



Abstract: *Decentralized exchanges have the potential to capture a majority share of the crypto trading market by offering superior security and transparency, if we can compete on two factors, user experience and liquidity.*

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Progressive Web App

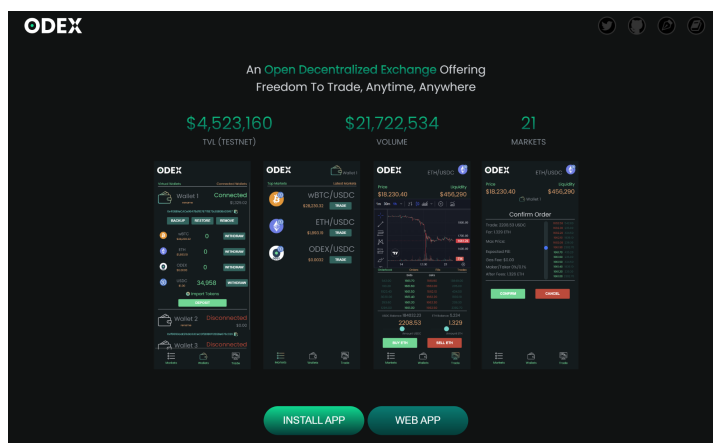
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Introduction

The roll out of Ethereum 2.0 will enable faster and cheaper on chain data making it competitive with traditional web backends. Problems still remain in web3 such as centralized app stores acting as gatekeepers over the mobile app economy.

This evolving landscape opens the opportunity to launch a new decentralized exchange. Something that is easy enough for mainstream users and principled enough for crypto natives.

The ideal exchange should be built on public blockchains, with permissionless smart contracts and self-custody of assets. But for the average user it should just work. We should be able to open an app and trade digital assets at the click of the button without complications.

This paper presents a novel DEX built on a decentralized limit order book, offering peace of mind from self-custody combined with the efficiency of cutting edge web3 user experience.

Limit Order Book

The New York Stock Exchange, Nasdaq, Binance and Coinbase all have one thing in common. Their exchanges are built around a limit order book (LOB).

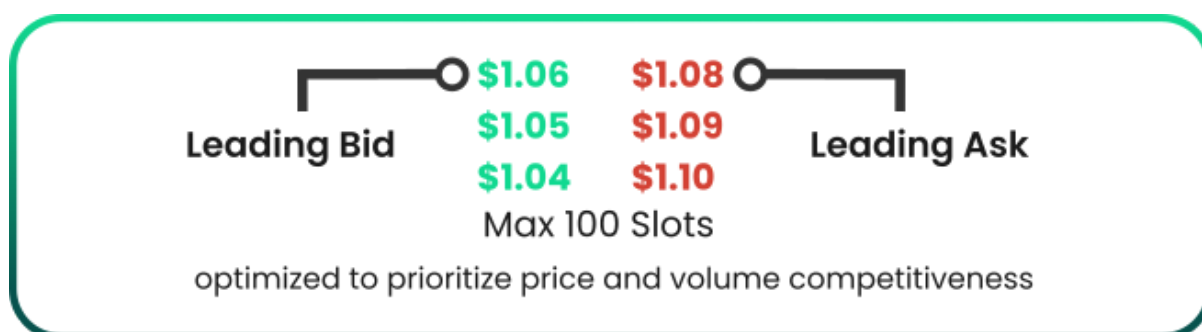
Since 2017, Ethereum has been plagued by high gas fees due to demand for limited block space and computation power across the decentralized network.

In 2018 Uniswap launched which introduced a new model for swapping digital assets. The automated market maker revolutionized the space connecting traders with liquidity providers and optimized for high gas fees.

As Ethereum scales to have fast, cheap transactions and unlimited computational capability through layer 2 rollups, the advantages of a LOB DeX become within the capabilities of blockchain systems.

The increased speed and reduced cost of transactions will allow for more frequent and granular price updates in a LOB DEX, leading to more efficient trading and better, more intuitive user experience.

ODEX enables traders to specify the price at which they are willing to buy or sell an asset, leading to more efficient price discovery. This is in contrast to AMM DEXs, where the price is determined by a mathematical formula based on the ratio of the assets in the liquidity pool.



AMM DeX's have made frontrunning and sandwich attack MEV bots the norm. With LOB design the user's bid can either be filled or not filled at the price specified, reducing the attack vector for MEV searchers.

