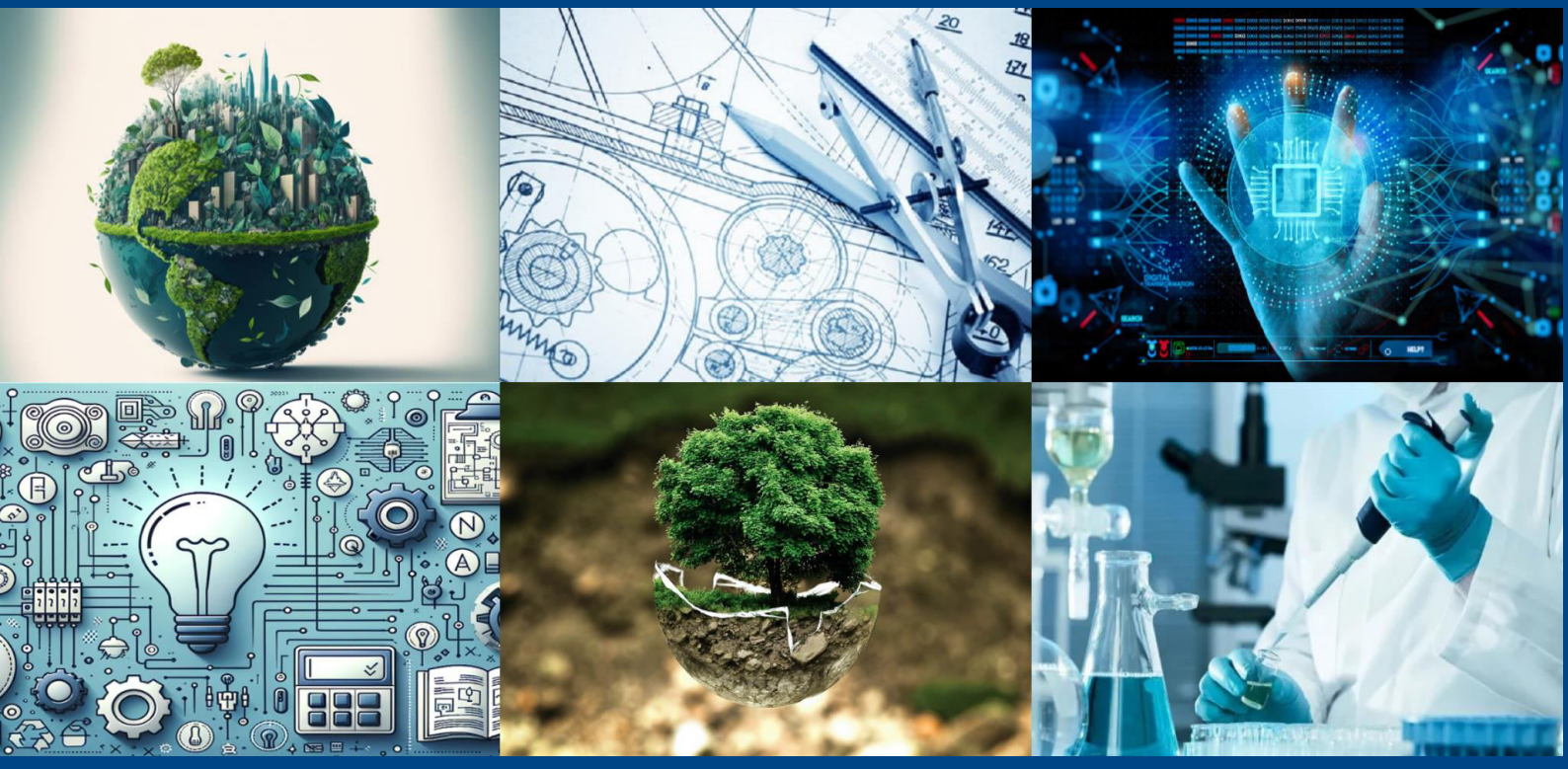
ISSN: 2582-7219

International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206 **Volume 9, Issue 3, March 2026**

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ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

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Cryptobidx: A Smart Auction-Based Crypto currency Trading Platform with Real-Time Price Tracking and User Trust Evaluation

M Saranya[1], S Jeyapriya[2], S Maria Divya Pooja[3], S Santhiya[4], M Pavithra[5]

