

The World of Crypto

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Project Proposal / Charter

1.1 Introduction

1.1.1 Purpose and Goals

Vision

The World of Cyrpto game aims to provide players with an enjoyable and decentralized experience using blockchain technology. Players will interact with a blockchain-based economy while exploring different cultures, overcoming challenges, and earning rewards. This game allows players to develop strategies and track their in-game achievements through NFTs and tokens.

Goals

- Design a blockchain-based game and integrate NFTs and tokens.
- Provide an interactive user experience with a decentralized economic system.
- Offer tasks and rewards that encourage strategy development and puzzle-solving skills.
- Enable players to travel across the planet and find treasures by answering questions correctly.

1.1.2 Background

Context

The World of Cyrpto presents an innovative approach in blockchain-based digital games. As players explore different countries on Earth, they try to find treasures by answering questions based on the NFTs they own. The game combines an educational and cultural discovery experience while integrating the secure and transparent structure of blockchain with the game economy.

Problem Statement

Many digital games today operate on centralized systems, jeopardizing players' rights, ownership, and data security. A blockchain-based solution eliminates these issues by providing transparency, security, and fairness. Additionally, linking in-game rewards to real ownership rights will increase player motivation.

Why a Blockchain Solution?

Blockchain records player interactions securely and fairly due to its decentralized structure and transparency. NFTs validate players' in-game achievements and digital assets, while local tokens form the core of the game economy. These structures offer strategic depth, creating a more interactive gaming experience.

1.2 Scope

1.2.1 In-Scope

- Explore different countries on a single planet, Earth.
- Determine difficulty levels based on NFT verification for players.
- Performance-based rewards, local tokens, and rare NFTs.
- Use tokens for transactions in a blockchain-based economy within the game.
- Dynamic question-and-answer tasks related to different countries.

1.2.2 Out-of-Scope

- Travel to planets beyond Earth or fictional locations.
- Non-game activities or non-decentralized systems and token use outside the game.

1.3 Feasibility and Risks

1.3.1 Technical Feasibility

The feasibility of implementing blockchain technology is very high. NFT verification, local token management, and transparent reward systems can be integrated, with platforms such as Ethereum or Polygon ensuring fast and secure in-game transactions. These platforms offer low transaction fees and fast processing times. Additionally, minimal database storage will be required for player data.

1.3.2 Financial Feasibility

The game economy will be supported through digital wallets and local tokens (HUNT tokens). Players will purchase tokens to travel and complete tasks. The game’s economic model is scalable, and the token value may increase with the game’s popularity, ensuring the sustainability of in-game transactions.

1.3.3 Risks

- High transaction fees (gas fees) may deter players from engaging in smaller in-game transactions.
- Security vulnerabilities or network congestion on blockchain networks may cause interruptions or delays in the game.
- Errors or challenges in the NFT verification system may cause incorrect game logic or create unfair advantages.
- Player engagement or interest may decrease after the initial novelty of the game wears off.

Game Design and Mechanics

2.0.1 Game Overview

The World of Crypto is an exploration-based game that combines educational, strategic, and fun elements. Players explore various countries around the world and begin their adventures by paying a travel fee using in-game tokens. Each country presents culturally rich question-and-answer tasks, and players who successfully complete these tasks get one step closer to uncovering hidden treasures. The game offers a dynamic experience shaped by the NFTs players hold and their in-game decisions.

2.0.2 NFT Verification and Role

In the game, NFTs serve as a key to provide access. The difficulty level of the questions is independent of the rarity level of the NFTs; NFTs only grant permission to access the game. However, the rarity levels of NFTs offer players the potential to earn additional rewards. These rewards will be determined in later stages of the game and will allow players to enrich their collections. NFTs do not directly affect a player's progression, but players with rare NFTs can gain extra advantages.

2.0.3 Country Exploration and Tasks

Players can explore any country they wish via the interactive world map. There is no lock system in place, meaning players can access any country. Each country has its own unique travel fee, which is paid using the player's in-game tokens. Upon entering a country, players are presented with culturally themed questions and tasks. The difficulty level of the tasks remains fixed, independent of NFTs, ensuring that all players encounter questions of the same difficulty.

2.0.4 Treasures and Rewards

The main goal of the game is for players to reach hidden treasures with minimal exploration. Correctly answering questions provides additional rewards. However, incorrect answers do not prevent players from continuing their exploration; they can still progress. Treasures may contain valuable in-game tokens or rare NFTs. These rewards enhance the player's ability to explore more and simultaneously enrich their overall collection. The treasure system is designed to encourage continuous play and strategic thinking, as players must decide how to utilize their resources to maximize rewards.

