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ThinkCrypto: Forecasting and Share Price of Cryptocurrency Using Blockchain Technology

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Abstract - *The cryptocurrency markets have experienced notable expansion and fluctuations in the past several years, rendering them a captivating domain for both investors and scholars. This study investigates how blockchain technology can be used to predict cryptocurrency prices by taking advantage of the immutability and transparency of blockchain data. Furthermore, the research incorporates dynamic blogs via API integration to offer instantaneous sentiment analysis and news updates, augmenting the precision and timeliness of the forecasting model. This research investigates the use of blockchain technology for cryptocurrency share price predictions. We provide an approach that combines market sentiment analysis, network activity, and historical trading data with the decentralized and transparent characteristics of blockchain to forecast future price fluctuations. Furthermore, we talk about how dynamic blogs can be integrated using APIs to deliver real-time market data and raise the precision of our projections. We show how well our method forecasts cryptocurrency share values through empirical analysis and case studies, helping investors make wise decisions in unpredictable markets.*

Keywords: **ARIMA, Long-Short-Term-Memory (LSTM), Bitcoin, Litecoin, Cryptocurrency, Price Forecasting.**

1.INTRODUCTION

The financial sector has seen a notable surge in the use of cryptocurrencies, with Bitcoin being the most well-known and first cryptocurrency. A new method of carrying out transactions and keeping value has been made possible by the advent of cryptocurrencies. To make wise investing choices, one must, nevertheless, accurately estimate the share values of these digital assets due to their volatility. This article aims to investigate the potential applications of blockchain technology for cryptocurrency share price predictions, as well as to present dynamic blogs through an application programming interface (API). Blockchain technology has completely changed several industries, and the cryptocurrency space is one of its most well-known implementations. Predicting Bitcoin share prices has been more popular in recent years due to the unstable nature of cryptocurrency markets. The purpose of this study is to investigate how blockchain technology might be used to estimate cryptocurrency share values, taking advantage of its transparent and decentralized structure to improve prediction accuracy. To further enhance the performance of our forecasting model, we also suggest integrating dynamic blogs via API to deliver real-time market data. The goal of this introduction is to lay the groundwork for the discussion of methodology, data sources, and empirical analysis that will take place in the following parts. In the end, we hope to offer investors insightful guidance on navigating the ever-changing cryptocurrency markets.

2. LITERATURE SURVEY

Data and communication Improvement (ICT) have altered the state of life from the extreme few a long time since different works out of the way of life have been blended online and they have become more advantageous. Cryptocurrency is a particular sort of virtual cash that works on the benchmarks of cryptography and electronic medium communication. It selects up parts of thought interior while later long time. It negates the centralized progressed cash and central keeping cash system since its decentralized incorporation. Furthermore, it revolutionizes the computerized trade grandstand by making a free stream trading system that works without any third party. The utilization of virtual cash or cash has coming in afterward long time. The paper highlights the introduction of cryptocurrency, its history, few viewpoints on it, and workings of cryptocurrency conjointly highlighting the conclusion of the cryptocurrency in India.

2.1 Existing Paper

The growing popularity of blockchain technology can be attributed to its numerous uses across different industries. It has an advantage over conventional centralized systems because it offers anonymity, integrity, immutability, and decentralization. Cryptocurrencies are the most widely used use of this technology, having seen a sharp increase in both market value and popularity in recent years. It is receiving significant investment from multinational firms, large institutions, and individual investors. The cryptocurrency market is not as stable as traditional commodities markets, though. It is extremely volatile, unstable, and unpredictable due to the numerous technological, emotive, and legal aspects that can influence it. Many studies have been conducted on different cryptocurrencies in an attempt to predict values with high accuracy, however, most of these methods are not practical for real-time use. Inspired by the above-described conversation, we present in this work a

deep learning hybrid model (which incorporates Long Short Term Memory (LSTM) and Gated Recurrent Units (GRU)) to forecast Litecoin and Z cash prices while taking the parent coin's interdependency into account. The suggested model is well-trained and well-evaluated using standard data sets, and it can be applied in real-time applications. The findings show that, in comparison to other models, the suggested model predicts prices with a high degree of accuracy. [1]