Assistant Professor, Dept. of CSE, NSNCET, Karur, India[1]

Student, Dept. of CSE, NSNCET, Karur, India [2,3,4,5]

ABSTRACT: Cryptocurrency markets have become highly dynamic, creating a demand for intelligent platforms that allow users to monitor prices and perform secure trading activities. This project proposes a web-based Cryptocurrency Price Prediction and Auction Platform that integrates live cryptocurrency price monitoring, blockchain-based transaction storage, and an interactive bidding system. The system enables sellers to register and create auctions for digital assets by specifying details such as cryptocurrency symbol, quantity, base price, auction start and end dates, and item description. At the same time, bidders can register on the platform, explore active auctions, and place competitive bids for the listed assets. The platform also integrates live price tracking for Bitcoin, allowing users to observe real-time market fluctuations before making bidding decisions.

By combining auction mechanisms with real-time market insights and blockchain technology, the system enhances transparency, security, and reliability in cryptocurrency trading activities. It also provides an efficient communication and feedback mechanism between sellers and bidders while maintaining a secure and tamper-resistant record of transactions through blockchain technology. All major activities such as auction creation, bid submissions, and winner declarations are securely recorded in the blockchain ledger to ensure data integrity and trust among users. After the auction period ends, the system automatically identifies the highest bidder and sends a notification confirming the successful bid, ensuring a seamless and trustworthy trading experience.

KEYWORDS — Cryptocurrency, Blockchain, Auction System, Real-Time Price Tracking, Web Application, Secure Trading, Bid Management, Digital Assets, User Trust Evaluation, Online Bidding Platform.

I. INTRODUCTION

The rapid growth of digital currencies has significantly transformed the global financial ecosystem by enabling decentralized, secure, and borderless transactions. Among various cryptocurrencies, Bitcoin has gained widespread popularity due to its high market value and global adoption. However, many users still face challenges in monitoring real-time cryptocurrency prices and performing secure trading activities using reliable and user-friendly platforms. Most existing systems focus only on direct buying and selling, lacking advanced features such as structured bidding mechanisms and integrated market analysis tools. This creates a gap where users must rely on multiple platforms to track prices and perform trading, leading to inefficiency and poor decision-making.

To address these challenges, this project proposes a web-based Cryptocurrency Price Prediction and Auction Platform that combines real-time price tracking with an interactive auction-based trading system. The platform allows sellers to create auctions for digital assets by specifying key details such as cryptocurrency type, quantity, base price, and auction duration, while bidders can explore active auctions and place competitive bids. Additionally, the system integrates blockchain technology to ensure secure, transparent, and tamper-resistant transaction records. Features such as bid tracking, automatic winner identification, notification system, and user feedback mechanism enhance trust and usability. By integrating live market insights with a structured auction process, the proposed system aims to improve transparency, user engagement, and overall efficiency in cryptocurrency trading.

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II.LITERATURE REVIEW

In recent years, the rapid growth of cryptocurrency and blockchain technology has significantly influenced digital financial systems. Traditional financial platforms rely on centralized mechanisms, which often lack transparency, security, and flexibility. With the emergence of cryptocurrencies such as Bitcoin, decentralized systems have gained popularity due to their ability to provide secure, transparent, and tamper-resistant transactions. However, most existing cryptocurrency platforms primarily focus on direct buying and selling, lacking advanced features such as auction-based trading and integrated real-time market analysis. This creates a limitation for users who require more interactive and informed trading environments.

Recent research has focused on improving cryptocurrency platforms by incorporating real-time data analysis, blockchain security, and user-centric features. Clovia Hamilton [1] highlighted the role of cryptocurrency as a sustainable and decentralized alternative to traditional banking systems, emphasizing transparency and financial inclusion. Yu Song et al. [2] analyzed the impact of global events on Bitcoin price volatility, demonstrating the importance of real-time price monitoring for informed decision-making. Gadim Gadimov [3] explored cryptocurrency trading platforms and identified factors such as liquidity, market sentiment, and regulation that influence price fluctuations. Hafize Nurgül Durmuş Şenyapar [4] examined the effect of social media on cryptocurrency markets, showing how digital trends impact investor behavior and price changes. Additionally, existing commercial platforms like Binance and Coinbase [5] provide efficient trading services but lack auction-based mechanisms and integrated trust evaluation systems.

