# STOCK PRICE PREDICTION USING ML: A REVIEW

Traymbak Dhumal[1], Pratik Wavhal[2], Rohan Bobade[3], Rohit Tarate[4], Suvarna Bahir[5]

[1,2,3,4,5]Department of Computer Engineering, Trinity Academy of Engineering, Pune, Maharashtra, India.

Abstract: Predicting stock prices and the value of Bitcoin are important financial challenges that attract a lot of attention from analysts, academics, and investors. This abstract offers a succinct summary of the approaches, difficulties, and ramifications involved in forecasting stock and Bitcoin prices utilizing a variety of strategies including deep learning models, machine learning algorithms, and instruments for data analysis..

Index Terms - Stock Prediction, LSTM, Min-Max Scaling, Streamlit
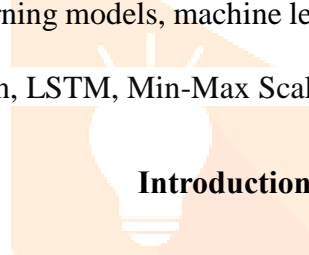
Introduction
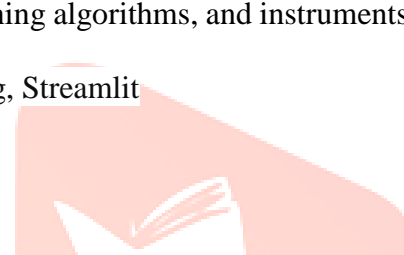
An important part of financial research is the prediction of stock, which is influenced by the need to monitor the market and know how to investavailability of big data, and the development of advanced machine learning and deep learning algorithms.Predicting the price of future products requires analysis of past performance, market trends, and a variety of quantitative and qualitative methods. Traders, investors and financial institutions need accurate forecasts to generate returns, manage risk and improve business performance.Expert opinion, scientific analysis and analysis form the basis of stock price prediction. However, with the introduction of big data analytics and machine learning algorithms, predictive models have evolved into more datadriven models.Regression analysis, decision trees, support vector machines and other machine learning methods allow analysis of historical stock prices.print volumes, financial ratios and macroeconomic data. These computers can predict future prices by discovering patterns, relationships,
, and trends in data. Time estimation results are greatly improved by using deep learning models such as Recurrent Neural Networks (RNN) and Long Short-

Literature Survey

Kuai Xu. Polamuri Subba Rao1, K. Srinivas2 and A. Krishna Mohan "A Study on Machine Learning Techniques for Stock Market Prediction" Predicting future stock prices is a challenging task for stock marketers. Predicting the stock market is difficult due to the volatility of the stock market. The value changes wildly every day. Investors have a great need for stock market predictions. One of the biggest challenges in predicting future market prices is the use of all extraction methods simultaneously

The latest economic forecasting techniques including fuzzy logic, neurofuzzy machines, time series linear models (TSLM) and random neural networks (RNN) and their advantages and disadvantages

Mohammad Monirujjaman, Sadman Bin Islam and Muhammad Mahabubul Hasan, "Exploring the Business Market Using Uncertainty Markets" - Estimated prices have become too much again in the financial world. Estimating the value of the company's stock is important to attract potential investors to invest in the stock and thus increase the company's shareholder base. Pricing the product correctly will provide great profits in the long run.

Many methods are used when it comes to forecasting. In this study, a newly developed model is used to predict stock prices. The Recurrent Neural Network (RNN) model is a popular model. The short-term memory (LSTM) model is a type of RNN.

Nifty50 Long Short Term Memory Deep Learning Method for Stock Market Analysis and Forecasting
" Active research is carried out continuously for a long time in order to create patterns in the stock market. Accurate prediction for stock price prediction. , The most important part of the prediction process is stock is to predict changes in stock prices.Research shows that operating costs can be predicted to some extent if the forecasting model is developed and developed, even though some business theories say that it is difficult to predict operating costs accurately

Using Twitter and financial news sites to predict the direction of the business market using effective language and deep learning-
based models An important and active research area for investors, analysts and researchers to predict the direction of change in products, rates and markets. ": Istanbul Stock Exchange Case (BIST 100)" proves this. This study provides language placements and deep learning-
based predictions for the Istanbul Stock Exchange (BIST 100) by analyzing 9 companies with large market shares in BIST 100.