2.0.5 Early Exit and Refund System

To accommodate different play styles and schedules, **The World of Crypto** offers an early exit and refund system. Players can choose to exit the game at any stage of their adventure. If they choose to exit early, a portion of the paid travel fee will be refunded. This system encourages strategic decision-making as players must weigh the potential rewards of continuing exploration against the advantages of exiting early. The refund mechanism ensures that players are not penalized for exiting the game, offering a flexible and user-friendly experience.

White Paper

3.1 Abstract

The World of Crypto is a blockchain-based game where players travel across a digital planet, facing cultural, geographical, and historical challenges. Players earn rewards by solving questions and completing tasks using local tokens, while their journey's progress is securely recorded on the blockchain.

3.2 Introduction

3.2.1 Motivation

We aim to create a decentralized world by combining blockchain and NFT technologies with an entertaining and unique experience for players. By using these technologies, we can offer a game that is transparent, fair, and rewarding.

3.2.2 Ecosystem Overview

Players join the game by linking their digital wallets, verifying their NFTs, and then traveling across different countries within the game. Each country offers unique challenges based on its culture, geography, and history, and players can earn rewards by answering questions or completing missions.

3.3 Blockchain Model

3.3.1 Content Creation and Review Lifecycle

On the blockchain, each player's progress, including questions answered, tokens used, and NFTs earned, is recorded securely and transparently. This ensures players can trust that their actions and rewards are verifiable.

3.3.2 Review Cycle Details

The blockchain ensures that all transactions within the game, such as token usage and NFT rewards, are transparent and fair. Player progress is validated in real-time as they complete challenges.

3.4 Tokenomics / Incentives

3.4.1 Token Overview

Token is a specialized digital asset within the Treasure Hunt Game ecosystem, central to the game's economic structure. It offers a wide range of functionalities and benefits for both players and investors, supporting and expanding the ecosystem. Token plays a crucial role in the internal operations and overall economic framework, providing players with various opportunities for in-game transactions, rewards, and incentives, while also offering investors confidence in the project's sustainability and growth.

3.4.2 Use Cases of WoC Token

- **Transaction Fees:** Token will be used for entry fees and various in-game transactions. This allows players to interact with the system and engage in game activities using their tokens.
- **Voting and Governance:** Holders of Token will have the right to vote on key decisions regarding the game's development and future updates. Token holders can participate in community voting to influence the direction and features of the game.
- **Rewards and Incentives:** Tokens will be distributed as rewards for community events, tournaments, and in-game achievements. This distribution encourages active participation and rewards players for their contributions and successes.
- **Ecosystem and Development:** Token will support the financing of new features, in-game content, and technological advancements. This ensures that the game remains innovative and engaging.
- **Marketplace Transactions:** Tokens will be used for transactions within the game's marketplace. Players can use Hunt Tokens to buy, sell, or trade in-game assets and items, creating a vibrant economy within the game and adding another layer of utility to the token.

3.4.3 WoC Token Distribution

- **Team (30%):** Allocated to the team responsible for developing and managing the project. These tokens will be distributed with a locking mechanism, gradually unlocking over a period of 2 years. This ensures long-term commitment and trust in the project.
- **Investors (20%):** Allocated to investors who provided financial support during the early stages of the project. Special incentives and benefits will reinforce their confidence in the project.
- **Liquidity (5%):** Allocated to ensure sufficient liquidity for Token trading across various platforms, supporting smooth trading operations and reducing price volatility. This allocation helps maintain a stable liquidity pool for a reliable and efficient trading experience.
- **Community (25%):** Reserved for users who contribute, support, and actively engage with the project. Used for rewards, incentives, airdrops, and in-game prizes, employing various strategies to enhance community participation and engagement.
- **Marketing, Partnerships, Advisors, and Reserve Fund (20%):** Allocated for promoting the project, increasing market share, and forming strategic partnerships. Includes funding for advisors and a reserve fund to address potential crises or unforeseen expenses, enhancing the project's visibility and ensuring long-term sustainability.

Note: The team is considering listing the token on partner decentralized exchanges (DEXs) as part of their strategic plans, enhancing the token's accessibility and liquidity. Only the team's allocated tokens will be locked initially, with gradual unlocking over a 2-year period. All other tokens will be distributed without a locking mechanism.

