The PER Token: The New Era of Gaming Industry with NFTs and Web3 Integration
(v1.0)

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ABSTRACT. The integration of blockchain technology into gaming platforms has revolutionized the gaming industry, providing new opportunities for players and developers alike. This paper examines the impact of PER tokens within the Peridot ecosystem, highlighting their pivotal role in facilitating a Play-to-Earn (P2E) economy. PER tokens, built on the Internet Computer Protocol (ICP), are designed to enhance transaction efficiency, ensure transparent ownership of digital assets through NFTs, and offer immersive gaming experiences. Our research explores the minting process of PER tokens, their distribution model, and their application in various gaming scenarios. We discuss how the integration of PER tokens incentivizes player engagement and creates a sustainable economic model within the gaming platform. By leveraging NFTs and the Metaverse, Peridot not only provides unique digital ownership but also fosters a robust and interactive user environment. The findings suggest that PER tokens significantly boost user engagement and satisfaction, presenting a transformative approach to modern gaming platforms.

INTRODUCTION

Blockchain technology gained popularity following the successful launch of Bitcoin in 2008. Initially, many viewed blockchain solely as a tool for trading and investment. However, with the emergence of the first blockchain [1], followed by the development of new blockchains capable of executing smart contracts [2], the cryptocurrency landscape drastically changed. This evolution enabled developers to create a wide range of applications in various fields. Some of these applications run on blockchains like Ethereum [2] and Internet Computer Protocol (ICP) [3]. Additionally, many new blockchains have emerged offering different solutions, such as Solana, which provides high transaction speed and low costs [6], and BlockDAG, which maintains a traditional approach while evolving [7]. There are also blockchains like Internet Computer Protocol [3] that allow users to interact with the blockchain without transaction fees.

Blockchain and related technologies such as Non-Fungible Tokens (NFTs) represent one type of cryptocurrency [4] originating from Ethereum smart contracts [5]. Besides NFTs, Ethereum also offers Fungible Tokens that can serve as a secondary payment method after Ethereum itself [2]. These Fungible Tokens can be created by any developer within the Ethereum network. However, as the price of Ethereum increases, the transaction costs on the blockchain network also rise. Therefore, we have chosen to use Internet Computer Protocol (ICP). ICP offers low transaction costs, high transaction speed, and the ability to scale infinitely by adding nodes to its network, making it an ideal choice for our gaming platform.

The next wave of technology is expected to transform the gaming ecosystem, with the Metaverse becoming a focal point in various industries. This technology not only offers transparency and security but also creates a new ecosystem that allows users greater control over their digital assets. For this project, we will specifically use the Internet Computer Protocol network and our fungible token named PER to provide users with ownership and revenue streams within the project. In this document, we will explore the use of the PER token on the ICP blockchain for the gaming platform and how the adoption of NFTs and the Metaverse can enhance the user experience.

LITERATURE REVIEW

Theoretical Studies

Blockchain technology was first introduced with Bitcoin in 2008 by Satoshi Nakamoto [1]. Bitcoin utilized blockchain as a public ledger to record transactions securely and transparently. Early studies on blockchain focused on the potential of this technology in finance, particularly in reducing transaction costs and enhancing security [8].

Later, the advent of Ethereum in 2015 brought the concept of smart contracts. Smart contracts allow developers to create applications that run on the blockchain and can execute commands automatically based on predefined conditions [2]. Ethereum paved the way for various decentralized applications (dApps) that can be used in numerous industries, including gaming [5].

Empirical Studies

Numerous empirical studies have explored the use of blockchain in the gaming industry. A study by Zhang et al. [9] demonstrated that the use of blockchain in gaming can enhance the security and transparency of transactions, as well as provide players with actual ownership of their digital assets. Additionally, research by David Oku [10] identified that the adoption of NFTs in gaming enables users to easily buy, sell, and trade digital assets, creating a new economic ecosystem within games.

Integrating blockchain with Metaverse technology can create a more immersive and interactive user experience [11]. The Metaverse allows users to engage in a deep virtual environment where they can own unique and valuable digital assets.

Model Development and Findings

Building on previous studies, we developed a model to explore the use of PER tokens on the ICP blockchain within our gaming platform. This model includes three key components: (1) using PER tokens as a transaction tool within the gaming platform, (2) integrating NFTs to provide unique digital ownership, and (3) adopting the Metaverse to create a deeper user experience. The main findings of our research are:

1. Enhanced Transaction Efficiency: The use of PER tokens on the ICP blockchain significantly improves transaction efficiency within the gaming platform.
2. Increased User Engagement and Satisfaction: Integrating NFTs into the gaming platform substantially boosts user engagement and satisfaction by providing unique digital ownership.
3. Improved Immersiveness and Interactivity: Adopting Metaverse technology within the gaming platform greatly enhances the immersiveness and interactivity of the user experience.