These studies highlight the need for a more advanced platform that combines real-time price tracking, secure blockchain transactions, and interactive trading mechanisms. The proposed system addresses these gaps by introducing an auction-based cryptocurrency trading platform with integrated price monitoring, bid management, and user trust evaluation features, thereby improving transparency, security, and user engagement.

Relevance to current Research

This project contributes to the field of cryptocurrency trading systems by integrating blockchain-based security, real-time price tracking, and an auction-based bidding mechanism into a single platform. While existing systems focus mainly on direct trading or price monitoring, the proposed system enhances user interaction through structured bidding, automated winner selection, and feedback mechanisms. By combining these features, the system bridges the gap between traditional trading platforms and modern decentralized applications, providing a more transparent, secure, and user-friendly trading environment.

Summary Table: Related Work

No.	Paper / Tool	Authors	Key Points	Relevance to Current Work
1	Cryptocurrency as Sustainable Finance	Clovia Hamilton (2024)	Highlights decentralized finance, transparency, and reduced transaction costs	Provides base for secure and transparent blockchain transactions
2	Bitcoin Price & Global Event Analysis	Yu Song, Bo Chen, Xin-Yi Wang (2023)	Studies impact of global events on Bitcoin price volatility	Supports need for real-time price tracking
3	Blockchain Trading Platforms Study	Gadim Gadimov (2025)	Explores liquidity, trading systems, and price influencing factors	Helps design efficient auction-based trading system
4	Cryptocurrency & Social Media Impact	Hafize Nurgül Durmuş Şenyapar (2024)	Analyzes influence of social media on crypto prices	Emphasizes importance of real-time data analysis
5	Existing Crypto Trading Platforms	Commercial Platforms (Binance, Coinbase)	Provide direct trading features without auction system	Identifies gap for auction-based trading and trust evaluation

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III.METHODOLOGY OF PROPOSED SURVEY

The proposed system is designed to provide a secure and interactive platform for cryptocurrency trading through an auction-based mechanism integrated with real-time price tracking and blockchain technology. The methodology follows a structured process that begins with secure user registration and login, followed by auction creation by sellers, bidder participation, real-time bid tracking, and automatic winner selection.

The system also incorporates live cryptocurrency price monitoring to help users make informed decisions based on current market trends. All transactions and activities are securely recorded using blockchain technology to ensure data integrity, transparency, and tamper resistance. Additionally, the platform performs real-time validation of user inputs and bidding activities, ensuring a fair and competitive environment while efficiently handling multiple users. Notification and feedback mechanisms further enhance user experience by providing auction updates and enabling trust evaluation, making the system secure, efficient, and user-friendly.

MODULES

The system is organized into six main modules, each handling a specific function of the application. The modules are described as follows:

1. User Authentication Module

This module ensures secure access to the platform by allowing users to register and log in using their credentials. It verifies user identity and restricts unauthorized access, maintaining system security.

2. Seller Auction Module

This module allows sellers to create and manage cryptocurrency auctions. Sellers can specify details such as cryptocurrency type, quantity, base price, auction start date, end date, and description. It provides full control over auction listings.

3. Bidder Participation Module

This module enables users to explore active auctions and place bids on available cryptocurrency assets. It ensures a smooth and competitive bidding process while recording each bid accurately.

4. Real-Time Price Tracking Module

This module integrates live cryptocurrency price data (e.g., Bitcoin) through APIs. It helps users monitor market trends and compare real-time prices before placing bids.

5. Bid Management & Winner Selection Module

This module tracks all bids placed during the auction period and automatically identifies the highest bidder at the end of the auction. It ensures fairness and transparency in the bidding process.

6. Notification & Feedback Module

This module sends notifications to users regarding auction results, including winner confirmation messages. It also allows bidders to provide feedback and ratings for sellers, improving trust and reliability within the platform.

IV SYSTEM ARCHITECTURE

The system architecture of the proposed Cryptocurrency Auction Platform follows a client-server model that integrates frontend, backend, database, blockchain, and external API services to ensure secure and efficient operation. The frontend, developed using HTML, CSS, and JavaScript, provides a user-friendly interface for sellers and bidders to register, log in, create auctions, place bids, and track activities. The backend, implemented using technologies such as Node.js or PHP, handles business logic, authentication, bid processing, and communication between system components. A database like MongoDB or MySQL is used to store user information, auction details, and bid records, while blockchain

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Technology ensures secure, transparent, and tamper-resistant storage of critical transaction data. Additionally, real-time cryptocurrency price data is fetched through external APIs, enabling users to make informed decisions based on live market trends, thereby ensuring scalability, reliability, and efficient data flow across the system.