In the field of information technologies, blockchain technology is relatively new methodology. Bitcoin has garnered significant attention as a cryptocurrency since it was one of its initial implementations. They comprise the fundamental building blocks of contemporary cryptocurrency development, along with Ethereum, which is a blockchain implementation focused on smart contracts. The purpose of this paper is to provide a succinct overview of these subjects. New features of computer science and information technology is starting to take shape and define thanks to Bitcoin and blockchain technology. Although the idea of a decentralized currency has been explored more theoretically, in the last ten years, it has become feasible.

All because of Satoshi Nakamoto's well-known 2008 paper, which introduced Bitcoin and blockchain technology. [2]

Information and communication technology (ICT) has changed the way people live, as more of their daily activities are integrated online and productivity increases. A special type of virtual currency, known cryptocurrency, is based on the concept of electronic media transfer and encryption. It has been attracting a lot of attention recently. Cryptocurrencies are controlled by non-governmental organizations and are decentralized. Their decentralized nature contrasts with centralized digital currencies and central banking systems. Establishing a free-flow trading system that operates independently of third parties will completely transform the digital trading market.

In recent years, the use of virtual currencies and money has increased significantly [3].

3. SYSTEM ARCHITECTURE

The system architecture's design makes use of machine learning for precise forecasting, blockchain technology for data security and transparency, and a user-friendly interface to facilitate actual-time information updates and integration of APIs. In terms of dynamic blogs with APIs, you can incorporate APIs to retrieve content in actual time about market research, expert opinions, and cryptocurrency trends from well-known cryptocurrency news websites or social media platforms. After that, you can use your blog to showcase this dynamic information and update readers on the most recent advancements in the cryptocurrency industry.

A collection of definitions, tools, and protocols for creating software applications is called an application programming interface, or API. APIs are used in the cryptocurrency space to deliver actual-time data on trading volumes, share prices, and other market indicators. These APIs can be used to include the most recent data on cryptocurrency performance in dynamic blogs.

3.1. Proposed System

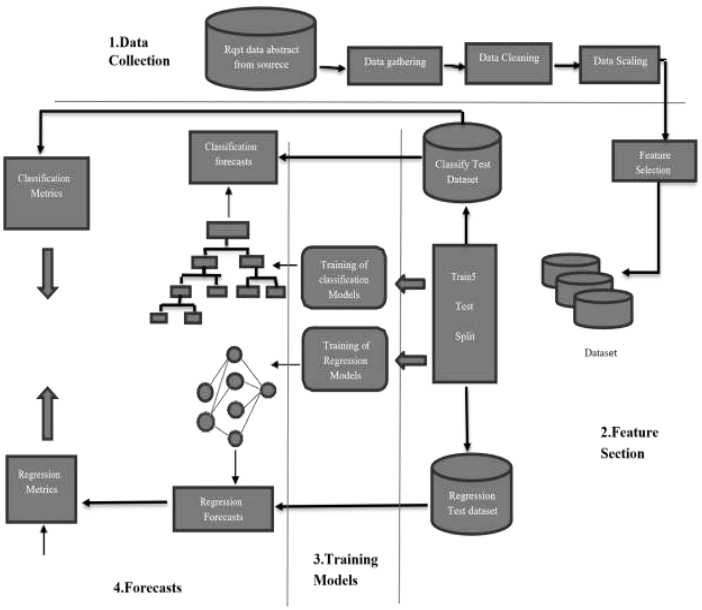

Fig 1. Proposed System of ThinkCrypto

This system model uses machine learning for precise forecasting and blockchain technology for data security and transparency. It also makes use of actual-time news APIs to provide consumers with a thorough understanding of cryptocurrency markets.

