

Green Apple: Decentralized Exchange

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Overview

Green Apple, the revolutionizing decentralized exchange, offers a comprehensive platform encompassing spot orderbook and NFT orderbook functionalities. This innovative DEX empowers users to seamlessly engage in spot trading of cryptocurrencies while exploring the vibrant world of NFTs. Despite the absence of a utility token or staking function, users enjoy a remarkable trading experience with Green Apple. By integrating these features, Green Apple provides a unified and user-friendly environment that combines traditional trading with the exciting realm of non-fungible tokens while maintaining the security and benefits of decentralization.

A resolute mission to cultivate a financial ecosystem that empowers individuals is embedded within Green Apple's core values, addressing the principles of ownership and transparency with precision. Our technological foundation is rooted in a fully on-chain approach, guaranteeing transparency and security throughout the user journey. Notably, our optimized design ensures reduced gas fees, rendering participation in the Green Apple ecosystem both cost-effective and accessible. We seamlessly integrate smart contracts into a Web2 trading System, fostering a trustless environment marked by unassailable ownership. Significantly, our smart contract architecture eschews proxy usage, ensuring immutability and fortifying the unwavering integrity of our platform.

Taking another step forward, Green Apple is gearing up to boost the Bitkub chain. Our goal is to make everything feel even more seamless for our users. From supporting games on the Bitkub chain, we're all about making the customer journey smoother and simpler. It is another way we're working to enhance the trading experience for everyone.

Problem and solution

1. Smart Contract Not Support OrderBook

A critical challenge arises from insufficient Smart Contract support for OrderBook functionality. In light of this, a compelling solution emerges: the development of a novel Smart Contract tailored to accommodate OrderBook operations smoothly. This innovative approach ensures enhanced efficiency and precision in the execution of trading activities.

2. Chain limit

Furthermore, the platform grapples with a notable bottleneck in the form of chain limitations impacting Transaction Per Second (TPS). Our solution pivots on innovation. We are poised to engineer an elevated TPS capacity by harnessing cutting-edge technology, effectively alleviating congestion and promoting uninterrupted transaction flow.

3. Price impact

The prevalent prominence of Automated Market Maker (AMM) functionality within Smart Contracts introduces a unique challenge. Specifically, AMMs often encounter Price Impact issues. Here, the OrderBook solution emerges as a robust antidote. OrderBooks inherently offer a more adept means of addressing Price Impact concerns, significantly enhancing trading efficiency and ensuring a more favorable trading environment.

In summary, these problems and corresponding solutions collectively underscore our commitment to propelling the platform's efficiency, scalability, and overall trading experience to new heights.

Product Features

1. Spot orderbook

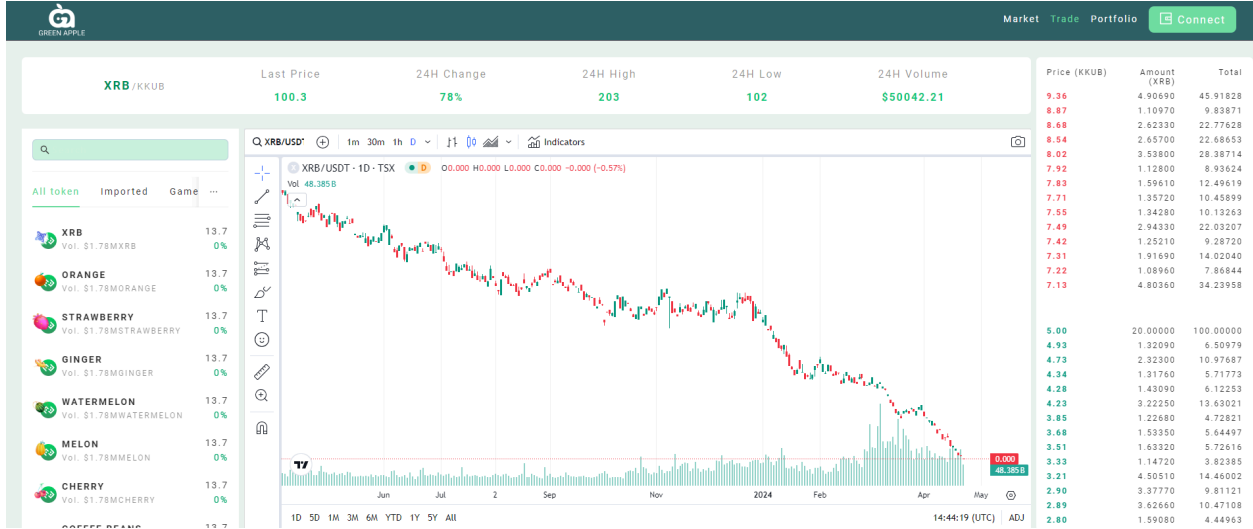
A spot orderbook is a trading system on a cryptocurrency exchange that matches buy and sell orders based on specified prices and quantities. Traders place buy orders at desired prices to purchase cryptocurrencies or sell orders at desired prices to sell them. The orderbook dynamically updates in real-time as new orders are added and executed, allowing traders to monitor market conditions. A trade occurs when a buy order price matches or exceeds a sell order price. This mechanism ensures fair and transparent price discovery, liquidity, and efficient trading in the cryptocurrency market.

Within this system are two primary orders: limit orders and market orders. A limit order allows traders to specify their desired price, either to buy at a lower price or sell at a higher price. On the other hand, a market order is executed at the current market price, providing quicker execution but without the price specification.

Benefits

- Ownership: Utilize the spot orderbook to securely own and manage your assets directly in your wallet, maintaining complete control over your holdings.
- On-chain Transactions: Leverage the spot orderbook's capability to process transactions in real-time, ensuring swift and efficient execution of trades.
- Transparency: The spot orderbook operates decentralized, enabling continuous verification of transactions on the blockchain and fostering transparency and accountability.