RESEARCH METHOD

Research Design

This research adopts a descriptive and exploratory design aimed at identifying and evaluating the effectiveness of using PER tokens in a blockchain-based gaming platform on the Internet Computer Protocol (ICP). The design also examines the integration of NFTs and the Metaverse within the gaming ecosystem and its impact on user engagement and satisfaction. The descriptive approach is employed to document existing phenomena, while the exploratory approach is used to develop new insights into the application of blockchain technology in the gaming industry [12].

Data Sources and Collection Techniques

This study utilizes secondary data obtained from existing literature, including journal articles, industry reports, and academic publications on blockchain, NFTs, the Metaverse, and their applications in the gaming industry. Data collection is carried out through a documentation analysis technique, which involves reviewing relevant journal articles, industry reports, whitepapers, and academic publications to gain a comprehensive understanding of blockchain technology and its applications in the gaming industry [13].

Data Analysis Techniques

The collected data will be analyzed using the following methods:
1. Descriptive Analysis: This technique is used to describe the basic characteristics of the collected data. Descriptive analysis will provide an overview of user perceptions, engagement levels, and their experiences with the blockchain-based gaming platform [14].
2. Inferential Analysis: This technique is employed to test the developed hypotheses. It involves using statistical tests such as linear regression and t-tests to determine the relationships between the studied variables, such as the relationship between PER token usage and user engagement levels.
3. Thematic Analysis: This technique is used to analyze qualitative data obtained from in-depth interviews. Thematic analysis will identify the main themes emerging from the interview data and provide deeper insights into user experiences and perceptions.

DISCUSSION

Analysis of the PER Token Design

Minting Price
The design of the PER token is based on a minting mechanism using ICP crypto, with cyclical divisions intended to maintain the token's value stability. At the initial launch, the exchange rate is set at 5,000,000 PER for 1 ICP Crypto. When the number of tokens reaches 5,000,000,000 PER, equivalent to 1000 ICP, the minting process is halved. Therefore, in the second cycle, the exchange rate becomes 2,500,000 PER for 1 ICP Crypto.

$$B = \begin{cases} \dfrac{B_p}{2} & if \ \ M_{cur} = M_{max} \\ B_p & if \ \ M_{cur} \neq M_{max} \end{cases}$$

B   = Bonus
B_p = Previous Bonus
M_{cur} = Current Minting
M_{max} = Max Minting

Minting Prediction

To maintain the stability of the PER token's value, the minting mechanism is divided into several cycles, gradually reducing the number of tokens that can be minted over time. This cycle is expected to continue until the 20th to 24th cycles, after which users are predicted to stop minting because the bonus will be close to zero. This approach is expected to control token inflation and preserve the market value of the PER token. This mechanism is similar to the reward reduction model in Bitcoin mining, which aims to control inflation [1].

Table 1. PER minting prediction

Cycle	Bonus per ICP	Minted	Total Supply	Market Cap (ICP)
1	5,000,000	5,000,000,000	5,000,000,000	1,000
2	2,500,000	5,000,000,000	10,000,000,000	2,000
3	1,250,000	5,000,000,000	15,000,000,000	4,000
4	625,000	5,000,000,000	20,000,000,000	8,000
5	312,500	5,000,000,000	25,000,000,000	16,000
6	156,250	5,000,000,000	30,000,000,000	32,000
7	78,125	5,000,000,000	35,000,000,000	64,000
8	39,062.5	5,000,000,000	40,000,000,000	128,000
9	19,531.25	5,000,000,000	45,000,000,000	256,000
10	9,765.62	5,000,000,000	50,000,000,000	512,000
11	4,882.8125	5,000,000,000	55,000,000,000	1,024,000
12	2,441.40	5,000,000,000	60,000,000,000	2,048,000
13	1,220.70	5,000,000,000	65,000,000,000	4,096,000
14	610.35	5,000,000,000	70,000,000,000	8,192,000
15	305.17	5,000,000,000	75,000,000,000	16,384,000
16	152.58	5,000,000,000	80,000,000,000	32,768,000
17	76.29	5,000,000,000	85,000,000,000	65,536,000
18	38.14	5,000,000,000	90,000,000,000	131,072,000
19	19.07	5,000,000,000	95,000,000,000	262,144,000
20	9.53	5,000,000,000	100,000,000,000	524,288,000
21	4.76	5,000,000,000	105,000,000,000	1,048,576,000
22	2.38	5,000,000,000	110,000,000,000	2,097,152,000
23	1.19	5,000,000,000	115,000,000,000	4,194,304,000
24	0.59	5,000,000,000	120,000,000,000	8,388,608,000
25	0.29	5,000,000,000	125,000,000,000	16,777,216,000

Tokenomics

The estimated total token supply of PER is 520,000,000,000 PER, with a prediction that 120,000,000,000 PER will be minted through Peridot Swap. Token distribution is designed to support various aspects of platform development and operation. Twenty percent of the total supply will be allocated to the development team to support platform development and maintenance. Another 20% will be used for game rewards as incentives for players who actively participate in the gaming ecosystem.