3.2. System Flow

The system flow diagram shows how data are collected, processed, and presented seamlessly while utilizing blockchain technology to ensure data integrity and API integration to provide actual-time information updates.

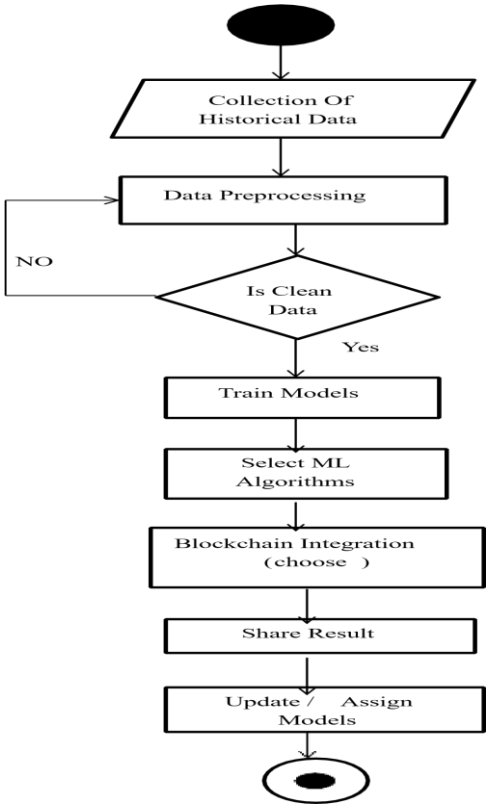

Fig 2. System Flow of ThinkCrypto

3.3. Working

1. **Data Gathering.**

Compile previous cryptocurrency price data for the cryptocurrency you wish to anticipate. Numerous sources, including blockchain explorers, financial APIs, and cryptocurrency exchanges, are available for this data.

2. **Feature Engineering.**

Determine pertinent characteristics that might affect the cryptocurrency's pricing. Trade volume, market mood, blockchain metrics (such as transaction volume and network difficulty), and macroeconomic variables are a few examples of these characteristics.

3. **Model Selection.**

Based on your requirements and data, select the right forecasting models. Recurrent neural networks (RNNs), long short-term memory (LSTM) networks, autoregressive integrated moving averages (ARIMA), and machine learning methods like random forests or gradient boosting machines (GBM) are examples of common models.

4. **Training and Evaluation.**

Utilizing historical data, train your forecasting model and assess its effectiveness with metrics like classification task accuracy, mean absolute error (MAE), or mean squared error (MSE).

5. **Blockchain Integration.**

Make your forecasting model more transparent and secure by incorporating blockchain technology. This can entail utilizing smart contracts to carry out transactions or blockchain hashes to confirm the integrity of the data.

6. **Dynamic News Blogs.**

Use an API to retrieve cryptocurrency-related dynamic news items. Analyze the articles' sentiment using natural language processing (NLP) techniques, then add sentiment scores to your forecasting model.

7. **User Interface.**

Create an intuitive user interface that shows actual-time news updates and Bitcoin price projections. This interface could be a mobile application or a web application that gives users access to actual-time data.

8. **Testing and Deployment.**

Make sure your application is accurate and dependable by giving it a thorough test. Install it in a production setting, keeping an eye on performance and resolving any problems that may occur in List box.

4. RESULTS

Blockchain technology for cryptocurrency price predictions and an API for dynamic news blog presentations would combine to provide a comprehensive platform that offers users insightful information about cryptocurrency markets. As a result, traders, investors, and cryptocurrency aficionados would have access to a potent tool that would provide them with actual-time intelligence and practical insights to help them successfully navigate the unpredictable world of cryptocurrencies.