3.4.4 Future Plans

Token's evolving structure will expand within the game and into various use cases outside of it. Integrations with more platforms and services aim to broaden the token's applications, ensuring versatile value and a wide user base beyond the gaming ecosystem.

Token will continue to create sustained value within the ecosystem, offering unique advantages to players while reinforcing commitment and trust in the project. Throughout this process, Hunt Token will enrich the gaming experience and remain a valuable asset within the ecosystem.

System Requirements Specification

4.1 Introduction to Requirements

4.1.1 Purpose of the SRS

The System Requirements Specification (SRS) document serves as a comprehensive guide delineating the functional and non-functional requirements for the game. It is designed to ensure that both the core gameplay mechanics and the intricate blockchain-based interactions function seamlessly. By adhering to this specification, developers, designers, and stakeholders can maintain a clear understanding of the system's intended behavior, ensuring a cohesive and high-quality gaming experience.

4.2 Functional Requirements

4.2.1 Players

Players will engage with the game by securely linking their digital wallets, which will be used for authentication and asset verification. The system will validate their ownership of specific Non-Fungible Tokens (NFTs) before granting access to various in-game functionalities. Once authenticated, players will embark on a virtual journey across different countries, where they will interact with a diverse range of cultural, geographical, and historical challenges. Successfully overcoming these challenges will be a key determinant of their in-game progress, unlocking new territories and rewards.

4.2.2 Use Cases

Within each country, players will undertake treasure-hunting missions, which require them to answer a series of progressively difficult questions. The difficulty level of these questions will be dynamically adjusted based on the player's verified NFT attributes and their in-game progression level. Players with higher-tier NFTs or extensive gameplay experience may encounter more intricate and domain-specific questions. The game's adaptive system ensures an engaging experience, where knowledge acquisition and strategic decision-making play a crucial role in determining success. Through these mechanics, the game fosters an intellectually stimulating environment that rewards both learning and exploration.

Implementation / Technical Specification

5.1 Technology Stack

The implementation of our decentralized application (DApp) leverages a robust and secure technology stack, ensuring efficiency, maintainability, and security. Below is a comprehensive breakdown of the tools, languages, and frameworks utilized.

5.1.1 Languages and Frameworks

- **Solidity** – The primary programming language for writing Ethereum smart contracts. It is statically typed and contract-oriented, enabling the development of secure and efficient decentralized applications.
- **React Native** – A cross-platform framework for building the frontend of the application, ensuring a seamless and responsive user experience on both iOS and Android devices.
- **Web3.js Ethers.js** – JavaScript libraries used for interacting with the Ethereum blockchain. Web3.js provides comprehensive blockchain interaction capabilities, while Ethers.js offers a more modular and lightweight approach, with enhanced TypeScript support.
- **IPFS (InterPlanetary File System)** – A decentralized storage solution used to store off-chain metadata, game assets, and other immutable data in a distributed manner.

5.1.2 Development Testing Tools

- **Hardhat** – A development environment for compiling, deploying, testing, and debugging smart contracts. It provides a local Ethereum network for rapid testing and supports advanced debugging features.
- **Remix IDE** – A web-based development environment for writing, compiling, and deploying Solidity smart contracts, often used for quick prototyping and testing.
- **Sepolia Testnet** – The Ethereum test network used for initial contract deployment and testing before launching on the mainnet. It provides a safe environment to validate smart contract functionality.
- **JavaScript (Testing Frameworks)** – Smart contract tests will be written in JavaScript using testing frameworks integrated within Hardhat to automate and validate contract functionality.

5.1.3 Security Auditing Tools

- **Mythril** – A security analysis tool for Ethereum smart contracts, used to detect vulnerabilities such as reentrancy, integer overflows, and unhandled exceptions.
- **Slither** – A static analysis framework for Solidity, enabling developers to identify potential security flaws, code inefficiencies, and optimization opportunities.

- **Echidna** – A property-based fuzzing tool for testing Solidity smart contracts, allowing developers to simulate a wide range of unpredictable inputs to ensure contract robustness.

Testing Strategy and Plan

6.1 Test Scope

The primary focus of testing will be on the following areas:

- **Blockchain Interactions:** Ensuring that smart contracts interact seamlessly with the blockchain, covering token transfers, NFT verification, and transaction confirmations.
- **Transaction Accuracy:** Verifying that all player transactions (in-game purchases, rewards, and token transfers) are correctly processed and reflected in the player's balance or inventory.
- **System Performance:** Assessing the game's performance under varying loads, ensuring that the game can handle high traffic without compromising user experience or causing delays in blockchain transactions.
- **Security Vulnerabilities:** Performing security audits to detect and address vulnerabilities, including but not limited to front-running, replay attacks, and unauthorized access to player data.
- **Reward Distribution:** Validating that rewards, whether in-game currency, tokens, or NFTs, are accurately distributed according to the game mechanics.

