stock market prediction model is the most challenging field of the computer science.

The thesis aims at investigating various methods which allow the investors to take informed decisions regarding the company they want to invest in. The main ingredient in decision making is the sentiment analysis, which automatically extracts the opinions or sentiments expressed in the news articles concerned with the company that is being investigated. In order to find the impact of the sentiments, the thesis first aims at achieving the correlation between the actual stock values and predicted stock values with sentiments. A neural network has been used for prediction of future stock value.

Due to the fact that technical analysis of a stock also plays an important role, a system that combines the technical analysis and sentiment analysis is proposed and built. The system takes moving average as a technical indicator, and NBC for sentiment analysis.

The variations in stock prices over a timeline, based on the sequence of events are analysed and predicted. A price modelling system is built that would analyze and predict the variations in stock prices over a timeline, based on the sequence of events. The system that uses the proposed methodology was successfully used in real world applications by giving an insight into informed decisions in investment of the stocks.

*Keywords: Sentiment Analysis, Technical Analysis, Fundamental Analysis, Features, Event, EMH, Moving Average Indicator, Naïve Bayes Classifier, Artificial Neural Network, Back propagation, Stock market.*