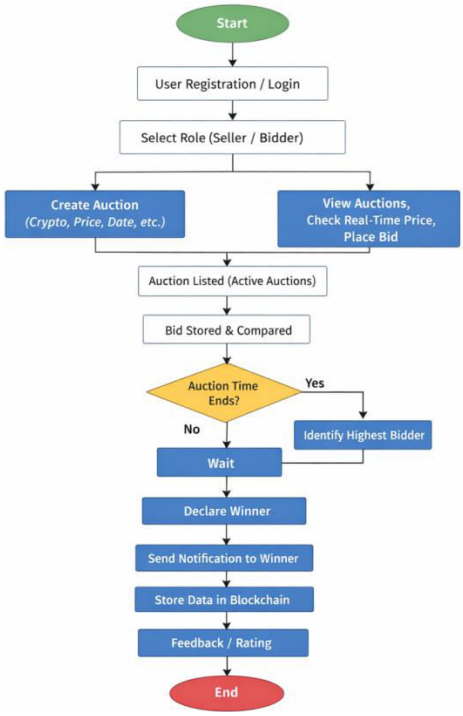

Fig 1 Work Flow

SYSTEM IMPLEMENTATION

The following screenshots demonstrate the functioning of the Cryptocurrency Auction Platform, where users begin by registering and logging into the system using secure credentials. Sellers can create auctions by entering details such as cryptocurrency type, quantity, base price, and auction duration, while bidders can explore active auctions, view real-time cryptocurrency prices, and place bids accordingly. The system dynamically records and updates all bids to maintain a transparent and competitive environment, and once the auction period ends, it automatically identifies the highest bidder and declares the winner. Additionally, blockchain technology is used to securely store transaction data, ensuring transparency and tamper resistance, while notification and feedback mechanisms allow users to receive auction results and evaluate transactions, providing a complete and user-friendly trading experience.

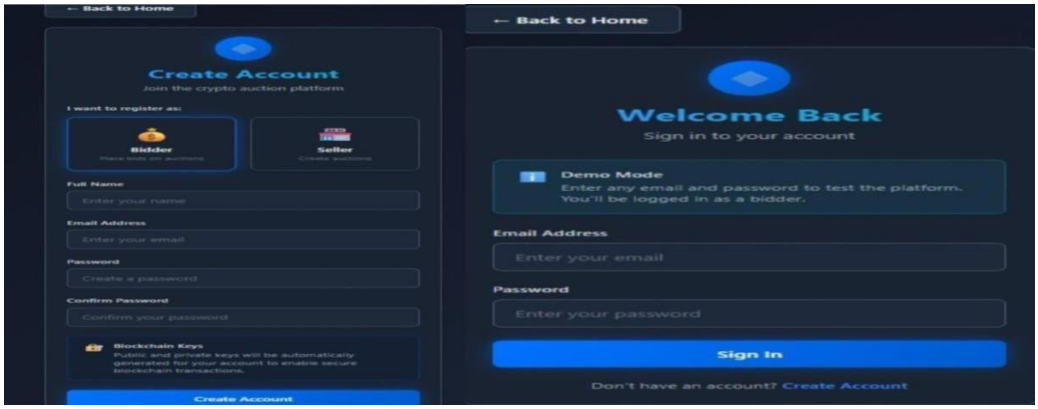

Fig 2 User Login Interface

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Fig 3 Main Dashboard with Featured Auction Listings