Slippage is a huge problem in DeFi which is why centralized exchanges still reign king despite market turmoil from the FTX collapse. ODEX is optimized to encourage high volume orders within a tight range creating improved liquidity at and around the mid price between bids and asks.

The majority of liquidity providers on AMM's are notoriously unprofitable due to an effect called impermanent loss. This occurs when one asset goes up in value and the liquidity provider's position fills up with the lower valued asset. Market makers on LOB DeX's do not suffer from impermanent loss as users trade directly into the order book.

ODEX is designed around the traditional order book model with nuances to fit modern blockchain environments.

- Any user can deploy a new ODEX order book for any asset pair.
- Each order book has a limited number of slots for bids and asks.
- These slots are filled based on price and volume with leading bids and asks overwriting less competitive orders.
- Same priced orders are filled by highest volume first as opposed to first in first out with traditional LOB's
- Min order size to discourage spoofing
- Fee less execution for maker, 10 bps fee for taker
- Governance token incentives to bootstrap early liquidity, adoption and trading volume

Orders that aren't competitive, outside the top 100, are simply not included and presented to other traders incentivising efficiency and liquidity through free market dynamics.

Progressive Web App

ODEX is designed as a mobile first product. We want users to be able to trade digital assets at any time, anywhere.

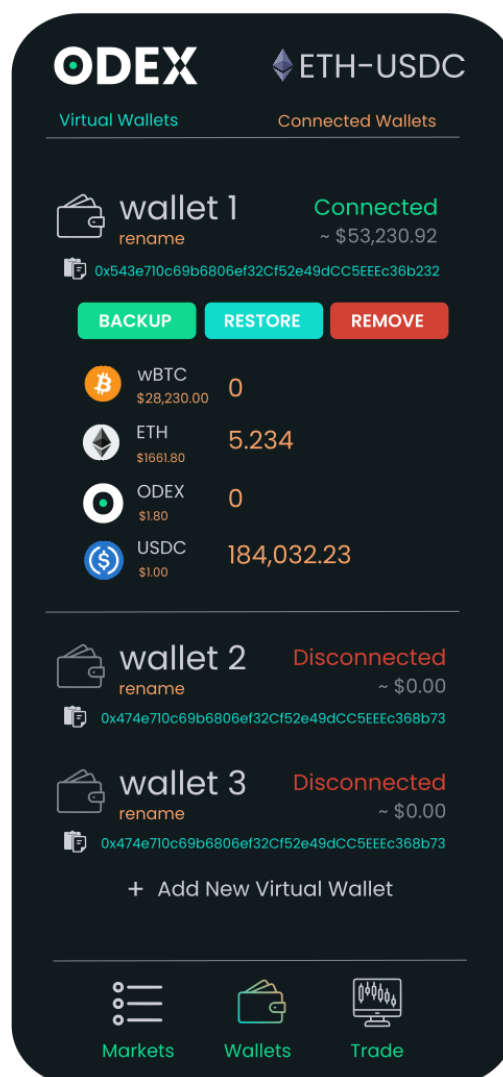
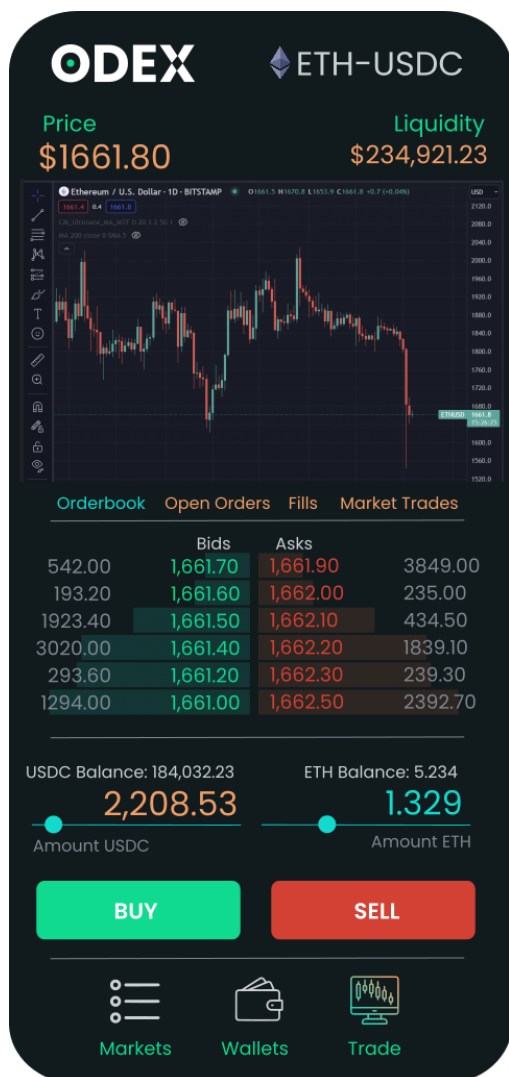
PWAs are web applications that use modern mobile operating system capabilities to deliver a decentralized app experience.