Experience the advantages of owning and managing your assets, seamless on-chain transactions, and enhanced transparency through the spot orderbook, enhancing your trading experience.



(Green Apple Testnet V.1.0)

The matching engine of the DOB platform facilitates real-time trades by pairing buy and sell orders. It uses four metrics to ensure efficient trading:

Percentage Quoted Spread (QS): Calculated as the difference between the best ask (P_a) and bid price (P_b) for each order book snapshot, divided by the midpoint ($MQ = (P_b + P_a) / 2$). The formula is:

$$QS_t = \frac{1}{N_t} \sum_{j=1}^{N_t} \frac{P_j^a - P_j^b}{MQ_j}$$

Percentage Effective Spread (ES): Represents the effective bid-ask spread by considering order book snapshots and the subsequent transaction. It's defined as:

$$ES_t = \frac{1}{N_t^+} \sum_{j=1}^{N_t^+} \frac{2 \cdot |P_j^+ - MQ_j|}{MQ_j}$$

Percentage Price Impact (PI): Measures the price change from pre-transaction to post-transaction order book snapshots. It's determined by:

$$PI_t = \frac{1}{N_t^+ - 1} \sum_{j=1}^{N_t^+ - 1} Q_j^+ \cdot \frac{(MQ_{j+1} - MQ_j)}{MQ_j}$$

Percentage cost of a roundtrip trade (CRT(Y)): Evaluates liquidity for larger trades by determining the weighted average prices for executing buy and sell orders of size Y. The calculation takes into account the price (Ak) and volume (Vk) of each order:

$$\frac{\sum_{k=1}^K A_k \cdot V_k}{\sum_{k=1}^K V_k} \quad \text{subject to} \quad \sum_{k=1}^K A_k \cdot V_k = Y$$

The total volume matches the transaction volume Y, considering the possible partial execution of the last order.

2. NFT orderbook (In the future)

The NFT orderbook within Green Apple introduces a transformative approach by flawlessly integrating the NFT Orderbook system with the blockchain. This integration significantly augments transparency, security, and trust within the realm of NFT trading, all while removing the requirement for intermediaries. The mechanism operates on the principle of decentralization, ensuring that transactions are conducted directly between buyers and sellers, thereby enhancing the credibility of the trading process.

Benefit

- **Fair Pricing:** The NFT Orderbook ensures fair pricing by facilitating transactions that satisfy buyers and sellers, mitigating the risk of price manipulation, and promoting equitable trading conditions.
- **Flexible Transactions:** Buyers and sellers enjoy flexibility in the buying and selling process. They can easily adjust prices for offers and purchases anytime, accommodating changing market dynamics and individual preferences.
- **Market Expansion:** By providing a transparent and efficient platform for NFT trading, the NFT Orderbook contributes to the expansion of the NFT trading market. This increased accessibility encourages more participants to engage in NFT transactions, fostering a vibrant and diverse trading ecosystem.

Experience the advantages of balanced pricing, adaptable trading options, and the growth of the NFT trading landscape through the NFT Orderbook, enriching your NFT trading endeavors within the Green Apple platform.

3. Portfolio Interface

The Portfolio page serves as a dynamic hub, offering users real-time insights into their holdings and enabling them to monitor their assets' performance over time closely. With a user-friendly interface, this interface provides a comprehensive overview that empowers users to make informed decisions and gain valuable insights into their investment journey.

Benefit

- Comprehensive Portfolio Overview: Users gain a holistic view of their digital asset holdings, facilitating effortless management and informed decision-making.
- Enhanced Trade Efficiency: By providing users with data directly on the interface, trading decisions become more efficient and well-informed, streamlining the trading process.

Experience the benefits of a comprehensive portfolio overview and heightened trade efficiency through the Portfolio interface, empowering you to easily manage your assets and optimize your trading strategies within the Green Apple platform.

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We are THE Green Apple (“we”, “us”, “our”, or Green Apple). Please see the information of our products, features and terms as defined below;

The Green Apple is a decentralized peer-to-peer system that users can access to provide digital asset liquidity and enjoy fundamental features of the decentralized non-custodial protocol, including order books, matching engines, smart contracts, decentralized applications, APIs, and all products and features available via the Green Apple.

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Please keep in mind that your use of the Green Apple involves various significant risks, including, but not limited to, financial loss while digital assets are being supplied to the Green Apple and financial loss due to the fluctuation of prices of tokens in a trading pair or liquidity pool. The Green Apple may be accessed through many browsers on the computer or mobile device; you have the responsibility to do your own diligence regarding such browsers to understand the risks that may occur. Meanwhile, you must

do your own research and understand how the Green Apple works and the risks of your use of the Green Apple.

All transactions appearing or between users on the Green Apple are executed peer-to-peer directly between the user's blockchain address through a third-party developed open-source smart contract. We do not have possession, custody, or control over crypto assets or any user's funds. While using the Green Apple, only you can always keep and control over your crypto assets. We cannot access to your private keys at all.

The Green Apple is run independently by smart contracts deployed on Bitkub Chain Network(BKC) at the beginning is made accessible or available on an "as is" and "as available" basis. You expressly understand and agree that use of the Green Apple is at your sole risk. The Green Apple does not constitute an account by which Green Apple's developer or any other third party acts as financial intermediaries or custodians. The software code continues to be improved and upgraded by the vote from the community, Green Apple's developer, open-source contributors and testnet user. The Green Apple would run as other decentralized platforms in crypto industry, we cannot warrant that there will be uninterrupted, no bugs, critical errors, or full security. The holder of Green Apple token is responsible for investigating and managing upgrades and modifications of the Green Apple.