

WHITE PAPER ON THE SECOND EARTH PROJECT  
(GAIA PROJECT)  
V 2.0



UNHINDERED BOUNDARIES.  
VIRTUALLY EVERYTHING IS POSSIBLE!

PLUS ULTRA

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***BY INTEGRATING CRYPTOCURRENCY, VR, AI, AND  
STARLINK, SECOND EARTH WILL COMPLETE THE  
CONSTRUCTION OF MIRRORWORLD!***

***THE SECOND EARTH (SET) PUBLIC CHAIN COMBINES VIRTUAL  
REALITY, DEFI, AND NFT TECHNOLOGIES TO SUPPORT  
DECENTRALIZED FINANCIAL BASE-LAYER APPLICATIONS FOR  
FUTURE COMMERCIAL USE IN THE MIRRORWORLD!***

## PREFACE

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Reviewing the current developments across civilization and technology, people must face reality: against a backdrop of rapid technological change, humanity has lost itself. People's opportunities to access technology are increasing, but a sense of belonging is seeing an inverse effect. The amount of information that exists is skyrocketing, but at the same time its quality is declining. Technology has brought us closer together than ever before, yet we are drifting apart. The world in 2020 is a place marred by deep insecurity and despair, both of which are poisoning society. Thus, let us put wield hope against despair and faith against insecurity, giving rise to a better world and through technology.

Technology has ingrained itself into every aspect of our lives around the world, yet it cannot be the sole solution for all problems. Artificial intelligence is still in its infancy, the use cases of blockchain are limited, and the coronavirus has shown the fragility of our global supply chains. In such times of crisis, can technology give us new hope and help humanity continue its path forward, free from the limitations of the physical world?

The popularity of online video conferencing tools, such as Zoom during the pandemic, have helped people understand that interactions and communication between people are not necessarily hindered by physical barriers. Traditional personal interaction reaches its limits during times of crisis, but eventually this leads to an

emergence of new ways of interaction. Civilization is constantly evolving, and this progress cannot be halted. Instead of fighting the change, we must shape it and strive to create harmony between civilization and technology.

Many barriers prevent interaction in the physical world, from limitations of time and mobility to even subtler barriers, such as economic background or physical appearance. The wealthy might not spend time with those from a more modest background. The popular clique may not mingle with cliques they do not share any commonalities with, but they would not be obstructed by these societal barriers in an online space, like gaming. We are only just seeing the beginnings of how the emergence of virtual worlds will fundamentally reshape human interaction. The Second World (Gaia Project) will set out to drive this change because we passionately believe that there is only direction that humanity can go: forward! Plus ultra.

The Second Earth Mission: Reshaping human interactions.

The Second Earth Vision: Shaping a second human civilization in the virtual world.

The Second Earth Motto: Plus ultra (Latin: further beyond).

## Chapter 1

### PROJECT BACKGROUND

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#### 1. INDUSTRY STATUS AND PAIN POINTS

##### 1) Virtual Reality Technology

###### A. VR technology remains in simple use cases

In fact, virtual reality technology has a history that stretches back more than 50 years, but it has mostly remained in the realm of games and other simple use cases. Currently, there are still not many disruptive products emerging from this field and mobile games or PC games are still the most common way VR technology is applied. Game content and quality are constantly advancing, but the product itself lacks fundamental innovation.

A supreme AR/VR experience requires a low-latency network, but the current 4G networks cannot provide this crucial piece of infrastructure. Many advanced VR products cannot operate in the existing online environment because they need an abundance of high-cost modeling data and at least one to two days of work to create only static scenes. In addition, AR/VR requires a variety of strong network facilities. As a result, the VR industry has been mostly stagnant in recent years.

###### B. VR technology has limited data sources

The data sources required for virtual reality are currently quite limited because most of the data comes from professional modeling companies, and these high-quality materials

require a large number of companies to pool their resources for several years. Modeling based on static and panoramic shooting methods requires a great effort in UI design, scene design, and more. A simple scene may take one or two days for an engineer to process, which increases costs and reduces sales volume from users.

Because the virtual reality industry does not yet have a functional incentive mechanism to encourage the public to provide data, acquiring virtual reality data still faces many limitations, restricting development in the VR industry.

###### C. Virtual reality has not yet become deeply integrated with other technologies

Advanced interactive virtual reality technology requires a basic low-latency network environment, so before 5G and Starlink are widely utilized, most virtual reality environments are developed as a stand-alone version, which is problematic due to high costs and limited reach. Only when the global network bandwidth is strong and latency low enough, an actual virtual world can be built.

