iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** IV **Month of publication:** April 2022

DOI: https://doi.org/10.22214/ijraset.2022.42025

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue IV Apr 2022- Available at www.ijraset.com

Stock Price Prediction Using Transfer Learning Techniques

Sohan Shetty[1], Santosh Kurade[2], Dolly Yadav[3], Poonam Thakre[4]
[1, 2, 3]*Under Graduate Student, Dept. of Computer Engineering, Universal College of Engineering, Maharashtra, India*
[4]*Assistant Professor, Dept. of Computer Engineering, Universal College of Engineering, Maharashtra, India*

Abstract: ***The project is designed to predict the Price of a Stock listed in Indian National Stock Exchange (NSE). Application will run on Microsoft Windows. The current systems are extremely technical and hard to understand and used by an average Stock market trader who is not skilled in technical aspects of computer. Such systems are ignored by such users, who are also majority of the populous. Number of such people are also increasing and investing is done on an individual level by them. The system in this project aims to be usable by everyone without having to do extra computer related tedious work. It will be developed by designing an interactive and intuitive Smart User Interface. Which will display important data related to a stock desired by user. System will mine the required data and feed it automatically to the system so that it can predict price by using Machine Learning Techniques like deep learning and transfer learning.***
Keywords: Stock, Prediction, UI, ML, Application

I. INTRODUCTION

Indian National Stock Exchange (NSE) has listed 1600 companies under it out of which there are around 1328 companies active. According to NSE there are around 1.6 crores or 16 million Stock Traders who have traded at least once in last 12 months. Such large demo graph needs a dependable method and stock price to trade and gain profits to avoid losing money. So to make it happen we are developing a system which will predict the prices of the stock and will be easy to use and understand.

II. LITERATURE SURVEY

Jiuzhen Liang, Wei Song, Mei Wang in 2011 claimed that stock markets are too complex to predict correctly and have not been consistent in theory thus far. This paper is about stock market predictions based on a type of neural network known as a procedural neural network. This model can well handle various time-space series problems, especially for large scale of data. Stock price prediction is built by training PNN to validate the efficiency of the enhanced PNN model. During PNN training, a collection of time series data is treated as a single sample.

The structure of PNN can be adapted to time series difficulties using this method. Sometimes, the desired outputs of the real-life system depend not only on the last former state of the system, but also on a series of former states. As a result, it is required to identify the underlying relevance of data and divide it into samples in an acceptable manner. Because of the vast amount of data involved in processing time series issues, computational complexity cannot be overlooked in this paper. Furthermore, PNN reduces the time required to aggregate information from distinct time segments. Unfortunately, the generalization ability of PNN for new coming data is still a challenging issue [1].

Shangukun Deng, Takashi Mitsubuchi, Akito Sakurai in 2014 proposed that predicting stock price change rates for providing valuable information to investors is a challenging task. Individual participants may voice their views on social networking service (SNS) before or after their market transactions. They hypothesize that stock price change rate is better predicted by a function of just stock market activities. They hypothesis is tested by accuracy of predictions as well as performance of simulated trading because success or failure of prediction is better measured by profits and losses the investors gain or suffer. We propose a hybrid model in this paper that combines multiple kernel learning (MKL) and a genetic algorithm (GA). MKL is used to optimize stock price change rate prediction models that are expressed as a multiple kernel linear function of various types of features extracted from various source materials. GA optimizes the trading rules used in simulated trading by merging the return projections and values of three well-known overbought and oversold technical indicators. The accumulated return and Sharpe ratio were used to evaluate the simulated trading's effectiveness. Experimental results show that their proposed model performed better than other models [2].