6.2 Test Environment

The test environment will be designed to simulate realistic player interactions with the blockchain, in-game transactions, and player progress. This environment will allow for the testing of smart contract functionality and the integration of the front-end and back-end systems without impacting the live game.

Testing tools such as Hardhat and Mocha will be used for smart contract development and testing. These tools allow for thorough testing of smart contract logic, ensuring that they behave as expected under various conditions. Additionally, mock data and test networks (such as Rinkeby or Mumbai) will be used to simulate blockchain transactions, providing a controlled environment for debugging and performance evaluation.

6.2.1 Types of Tests

Smart Contract Tests

The smart contracts governing the game's economy (token transfers, rewards, NFT verification) will undergo comprehensive testing. This includes:

- Unit tests for individual smart contract functions, ensuring they operate correctly.
- Integration tests to check how smart contracts interact with each other and the broader blockchain network.
- Security audits to detect vulnerabilities, such as reentrancy attacks or unauthorized access, that could compromise the game's integrity.

Front-Running and Transaction Order Testing

To mitigate risks such as front-running, the game will conduct tests designed to simulate various attack vectors on transaction ordering. This involves:

- Testing for front-running attacks, where malicious actors attempt to exploit transaction order by submitting competing transactions before legitimate ones.
- Evaluating the use of gas price manipulation to detect any weaknesses in the game's transaction processing.

These tests will ensure that the system remains fair and resistant to exploitative behavior.

Beta Testing

In addition to the technical tests mentioned above, limited beta testing will be conducted with a select group of players. This phase will involve:

- Testing the game's user interface, gameplay mechanics, and blockchain interactions from a player's perspective.
- Collecting player feedback on potential issues such as bugs, performance lags, or user experience concerns.
- Ensuring that blockchain transactions, wallet integrations, and reward distributions function properly for real users.

This beta testing phase will be crucial in identifying issues that may not have been detected in the initial development or smart contract testing phases. Feedback from this stage will directly influence improvements and optimizations before the official launch.

Deployment / Maintenance Plan

7.1 Deployment

7.1.1 Network Setup

To ensure secure and efficient handling of player transactions, the blockchain network will be configured based on Ethereum or a Layer-2 solution like Polygon. This setup will facilitate the management of in-game token transactions, ensuring low transaction fees and fast processing speeds for the players. Initially, the deployment will utilize a test network to simulate player interactions and transactions before migrating to the main network.

7.1.2 Deployment Phases

Phase 1: Test Network Deployment

The initial phase of deployment will involve testing on a blockchain test network (such as Rinkeby for Ethereum or Mumbai for Polygon). This phase will focus on identifying and addressing potential bugs, ensuring smart contract functionality, and optimizing transaction speeds. During this phase, only a limited number of users will interact with the game to help ensure stability and reliability.

Phase 2: Main Network Deployment

After successful testing and necessary adjustments based on test network feedback, the game will be deployed on the selected main network. The specific network will be chosen based on factors such as transaction cost, speed, and scalability. Ethereum or Polygon will be evaluated for production deployment, with the decision finalized based on performance and community feedback. Once deployed, players will be able to interact with the game in real time, with all blockchain-based features fully operational.

7.1.3 Initial Configuration

Upon initial game launch, players will be required to link their digital wallets, such as MetaMask or WalletConnect. This step ensures that players can securely manage and verify their NFTs and in-game assets. Additionally, the players' wallets will enable them to make secure transactions and interact with the game's economy. During the configuration, players will also verify their NFTs, which serve as proof of ownership for in-game assets and characters, allowing them to actively participate in the game.

7.2 Maintenance

7.2.1 Version Upgrades

The game will undergo regular updates to enhance gameplay, fix bugs, and introduce new features. These updates will be carefully planned to minimize disruption to gameplay. Players will be notified in advance of upcoming updates, and downtime will be minimized through a robust update mechanism that ensures the game's integrity. Patch notes for each update will be provided, detailing new features and any fixes that have been implemented.

7.2.2 Ongoing Monitoring

Continuous monitoring will be in place to ensure the game runs smoothly, focusing on transaction performance, server stability, and the security of player assets. Any issues will be promptly addressed through hotfixes or planned maintenance windows.