Stock Market Prediction Based Upon Historical Data.

Rokade Prakash P.[1], Varpe Pooja Laxman[2], More Kalyani Balasaheb[3], Jamdar Yugandhara Subhash[4], Jadhav Sharayu Dilip[5]

Abstract-- In this paper,we apply data mining technology in Indian stock market in order to research the trend of price. Its aim isto predict the future trend in stock market and the fluctuation of price. Stock is a share in the ownership of a company. As investors acquire stock, it means the investor has ownership. Basically in stock market the investors invest money for gaining the Profit. The purpose of a stock market is to facilitate the exchange of securities between buyers and sellers. Stock prices change everyday as a result of market forces. People tend to invest in stock ofcompany due to its high rate of return. Stock prices are continuously changing and most investors fail to understand the market trends. The stock market predictions means basically guess thefuture value of shares of an organization. The environmental situations also affected on shares value. The ups and down value of a shares depends upon many factors. In order to get the profit,many investors need to know how to analyze the important data from the stock market. The prediction helps them to guess what will be probable value of shares.

Keywords: Genetic algorithm, Prediction, Stock Market.

I. INTRODUCTION

1.1 Overview

Recently forecasting stock market return is gaining moreAttention because of their share value prediction. Basically, theStock market prediction is one of the tedious job since value ofshare affected by many factors in stock market. When we predict value of share of particular company there are manyfactor that should be considerable that may be Environmental factor,Political factor or Market status. By considering these factorsthe value of shares is continuously change. The Stock Market Prediction helps to investors to predict the future value of shares. The stock market is characterized by high risk ,high yield. Investorsare concerned about the analysis, about the stock market andtrying to forecast the trend of the stock market. The prediction Helps people to guess what will be probable value of shares infuture.

1.2 Objective

1. For general people to predict their future share value:

This system will be beneficial for general people to predictfuture value of share and also to take decision in InvestmentDecision System that either to purchase share or not.

2. Simulating trading strategies:

The system should offer ways to specify and simulatefundamental and technical trading strategies. Additionally,combining these two approaches must be possible.

3. Evaluate and visualize trading strategies:

The system should evaluate and visualize the financial performance of the simulated strategies. This allows a comparison to be made between technical, fundamental and the Combined approaches.

II. LITERATURE SURVEY

ChingTe Wang determine Data analysis have been growing importance on the stock market in the recent years. In order to get the profit of the investing, many investors need to knowhow to study the vital data from the share market. Ina hugemeasure of general literature on stock, predict a specificguidance appear on the future prediction. Therefore, how to predict the stocks from the retrieval data, it becomes ansignificantproblem on market predict. Genetic Algorithmand Support Vector Machine, which can provide a framework fordata analysis and forecast the stock market.Also, we willstudy the efficiency of our method and show the better performance for the efficiency and accuracy[1].

Artificial Neural Network is a successful soft-computing technique to predict the trends of the stock market index. Input parameters related to the BSE Sensex are fed as input dataset tothe Multi Layer Perceptron neural network. The best neural network model is further is subjected to synaptic weight optimization using Genetic Algorithm. Neural network models are usefor stock prediction very little work is done on BSE sensex data. Artificial Neural Network has evolved out to be a better technique in capturing the structural relationship between a stocksperformance. Its determinant factors more accurately than many other statistical techniques[2].

The stock market is one of the most important sources forcompanies to raise money. This allows businesses to be publicly traded, or raise additional finanancial capital for expansion by selling shares of ownership of the company in a public market. Stockmarket forecasters focus on developing a successful approach forforecast/predict index values or stock prices. Determining more effective ways of stock market index prediction is important forstock market investor in order to make more informed and accurate investment decisions. History has shown that the price ofshares and other assets is an important part of the dynamics ofeconomic activity, and can be an indicator of socialmood[3].

Recently forecasting stock market return is gaining moreattention, maybe because of the fact that if the direction ofthe market is successfully predicted the investors can be better guided. The effectiveness of investing and trade in the stockmarket to a large extent depends on the predictability. If anysystem be developed which can consistently predict the trend ofthe stock market, would make the owner of the systemwealthy. More over the predicted trends of the market will helpthe regulators of the market in making corrective procedures. Another enthusiasm for research in this field is that it possesses manyexperimentalandtheoreticalchallenges. The most important ofthese is the Efficient Market Hypothesis (EMH)[4].