In addition, due to low productivity in terms of automation, artificial intelligence in the modeling process, drawing, and patching of VR and other virtual reality technologies, the production of new VR content is lagging behind potential demand by a large margin. Besides, due to a lack of data sharing incentives, it is not surprising that VR products can only provide such limited content we see today.

## 2) Cryptocurrency industry

### A. A lack of broader use cases

The underlying technology for cryptocurrencies is blockchain technology, which is essentially a distributed, shared database. The data stored in it is characterized by being tamper-proof, pseudonymous, yet open and transparent. Based on these characteristics, blockchain technology has laid a solid "trust" foundation and created a reliable "cooperation" mechanism, which has broad application prospects.

However, the underlying technology for many cryptocurrency projects is derived from Bitcoin, a non-Turing complete infrastructure. They are relatively slow, and constructing an ecosystem on top of them is exceedingly difficult. Because the underlying public chain infrastructure cannot break through its technical bottlenecks in terms of scalability, interoperability and sustainability, the emergence of "killer applications" is still not realistic just as if no one would build a high-performance racing car if there were no proper speedways.

We either have to wait to make a technical breakthrough in the underlying public chain technology, or look for better application areas under the existing technology level, where cryptocurrency incentive mechanisms are able to function properly. Naturally, the latter is more in line with the current situation and much more suitable for a project with high volumes of data to be processed.

### B. The barriers for the average person to are high

Blockchain and cryptocurrencies have relatively high barriers preventing the average person from participating. Some want to understand blockchain technology through mathematical reasoning, but when they see concepts, such as "elliptical random curve" or "asymmetric encryption", they quickly become discouraged and frustrated.

At the same time, managing cryptocurrency funds, to "be your own bank" is not an easy job for them. For example, in the field of cryptocurrency, users will encounter concepts such as "fiat transactions", "cryptocurrency transactions", "recharge", "withdrawal", "transfer", which will take a lot of time to understand, not to mention the rules that govern cryptocurrency trading, including "transaction fees", "limit/market orders", and "leverages". Hence it becomes obvious that the biggest shortcoming holding back blockchain games is that the barriers to entry are too high, and the operation processes are cumbersome. You need to pay before participating, which inherently limits user growth potential in this industry.

Therefore, launching a blockchain application that allows the average person to easily, simply, and willingly participate is the best way to widely promote blockchain and cryptocurrency technologies.

## 2. OVERVIEW OF THE SECOND EARTH PROJECT

Second Earth, also known as the Gaia Project, originated from the concepts dreamed up by Kevin Kelly, the most renowned futurist today. He has been studying the concept of a "mirrored world" for many years. Kevin Kelly believes that the mirrored world will enhance the real world through a combination of physical and digital spaces, and this world has now begun to emerge. It will be mankind's greatest achievement, creating new wealth for billions of people, and bringing new social opportunities and countless business opportunities. At present, there are no incumbents in this new virtual world, but everyone has the opportunity to participate in its creation.



## Chapter 2

# SECOND EARTH INNOVATIONS

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## 1. INITIAL INNOVATION OF CRYPTO-CURRENCY AND VR

Second Earth is the initial AR/VR interactive platform that has adopted a cryptocurrency incentive mechanism.

The virtual world is a mirror of the real world. It means that the virtual world will also have its own economic system, and virtual currency is an indispensable medium of exchange across this entire virtual world, but this virtual currency cannot be created in a centralized way by project developers or founders, as this would result in those in the virtual world lacking trust and security, ultimately leading to depreciation of this virtual wealth.

Therefore, implementing a decentralized, open, and transparent cryptocurrency is essential in order to establish a true parallel virtual economy. In this respect, integrating blockchain and virtual reality will greatly accelerate evolution of Second World. In addition, the cryptocurrency incentive mechanisms encourage the general public to collect data and store it in the virtual reality database, so that users of the virtual reality platform can receive their remuneration. The bridge between the virtual world and the physical world is built, which will greatly enrich the content in the virtual reality environment and make the interactive experience more vivid.

## 2. NEW MISSION SYSTEM

Second Earth will feature a new innovative mission system, allowing pioneers (see chapter 6.2) to assist the explorers (see chapter 6.1) to

complete exploration of the virtual world. The barriers for pioneers to participate are extremely low, since it only requires them to provide modeling data through uploading content, like pictures from mobile devices. Pioneers are not limited to occupations, countries, religions, or other factors, and the Second Earth has no barriers in terms of photography techniques but encourages people to shoot different scenes from multiple angles.

Additionally, Second Earth's incentive mechanisms will allow both explorers and pioneers to obtain ownership rights in the areas they explore, so that copyright fees could be obtained in certain scenarios. In addition, the pioneers earn get more rewards through the CPVS fees released by their respective explorers.