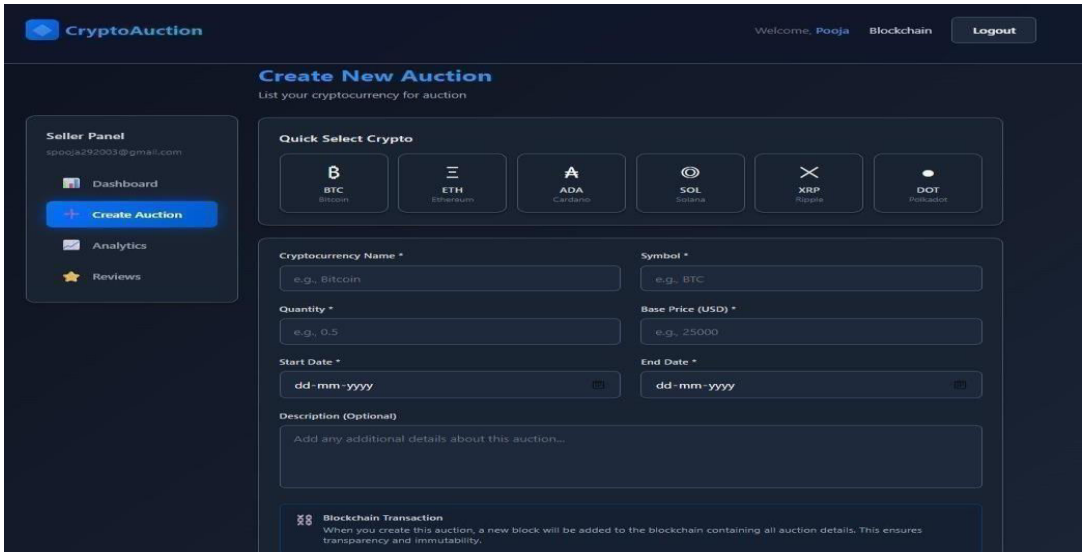

Fig 4 Create a New Auction Interface

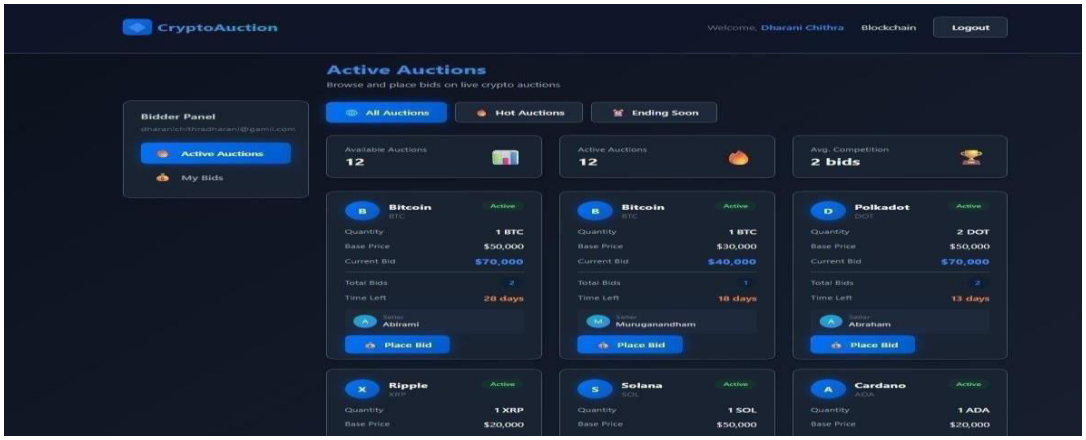

Fig 5 Auction List and Bids

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IV.CONCLUSION AND FUTURE WORK

The proposed Cryptocurrency Auction Platform successfully addresses the challenges of secure and transparent digital asset trading by integrating an auction-based mechanism with real-time price tracking and blockchain technology. By combining features such as user authentication, auction creation, bid management, and automatic winner selection, the system enhances user engagement and ensures a fair and competitive trading environment. The integration of blockchain provides tamper-resistant transaction storage, improving trust and reliability among users, while real-time cryptocurrency price monitoring enables informed decision-making. The user-friendly interface and modular architecture make the platform efficient, scalable, and easy to use for both sellers and bidders.

Looking ahead, several enhancements can further improve the system's functionality and scalability. Future work includes integrating advanced machine learning models for cryptocurrency price prediction, expanding support for multiple cryptocurrencies beyond Bitcoin, and developing a mobile application for better accessibility. Additional features such as secure payment gateway integration, smart contract-based auction automation, and enhanced user verification mechanisms can further strengthen system security. Moreover, incorporating analytics dashboards and cloud deployment can improve performance monitoring and scalability, making the platform more robust and suitable for real-world cryptocurrency trading applications.

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