To support marketing efforts and increase adoption, 10% of the tokens are allocated for marketing. The company will also reserve 10% of the total supply as a corporate reserve for future operational needs. Furthermore, 20% of the total supply will be provided for Peridot Swap, which is yet to be minted, providing flexibility in token supply management. Additionally, 10% each of the total supply will be allocated for ICP Swap and SNS Swap, allowing broader integration with other crypto ecosystems.
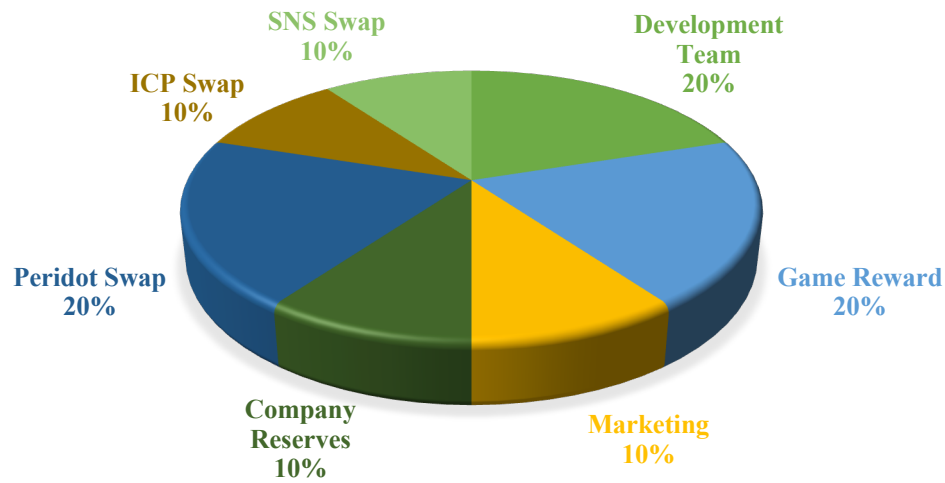
Figure 1. Peridot Tokenomics

Implementation on Gaming Platforms

The gaming platform under development functions as a game launcher and digital distribution akin to Steam. However, with the integration of NFTs and the Metaverse, this platform offers additional features that allow players to own, trade, and showcase unique digital assets within their games. This provides added value compared to traditional platforms that solely act as digital game distributors [2].
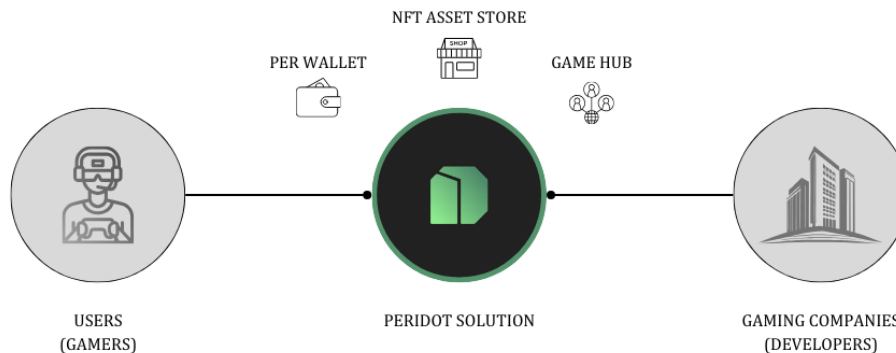

Figure 2. Peridot Gaming Platform Mechanism

Peridot Wallet
Peridot Wallet is a secure, versatile digital wallet that allows users to manage crypto assets and NFTs within a single integrated platform. Peridot Wallet integrates with all solutions within the Peridot ecosystem, connecting players to next-generation games instantly. This creates a cohesive and efficient ecosystem for users to manage their digital assets [2].

Game Hub
Game Hub is an social arena where members of the Peridot community can play games, earn cryptocurrency, and obtain NFTs while playing. These games are hosted on Internet Computer Protocol servers, ensuring a stable and responsive gaming experience. By providing an integrated social and economic platform [5].

NFT Adoption

The adoption of NFTs in gaming platforms allows players to own, trade, and showcase unique digital assets. The use of NFTs gives players greater control over their digital assets, creating a richer and more connected environment [9].

CONCLUSION

The main conclusions of the researched work should be presented. Provide a statement that what is expected, as stated in the "Introduction" chapter can ultimately result in "Results and Discussion" chapter, so there is compatibility. Moreover, it can also be added the prospect of the development of research results and application prospects of further studies into the next (based on result and discussion).

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