Existing System And Result

The most popular methods for predicting stock prices these days are still machine learning and deep learning. Complex patterns in stock data are frequently captured by neural networks, especially recurrent neural networks (RNNs) and convolutional neural networks (CNNs). Predictive models are becoming more and more linked with sentiment analysis and natural language processing (NLP). Gaining insight into market sentiment—which has an effect on stock prices—can be accomplished by examining news stories, social media posts, and earnings call transcripts. For stock trading techniques, reinforcement learning algorithms are being investigated. In this approach, the algorithm learns to make trading decisions based on rewards and penalties, gradually improving its approach. Predicting the price of bitcoin is still difficult because of its extreme volatility and susceptibility to market mood. A growing number of models are hybrid, combining machine learning techniques with conventional time series analysis. These models increase prediction accuracy by utilizing the advantages of both strategies. Market sentiment is being measured and incorporated into predictive models through social media sentiment research, namely using data from Reddit and Twitter. Fundamental analysis also makes use of on-chain data and blockchain
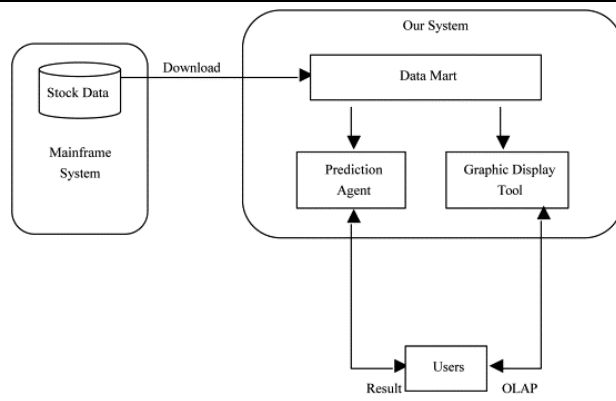
Proposed System

We provide a novel method for predicting stock and bitcoin prices through profiling. High-accuracy stock and Bitcoin price prediction requires combining several data sources, utilizing cutting-edge machine learning techniques, and solving the particular difficulties related to financial markets and cryptocurrencies. Collect trade volumes, financial reports, historical stock prices, and pertinent economic indicators. Include data from other sources, such as social media trends, news mood, and company-specific events. To guarantee correctness and consistency throughout the dataset, clean up the data, deal with missing values, and normalize the features.Using price history, create technical indicators. provided solution, utilizing state-of-the-art technologies, and tackling the unique.
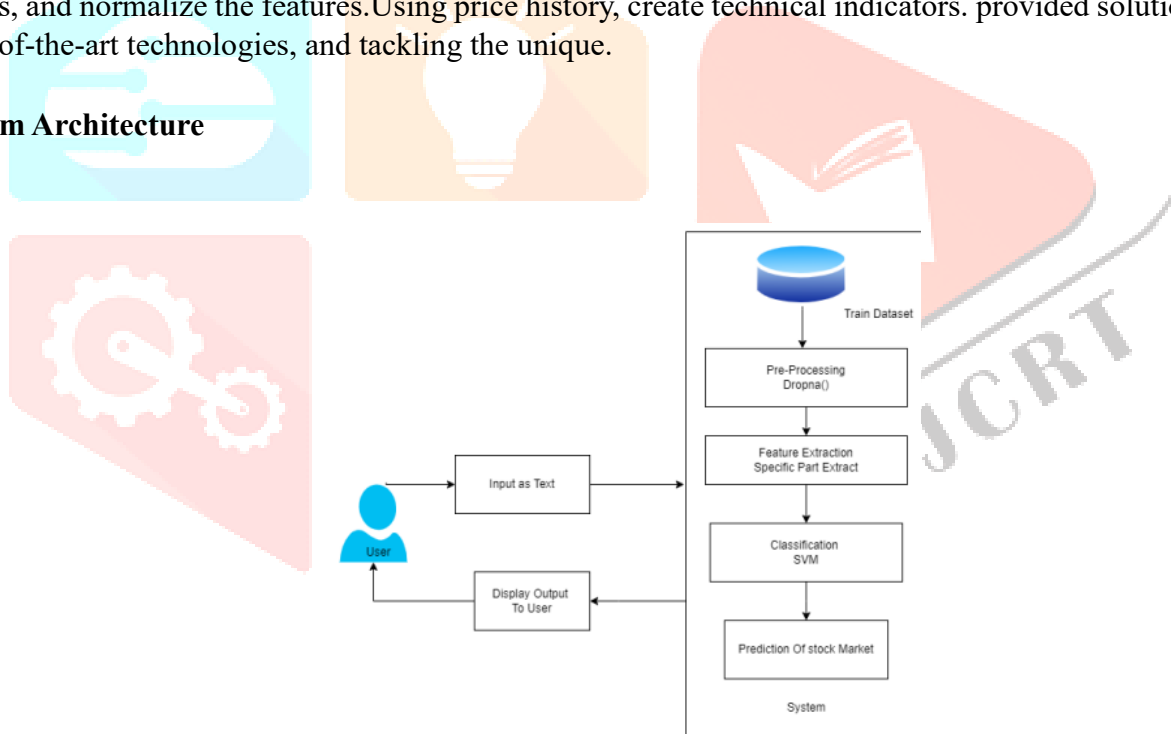
System Architecture

Figure 1 .System Architecture

Conclusion

The provided code demonstrates the process of predicting stock prices using LSTM neural networks. The model is trained on historical stock price data obtained from Yahoo Finance. After preprocessing the data, including scaling, the LSTM model is trained to predict future stock prices based on historical patterns. The model's performance is evaluated using Mean Squared Error (MSE) as the loss function. Additionally, the code integrates Streamlit for building an interactive web application to visualize stock data and predicted price.

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