1. A user visits a website landing page and is prompted to install the app using the mobile browser menu.
2. The app is installed on the mobile homescreen with an app icon which directly opens the PWA frontend
3. A new wallet address is generated and stored locally on the device which the user can fund and use to trade assets.
4. The wallet can be exported, backed up, restored and the user has full custody of their private key at all times.

PWA's bypass the 30% commission rates on cryptocurrency payments being enforced by mobile app stores. This makes it possible to reach anyone with an Android or iPhone and onboard them in a cost effective manner.

Progressive web apps are easy to install, feature offline functionality, push notifications, home screen installation and an intuitive UX. In August 2023 a social trading platform called Friend.Tech launched the first of what we believe will be many PWA's to gain traction in the space.

The frontend offers locally hosted multi-wallets which act similarly to sub-accounts on centralized crypto exchanges. Traders can separate different strategies and risk profiles into separate wallets which act as independent, isolated accounts.



Wallet credentials are stored on the device and can be exported and backed up to Metamask or hardware wallets that support importing private keys. Signatures are generated from within the web app removing the need to confirm transactions on every trade. For non-technical users the most challenging aspect is funding the wallet, from there they click the buy/sell button and it just works.

Professional traders require a desktop interface with all the bells and whistles. Many DeFi protocol teams have tried to copy leading CEX UI's without innovating. ODEX aims to take the next step forwards creating a pioneering trading experience using the latest emerging technologies we have available.

Smart Contracts

ODEX is built on Solidity smart contracts for an Ethereum virtual machine environment.

The proof of concept code is open-sourced (awaiting audit) at:

The factory contract enables anyone to set up a market for any two ERC20 tokens on any EVM blockchain. By enabling 3rd parties to create trading exchanges we offer new ways for projects to bootstrap liquidity for their tokens in efficient ways.

The smart contract manages a performance focused limit order book - a place where all bids to buy and asks to sell orders are listed. When you place an order to buy or sell a token at a specific price, this order gets registered in the order book. If a counterparty wants to trade at the same price immediately or at a later date, the order gets filled. If the order remains unfilled and price moves away the user can cancel or reprice their order to remain competitive in a volatile market.

The contract also includes functions to assess liquidity. With these functions, users can check total market liquidity or examine the highest priced bid or the lowest priced ask. The transparent nature of on chain data and transactions offers improvements over centralized competitors.

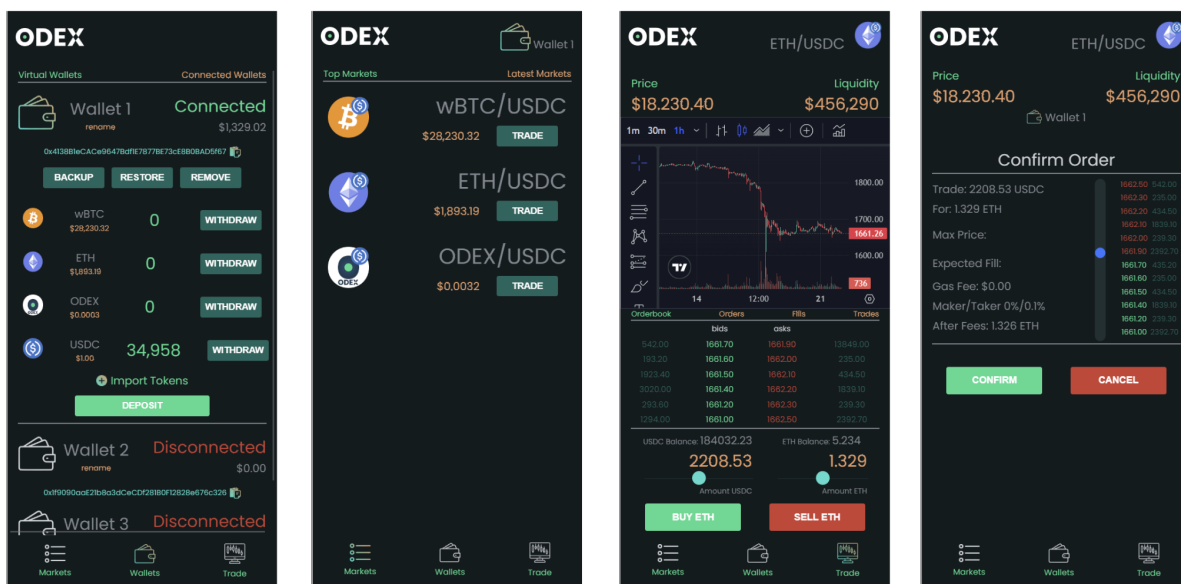
Market makers and systems traders can bypass the UI and trade directly with the smart contracts, monitoring events for bids, asks and trades while executing programmatic transactions.

