Summary

GMarket is a decentralized platform for trading gaming assets, built on the Ethereum blockchain. The project aims to create a universal, secure, and transparent system that allows players to trade items from various games using modern standards such as ERC-1155 and ERC-20.

Introduction

Digital assets, such as gaming items, have become an integral part of modern gaming ecosystems. However, centralized trading platforms for such assets have numerous drawbacks, including low transparency, high fraud risks, and limited compatibility between games. GMarket addresses these issues through a decentralized architecture.

Project Goals

The project is designed to demonstrate blockchain's potential within gaming ecosystems. Key objectives include:

- Providing a secure and transparent platform for trading gaming items.
- Ensuring compatibility with various games through independent smart contracts.
- Demonstrating the implementation of decentralized asset management.

Problems Addressed

- **Lack of transparency:** Centralized platforms often fail to provide reliable transaction information to players.
- **High fraud risks:** Users frequently encounter counterfeit gaming items and scams during trades.
- **No cross-game compatibility:** Centralized platforms are restricted to the functionality of individual games.

The Solution

GMarket eliminates these issues by leveraging blockchain technology:

- **Transparency:** All transactions are recorded on an immutable blockchain ledger.
- **Security:** The use of smart contracts prevents manipulation and fraud.
- **Scalability:** GMarket supports trading assets from multiple games, with each game having its own inventory.

Architecture

Core Components

1. **Auction Smart Contract**
   - Manages the processes of creating, modifying, and completing lots.
   - Facilitates interactions between users and inventories.
2. **Game Inventories**
   - Implemented using the ERC-1155 standard.
   - Each inventory represents items from a specific game.
3. **Payment Token**
   - An ERC-20 token serves as the internal currency for transactions.
   - Ensures system universality and compatibility.

Use Cases

Seller Workflow

1. The user interacts with the game smart contract and grants (allowance) the auction permission to access their inventory.
2. They create a lot on the auction by specifying the game contract address, item type, quantity, and unit price.
3. Items are temporarily transferred from the user's inventory to the auction's account.
4. The seller can cancel the lot, and items are returned to their inventory.

Buyer Workflow

1. The user queries the auction for available lots (getLots).
2. After selecting a lot, they authorize the use of their tokens and complete the purchase via the purchase function by providing the lot ID.
3. The auction transfers tokens from the buyer to the seller and delivers the items to the buyer's inventory.

Technical Details

Standards:

- **ERC-1155:** Used for managing gaming items.
- **ERC-20:** For implementing the system's internal currency.

Contract Structure:

1. GMarketAuction.sol: Manages lot creation, cancellation, and completion.
2. GMarketGameInventory.sol: Implements game inventories using ERC-1155.
3. GMarketCoin.sol: Represents the platform's internal ERC-20 token.

Advantages

- **Universality:** The platform supports various games and assets.
- **Ease of Use:** The project focuses on intuitive operations with inventories via Web3 wallets, ensuring usability for non-blockchain-savvy users.
- **Decentralization:** Eliminates intermediaries from trading processes.

Team

The project is developed by students:

- **Oleg Likhogub:** DevOps specialist with a knack for demo presentations in Discord.
- **Dmitry Kakoulin:** GameDev developer and likely the originator of the GMarket idea.
- **Anton Biluta:** Songwriter who moonlights as a WhitePaper author.

Roadmap

1. Development and testing of smart contracts:
   - Auction.
   - Game inventories.
   - Token.
2. Deployment on Ethereum testnet.
3. Conducting a platform demonstration.
4. Preparing the final documentation.

Risks and Limitations

- **Front-running:** Blockchain transaction processing may allow manipulation of lots.
- **High gas fees:** Users may face significant transaction costs.
- **Code vulnerabilities:** Thorough testing of smart contracts is essential to minimize risks.

Future Development

- **Support for other blockchains:** Integration with Polygon and Binance Smart Chain to reduce fees.
- **NFT Implementation:** Support for unique items adhering to the ERC-721 standard.
- **Partnerships:** Collaboration with game developers to expand the user base.

Conclusion

GMarket is an educational project showcasing blockchain’s capabilities in managing gaming assets. It serves as an example for implementing decentralized solutions in the gaming industry. The project offers a platform that connects players and unlocks new opportunities for utilizing digital assets.