

Project Close-out Report for: Open-Source Rapid DEX: Batchers-less, instant, with transaction chaining

Name of Project and Project URL on IdeaScale/Fund

- **Name:** Open-Source Rapid DEX: Batchers-less, instant, with transaction chaining
 - **URL:** [Project on IdeaScale](#)
 - **Project Number ID:** 1300153
 - **Name of Project Manager:** Roman Majovsky
 - **Date Project Started:** Jan 20, 2025
 - **Date Project Completed:** July 24, 2025
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List of Challenge KPIs and How the Project Addressed Them

1. **Decentralized Exchange Infrastructure:**
Created a fully functional AMM DEX without a batcher, enabling direct pool interactions and seamless on-chain trade execution.
 2. **Open Source Development:**
All smart contracts, backend, and frontend codebases are publicly available on GitHub under an open license.
 3. **Instant, Low-Fee Trading:**
Removed the dependency on external batchers to eliminate slippage and reduce fees through direct user interaction with liquidity pools.
 4. **Tooling for Developers and Users:**
Delivered a real-time frontend UI with deep protocol analytics, developer-facing backend endpoints, and testing infrastructure for pool creation, swaps, and liquidity management.
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List of Project KPIs and How the Project Addressed Them

1. **Smart Contract Architecture:**
Implemented a single reference script for all pool logic, enabling swaps, liquidity actions, and staking key integration for ADA rewards.
2. **Functional MVP Interface:**
Deployed a live frontend on testnet that supports wallet connection, pool creation, token swaps, and liquidity management.
3. **Transaction Chaining:**
Demonstrated concurrent transaction support via transaction chaining — a critical requirement for future scalability of on-chain DEX trading.

4. **Protocol Analytics:**

Provided real-time tracking of TVL, volume, active users, and pool counts via backend APIs and frontend visualizations.

5. **Testing & Documentation:**

Included detailed test cases (manual `.feature` files), backend logs, and architecture documentation across all components.

Key Achievements

- Launched a live MVP of a batcherless DEX on Cardano testnet
- Developed smart contracts with staking logic and AMM pool support
- Enabled transaction chaining to support high concurrency
- Delivered real-time analytics with TVL, volume, DAU, and more
- Maintained full transparency through public GitHub repos and documentation
- Produced video materials demonstrating key interactions and infrastructure

Key Learnings

1. **Batcherless Architecture Is Viable:**

Direct interaction with pool UTxOs can remove intermediaries, reduce latency, and improve decentralization.

2. **Chaining Enables High Throughput:**

Transaction chaining proved effective in allowing multiple swaps within the same block — critical for user experience during peak load.

3. **Schema-Driven Analytics Help Users Understand the Protocol:**

Surfacing live metrics such as TVL and DAU supports transparency and usability, especially when paired with accessible frontend design.

4. **Shared Codebases Improve Adoption:**

Publishing contracts and tools in modular form accelerates developer onboarding and reuse in the Cardano ecosystem.

Comparison with Other DEXes

Unlike batcher-based DEXes on Cardano, Rapid DEX enables instant, low-fee trades by removing the batcher as an intermediary.

Key comparative advantages include:

- **Execution Speed:** Swaps are finalized within a single block using transaction chaining.

- **No Slippage:** Users interact directly with pool UTxOs, eliminating slippage from batcher reordering.
 - **Lower Fees:** No external batcher means reduced transaction fees for users.
 - **Transparency:** All pool logic is open-source, with real-time metrics displayed in the frontend UI.
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Next Steps for the Product or Service Developed

- Prepare for mainnet deployment following extended testnet usage
 - Open community discussions for liquidity bootstrapping and governance
 - Extend analytics and wallet support
 - Formalize documentation and write tutorials for third-party integration
 - Continue benchmarking transaction chaining under high load
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Final Thoughts / Comments

Rapid DEX showcases a high-performance, fully open-source alternative to batcher-based trading on Cardano. Its real-time architecture, protocol metrics, and smart contract simplicity demonstrate that decentralized trading can be seamless, affordable, and transparent — without sacrificing decentralization or user control.

We thank the Catalyst community for making this project possible and look forward to community-driven extensions and adoption.

Links to Other Relevant Project Sources or Documents

- Application: <https://rapid-dex.staging.wingriders.com>
- GitHub Repository: <https://github.com/WingRiders/rapid-dex>
- Smart Contracts: <https://github.com/WingRiders/rapid-dex-contracts>
- Architecture Docs: <https://github.com/WingRiders/rapid-dex/tree/main/docs>
- Manual Tests: <https://github.com/WingRiders/rapid-dex/tree/main/manual-tests>
- Analytics Docs: <https://github.com/WingRiders/rapid-dex/blob/main/docs/analytics.md>
- Backend Logs: <https://github.com/WingRiders/rapid-dex/blob/main/catalyst-evidence/milestone-3-backend-logs.log>

Link to Close-out Video

https://youtu.be/C_fO5Ws9wn8