The ODEX smart contracts are permissionless, meaning that all users are treated equally and no centralized entity having admin privileges. They are also immutable and resistant to censorship with open-source code, verified on Etherscan.

Proof Of Concept

A proof of concept has been created and launched with a trading competition on Goerli Testnet.

There is \$1000 in cash prizes up for grabs for the most profitable traders. When you set up a new account you will be airdropped \$10,000 testnet USDC. Use this to trade over 20 different crypto markets, or you can set up your own markets for your favorite altcoins.



Start here to install the PWA on your mobile device: <https://odex.fi>

The team is currently running an internal market maker trading bot to ensure ample liquidity for traders. This takes price data from a list of exchange venues, removes outliers and non responsive results then calculates fair value. Bid and ask orders are then placed into the order book with a spread which varies according to market volatility.

We believe in building for our users and having a small user base on testnet gives us feedback on how and where we need to focus our development efforts prior to mainnet launch.

Market Opportunity

In 2022 FTX disappeared along with all their users funds. This was widely believed to be due to gross misconduct and comingling of deposits, human error. Despite this, centralized exchanges still dominate the digital asset trading landscape.

Decentralized exchanges have the potential to capture a majority share of the market by offering superior security and transparency if we can compete on two factors.

1. **USER EXPERIENCE** - The user experience benefits of web2 infrastructure are faster, cheaper and more robust compared to current DeFi offerings. This is about to change as Ethereum evolves to become a chain of chains and users move to Layer 2's and appChains.
2. **LIQUIDITY** - Liquidity, slippage and frontrunning are all major issues across the current DEX ecosystem. A high performance, decentralized, limit order book exchange can fix this.

If ODEX can capture 10% of the trading volume of Binance (\$10B/day) it would be generating **revenues of \$3.65B USD a year**, based on the current 10 basis point fee structure.

Tokenomics

The ODEX token is yet to launch but we have draft tokenomics in place to make this an integral part of the ODEX exchange.

Distribution	Allocation	Percentage	Locked
Liquidity Incentives	400m	40%	Distributed linearly 10 years
Partners	200m	20%	Minted on demand
Public Sale	200m	20%	Available at TGE
Team Allocation	50m	5%	Available at TGE
Team Vested	50m	5%	Locked 1 year
Community	50m	5%	Minted on demand
Liquidity Provision	50m	5%	Minted on demand

Public tokensale will be held over a 30 day period with daily price increments of around 1% from 0.00001 to 0.000013 Eth per ODEX token. Token transfers are locked until the tokensale is complete.

Market Cap: Close price $0.000013 * 250m = 13,000 \text{ eth @ } \$1700/\text{eth} = \mathbf{\$5.5m}$

Fully diluted valuation: $0.000013 * 1B = 13,000 \text{ eth @ } \$1700/\text{eth} = \mathbf{\$22.1m FDV}$

Public sale: Average price $0.0000115 * 200m = 2300 \text{ eth @ } \$1700/\text{eth} = \mathbf{\$3.91m}$



Investment

Investing in ODEX presents a unique opportunity to participate in this evolution of what a decentralized exchange can be. With the increasing adoption of digital assets and the growing demand for DeFi services, the DEX market is expected to grow significantly in the coming years.

ODEX was built in a bear market and our aim is to launch for the next wave of crypto adoption. Our unique features and advantages position us well to capture a significant share of this growing market.

We are looking for partners to provide:

- seed investment
- market making services
- launch marketing & business development

Early partners can be accommodated with SAFT contracts and discounts are available for extended lock up periods.

This whitepaper is a call to action for those who believe in the transformative power of blockchain technology and the future of decentralized exchanges.