©IJRASET: All Rights are Reserved

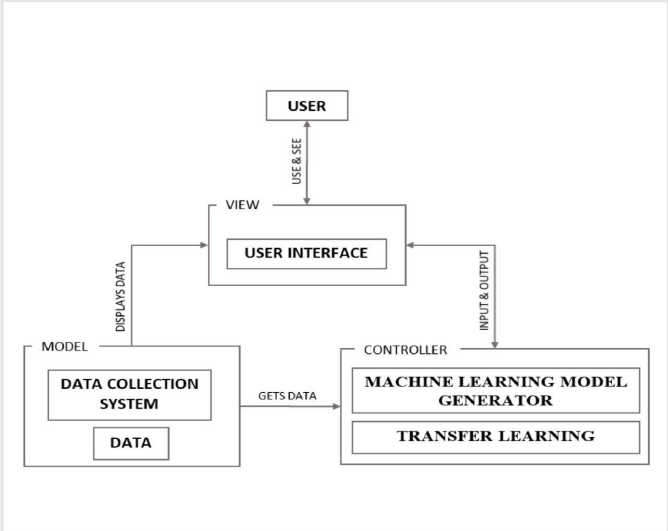
Vivek Rajput and Sarika Bobde proposed in 2016 to investigate several strategies for predicting stock price movement using social media sentiment analysis and data mining. In this study, we look at an effective strategy for predicting stock movement with more accuracy. Social media provides a tremendous outlet for people's thoughts and feelings; it is a massive, ever-growing supply of texts ranging from simple observations to in-depth debates. The goal of sentiment analysis is to extract emotions and opinions from text, and this research contributes to that discipline. The primary purpose is to categorize text as expressing positive or negative emotion. Sentiment classifiers for social media material, such as product reviews, blog entries, and even Twitter tweets, have been developed. With the rising complexity of text sources and themes, it is necessary to reconsider current sentiment extraction methodologies and maybe re-define and enrich the notion of sentiment. Following that, unlike previous sentiment analysis research, they investigate sentiment expression and polarity classification within and across distinct social media streams by constructing relevant datasets within each stream. They believe that stock forecasting is a very difficult undertaking that should take into account a variety of criteria in order to forecast the market more accurately and effectively [3].

Mehar Vijh, Deeksha Chandola, Vinay Tikkiwal, and Arun Kumar published a paper in 2019 stating that accurate prediction of stock market returns is a difficult task due to the volatile and non-linear nature of financial stock markets. With the advent of artificial intelligence and increased computational power, programmed methods of prediction have proven to be more accurate in predicting stock prices. In this paper, the Artificial Neural Network and Random Forest techniques were used to forecast the next day's closing price for five companies from various industries. The financial data, which includes stock prices at open, high, low, and close, is used to construct new variables, which are then used as inputs to the model. Standard strategic indicators such as RMSE and MAPE are used to evaluate the models. The low values of these two indicators show that the models are efficient in predicting stock closing price [4].

In 2020, Bo Liu, Qilin Wu, and Qian Cao proposed that the goal of this paper was to investigate different techniques for predicting stock price movement using sentiment analysis from social media and data mining. In this paper, we look at an efficient method for predicting stock movement. Social media provides a tremendous outlet for people's thoughts and feelings; it's a massive, ever-growing repository of texts spanning from ordinary observations to in-depth debates. Sentiment analysis is a discipline that aims to extract emotions and opinions from text, and this study contributes to that field. One of the most fundamental objectives is to classify text as expressing positive or negative emotion. Sentiment classifiers have been created for social media content such as product reviews, blog posts, and even tweets. With the rising complexity of text sources and themes, it's necessary to reconsider typical sentiment extraction methods, and perhaps redefine as well as enrich the sentiment definition. Next, unlike sentiment analysis research to date, they investigate sentiment expression and polarity classification within and across different social media streams by constructing topical datasets within each one. They conclude that stock forecasting is a very complex task, and that various factors should be taken into account in order to forecast the market more accurately and efficiently [5].

III. PROPOSED SYSTEM

This includes a brief description of the proposed system and explores the different modules involved along with the various models through which this system is understood and represented.



The modules are:

A. User Input

User will be able to give the input like typing the symbol of a stock and interact with the UI by clicking on it.

B. Automated Data Collection System

User doesn't have to worry about collecting the data related to that particular stock. It will be done by the system itself by using techniques of data mining and feed it to the system to analyse.

C. Machine Learning Model Generator

This model generator will use the data fed by previous system and analyse it and develop a model which can be used for prediction.