III. GENETIC ALGORITHM.

Genetic Algorithm (GA) is considered as a branch of artificial intelligence by imitate of mechanism of natural Selection for solvingstatistically problems. The solutions are randomly generated anassessed by the goals of the problems. The better solution cantherefore be reproduced and mutated. Genetic Algorithm is themimicry of the natural selection process of biological evolution.The algorithm repeatedly modifies a population of individualsolutions. The input parameters are considered as population, fromwhich the Genetic Algorithm randomly selects data, which actas parents. The parents are modified to produce children for the next generation. Over successive generation, the populationevolves towards optimized solutions. Genetic Algorithm can beused to solve both constrained and unconstrained problems of optimization. Below figure 1 shows the operation of Genetic Algorithm. GA Operators and Parameters are as follows:

1 Selection

The process that determines which solutions are to be preservedand allowed to reproduce and which ones deserve to die out.

Theprimary objective of the selection operator is to highlight thegood solutions and remove the bad solutions in a populationwhile keeping the population size constant. It Select the best, discards the rest Functions of Selection operator are as follows:

- Identify the good solutions in a population.
- Make multiple copies of the good solutions.
- Eliminate bad solutions from the population so that multiplecopies of good solutions can be positioned in the population.

There are various techniques to implement selection in Genetic Algorithms.

1. Tournament selection
2. Roulette wheel selection
3. Proportionate selection.
4. Rank selection

1. Tournament selection:

In tournament selection several tournaments are played among afew individuals. The individuals are chosen at random from thepopulation. The winner of each tournament is chosen for next Generation. Selection pressure can be adjusted by changing thetournament size. Weak individuals have a smaller chance to beselected if tournament size is large.

2 Crossover:

The crossover operator is used to create new solutions from the existing solutions available in the mating pool after applying selection operator. This operator exchange the geneinformation among the solutions in the mating pool.The most popularcrossover selects any two solutions strings randomly from themating pool and some portion of the strings is exchanged between thestrings.

3 Mutation

Mutation is the occasional introduction of new features in to thesolution strings of the population pool to maintain diversity inthe population.Though crossover has the main responsibility tsearch for the optimal solution, mutation is also used for this purpose.
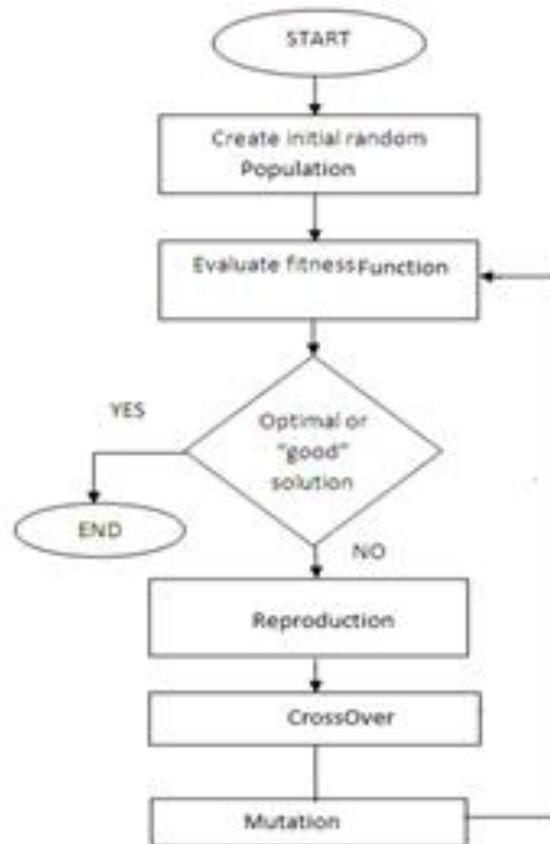
Figure 1. Flow chart of genetic algorithm

REFERENCES

[1] Ching-Te Wang and Yung-Yu Lin The Prediction System forData Analysis of Stock Market by Using Genetic Algorithm

[2] Stock Market Prediction using Neuro-Genetic Model ISSN :0974-6846 December 2015.

[3] Stock Market Forecasting Techniques: A Survey SarikaSharma, MinalChauvan ISSN 2348-5426

[4] Forcasting Of Indian Stock Market Index Using ArtificialNeural Network Manna Majumder1 , MD Anwar Hussian

[5] Survey on Stock Market Prediction and Performance Analysis Mrityunjay Sharma January 2014

[6] A Survey on Stock Market Prediction Using Various Algorithms AbhishekGupta,Dr. Samidha D Sharma ISSN:2229-6093

[7] Stock Market Prediction Using Arti_cial Neural NetworksProf. SumitraSadhukhan ,MukeshDhadekarSachinBhonarISSN: 2454-1362

[8] Stock price prediction using genetic algorithms and evolutionstrategies Ganesh BondeRasheedKhaled

[9] Financial Stock Market Forecast using Data Mining Techniques K. SenthamaraiKannan, P. SailapathiSekar,M.MohamedSathik and P. Arumugam

[10] An analysis on Stock Market Prediction using Data MiningTechniques S.PrasannaDr.D.Ezhilmaran (IJCSET)