Project Proposal: On-Chain Quiz Game using KRNL

Overview

This project proposes a decentralized quiz game, similar to Kahoot, built to showcase how KRNL's attestation and workflow technology can power trustless knowledge verification and gamified learning on-chain. Players answer questions fetched from an external quiz API, and their results are verified through KRNL workflows, ensuring fairness and integrity without exposing sensitive answer logic.

Goal

To demonstrate how KRNL can bridge off-chain knowledge APIs with on-chain verification, allowing developers to build secure, attested educational or gaming apps with transparent scoring and private validation.

Core Features

• API-Driven Questions: Fetch quiz data dynamically from a public or custom trivia API.

• Attested Answer Verification: KRNL workflow verifies user answers off-chain and produces cryptographically signed proofs.

• Delegated Smart Accounts: Seamless user participation using EIP-7702 for gas-abstracted gameplay.

• Gamified Interface: Simple React UI for question display, answer submission, and leaderboard updates.

• On-Chain Proof Registry: Smart contract records attested quiz results for transparent scoring.

Technical Architecture

Frontend: React + Vite using @krnl-dev/sdk-react-7702 and Privy for wallet onboarding.
Workflows:
- quiz_fetch.krnl – retrieves random questions from an external trivia API.
- quiz_verify.krnl – checks answers off-chain and returns attested proofs of correctness.

Smart Contract: QuizSCA.sol validates attestation proofs and updates leaderboard.
Infrastructure: KRNL Node handles workflow orchestration; KRNL Attestor ensures verifiable off-chain execution.

Milestone	Description	Timeline
M1 – Architecture & Setup	Define app structure, smart contract design, KRNL node setup	Week 1–2
M2 – Workflow Development	Implement `quiz_fetch.krnl` and `quiz_verify.krnl` workflows	Week 3–4
M3 – Smart Contract Integration	Deploy and connect `QuizSCA.sol` to workflows	Week 5
M4 – Frontend Implementation	Build React interface and wallet onboarding (EIP-7702)	Week 6–7
M5 – Testing & Deployment	Integrate, test on KRNL Testnet, write documentation	Week 8
M6 – Open Source Release	Publish repo, demo video, and developer guide	Week 9

Revenue Model

The platform generates revenue by enabling web3 organizations/communities/ individuals to host verified quiz competitions with prize bounties and capped participation, ensuring fair scoring through KRNL. Additional revenue comes from sponsorships, premium game features (like advanced tournaments and cosmetic NFTs), and minted NFTs or verifiable skill badges for winners, creating both B2B and B2C monetization opportunities.

Expected Completion Date

February 15, 2026 – MVP deployed on KRNL Testnet, with open-source code and documentation available on GitHub.

Team

Fred Gitonga : Developer exploring KRNL-powered decentralized learning applications (Open for collaboration within the KRNL Labs community)