D. Machine Learning Model

This model which was generated by the generator will predict the price of the stock and display it in the UI for the User.

IV. METHODOLOGY

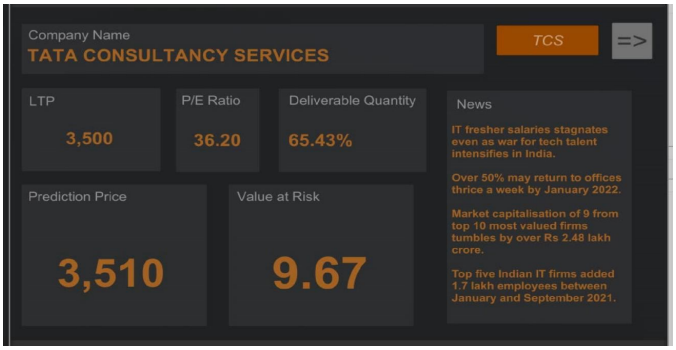
We will be using MVC (Model-View-Controller) methodology which will separated the areas of UI, Processing and Data Collection and Storage. Model will consist of Data Collection and Storage which will be connected to the controller. View will consist of the User Interface which will also be connected to the controller. Controller will consist of all the processing and coordination between Model and View. This methodology will help in carrying out robust development, expansion and bug solving in easier way.

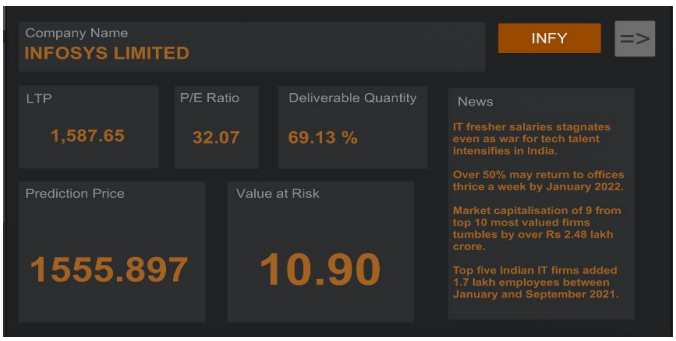
V. RESULTS

This includes the snapshots of the actual outputs that were seen by the user and this chapter also contains the results of the proposed system.

A. Proposed System Result

The proposed system that is implemented will help the new traders in stock market get grip and understanding of how stock market works and reduce the difficulties in taking right decision to get sound profits.





VI. CONCLUSION

In India, there are 1.6 Crore Stock Traders who trade stocks at least once in 12 months according to the Indian National Stock Exchange. These traders don't have an easy way to find the information and access it all in one system. While also there being 1600 companies listed in Indian National Stock Exchange trying to predict price of every stock is a tedious time consuming process which doesn't guarantee its accuracy. To solve this problem we have our proposed system, which will provide ease of use to the user so that anyone can use it without having to think about it and it provides the predicted price of a stock desired by the user. Data related to that stock will also be displayed such as previous opening and closing prices, historical data, latest notices published by the company, news related to the company, different values of the strategic indicators, Highest & Lowest prices, etc. Which will save time and energy of the user by having this information all in one system.