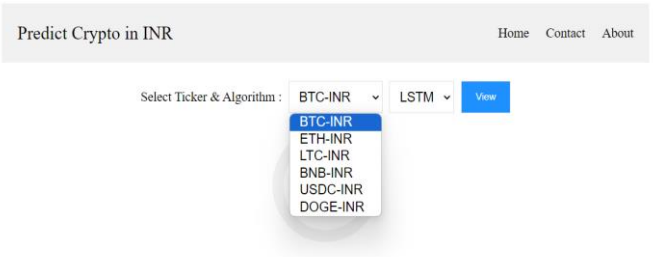

Fig 3. Our web application's front page

Figure 3 shows the results of the Home Page Predict Crypto in INR. Using data from the previous ten years, we selected a ticker and algorithms to forecast six distinct types of cryptocurrency in a graphical format.

Fig 4. Result for Bitcoin Price Graph-Done

Figure 4 shows the outcome of mining the previous ten years' worth of Bitcoin price data using machine learning algorithms and blockchain technology.

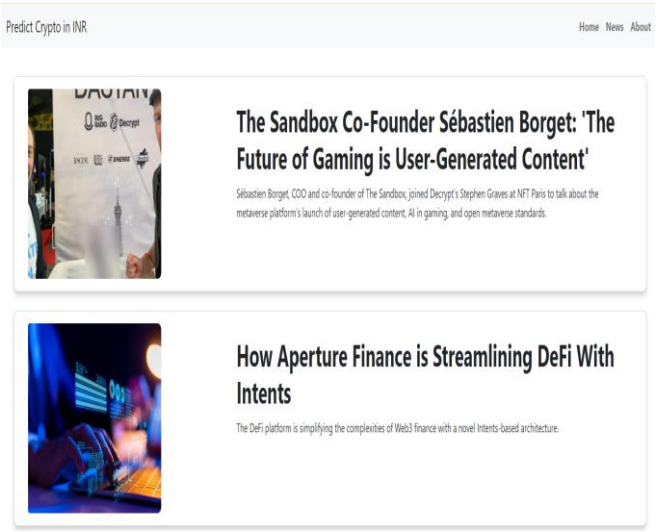

Fig 5. Result for Dynamic Blogs-Done

Figure 5 displays the outcome of dynamic news blogs that use cryptocurrency market APIs.

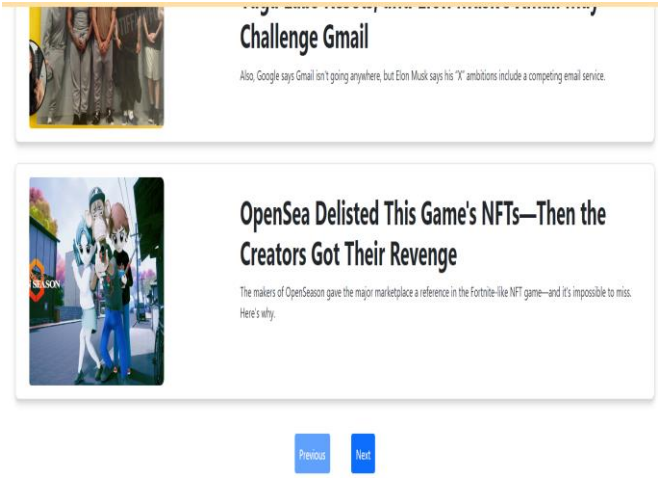

Figure 6: Outcome for the blogs' previous and next page

Fig. 6 Uses APIs to describe the outcome for the dynamics blogs' previous and next pages.

5. CONCLUSIONS

To sum up, blockchain technology holds great promise for tracking and predicting cryptocurrency share prices. It is an appropriate instrument for precise and transparent forecasting because of its immutability, decentralization, and smart contract capabilities. Furthermore, actual-time data on cryptocurrency performance can be included in dynamic blogs via APIs, empowering users to make well-informed investment choices. The usage of blockchain technology and APIs will be essential for tracking and projecting share values as the cryptocurrency industry grows.

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