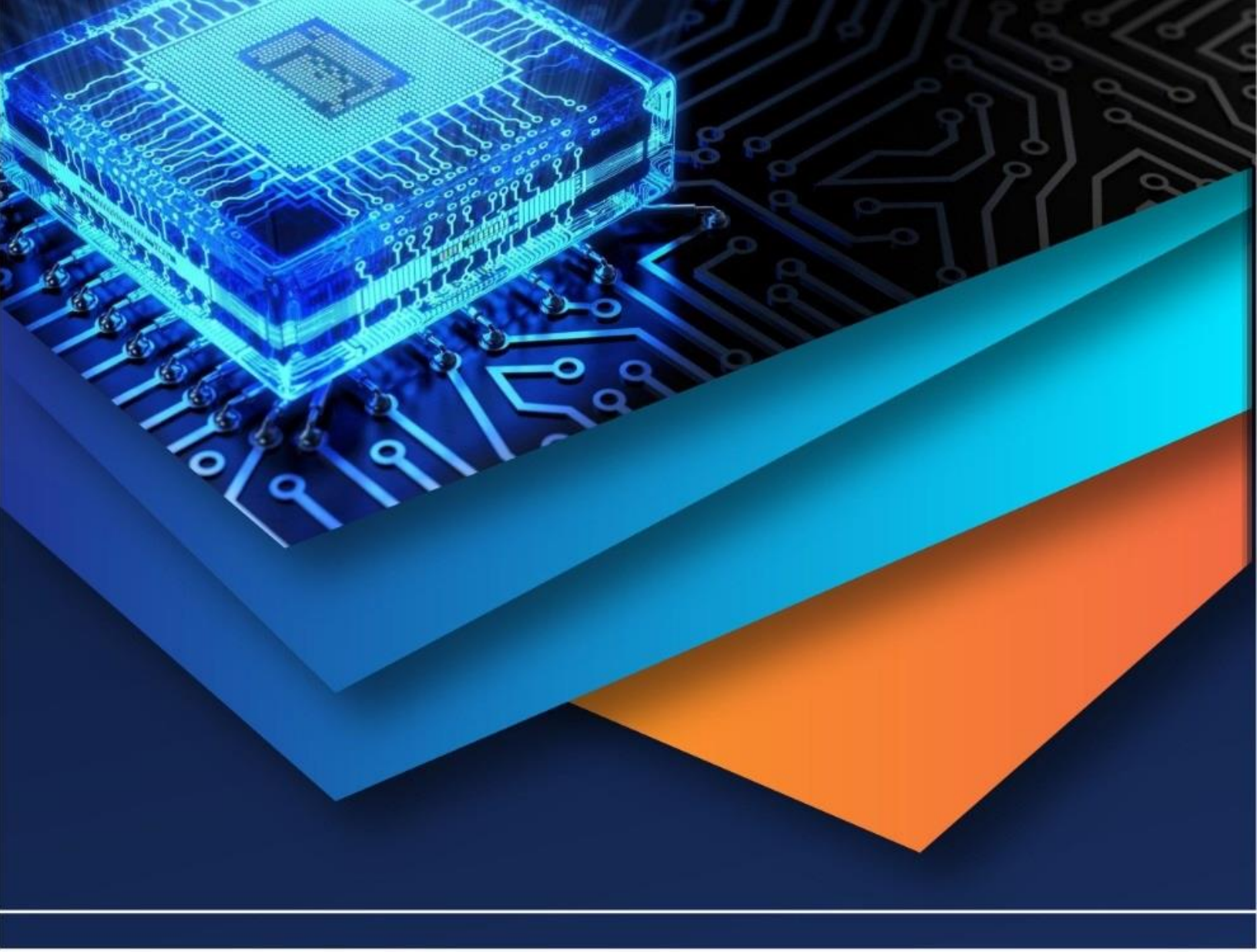
VII. AKNOWLEDGEMENT

We take this opportunity to express our deep sense of gratitude to our project guide Mrs. Poonam Thakre for her continuous guidance and encouragement throughout the duration of our Research work. It is because of her experience and wonderful knowledge; we can fulfil the requirement of completing the Research Project within the stipulated time.

REFERENCES

[1] Jiuzhen Liang, Wei Song, Mei Wang, "Stock Price Prediction Based on Procedural Neural Networks", 2011, Jiangnan University, Wuxi, China.
[2] Shangkun Deng, Takashi Mitsubuchi, Akito Sakurai, "Stock Price Change Rate Prediction by Utilizing Social Network Activities", 2014, Keio University, Hiyoshi, Yokohama, Japan.
[3] Vivek Rajput, Sarika Bobde, "Stock Market Forecasting Techniques", 2016, Maharashtra Institute of Technology, Pune.
[4] Mehar Vijh, Deeksha Chandola, Vinay Tikkiwal, Arun Kumar, "Stock Closing Price Prediction using Machine Learning Techniques", 2019, Procedia Computer Science.
[5] Bo Liu, Qilin Wu, Qian Cao, "An Improved Elman Network for Stock Price Prediction Service", 2020, Chaohu University, China.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)