## 3. CONSENSUS MECHANISM POM

Second Earth also proposes a new consensus algorithm, called Proof-of-Mission (POM) consensus. M stands for "Media", "Message", "Memory", and "Mission". Second Earth's unique algorithm evaluates each participant's contribution value according to these four dimensions.

"Media" means the content material provided by each participant for the AR/VR experience. Taking buildings as an example, photo content from participants will give the designer more materials for reprocessing and modelling scenes of the virtual world. This part is the core of the entire integration, since this is the best way to increase the Second Earth ecosystem and attract as many users as possible.

“Message” relates to the core of information exchange and the soul of the entire project. The new interactive mode will lead to a transformation of human communication and become the launchpad for the entire VR industry.

In terms of “memory”, data in virtual technologies, such as VR is exceptionally large in most situations. Taking an ordinary VR video as an example, a VR camera can generate approximately 1TB of data per hour, which is equivalent to about 200,000 songs, or 17,000 hours of music. The ideal scenario for storing VR data must be to allow companies to view and edit it as needed, and at the same time allow them to store it economically, not to mention protect and preserve the data. Second Earth will fully utilize any contributor's storage space, and superimpose a double-layer system with front-end network storage and back-end storage.

A “mission” is an important task that everyone can participate in, and the low-threshold access for the task is conducive to the formation of the entire project ecosystem.

## 4. MATHEMATICAL ALGORITHM

Second Earth will use the Newton-Raphson method of mathematics possible thanks to multivariable calculus. The overall mathematical algorithm will consider multiple variables, and also consider real-world stability and fluctuations outside the ecosystem.

## 5. SET PUBLIC CHAIN WITH V-DEFI+NFT

Decentralized finance (DeFi), or Open Finance, is the use of blockchains and smart contracts to convert traditional financial products into trustless and transparent applications that can function without intermediaries. Non-fungible tokens (NFT) on the other hand represent a

special type of cryptocurrency where each token is unique and scarce and cannot be replaced. Decentralized finance projects have received great attention from the entire cryptocurrency field in 2020, while NFTs are considered to be an upcoming trend in the cryptocurrency field.

By establishing DeFi- and NFT-related smart contracts on the SET chain, Second Earth not only provides decentralized underlying financial services for Second Earth's VR ecosystem, but also puts itself at the forefront of the development trend of the entire blockchain and cryptocurrency industry. DeFi will provide liquidity for locked SET tokens, so that all citizens can benefit and continuous income is obtained.

## Chapter 3

# TECHNICAL FOUNDATION OF THE SECOND EARTH PROJECT

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## 1. UNDERLYING BLOCKCHAIN AND CRYPTOCURRENCY TECHNOLOGY

Blockchain is the technology behind most cryptocurrencies. It is currently even more popular than VR, but it is not a new technology in itself. If we use the example of Google Earth as an analogy, Ajax is not a new technology, but when these technologies are combined, it culminated in the product Google Earth. Similarly, blockchain is not a new technology, but Bitcoin was born when encryption technology, P2P networks, and economic incentives were combined. Blockchain was originally a unique way for cryptocurrencies, such as Bitcoin to store data, or a self-referencing data structure used to store a large amount of transactional information. Each record is linked in an orderly manner from the first to the last block (of data).

Second Earth will develop its own public chain and issue its own cryptocurrency, called SET, which will be used to support Second Earth virtual world's incentive mechanisms and economic ecosystem. SET will be fully integrated into the virtual world, and unlike traditional cryptocurrencies, SET will be utilized across a wider range.

The on-chain wallet launched by Second Earth will provide citizens with secure asset management services, and will also be used as the only account identification for various DeFi applications. According to this, citizens can utilize their on-chain assets in the application.

DeFi-related applications such as lending and staking can also be applied in on-chain games, where each asset can be traced and cannot be tampered with.

Nodes will decentralize the entire SET public chain network through open elections. Smart contracts on the SET public chain will take DeFi and NFT as core focus, combined with the commercial use case scenarios of the Second Earth virtual ecosystem. Together they will form a powerful financial ecosystem, so that the liquidity of SET can be fully guaranteed and the circulation of tokens in the system will be accelerated.

The launch of the SET block explorer will allow citizens to inquire about assets and transfer records openly, transparently and quickly. At the same time, the SET public chain will also set up a DAO (decentralized autonomous organization) based governance model in the later stage, so that every citizen can vote for the future development direction of Second Earth.

At the transaction layer, Second Earth uses an independent distributed settlement system. At the level of security protection, the POM consensus mechanism will play an important role. If an attack occurs in a certain dimension, the other three dimensions can be soft-forked to resist the attack.

## 2. VIRTUAL REALITY TECHNOLOGY

Virtual reality is a new technology that combines various other technologies together, such as computer graphics, multimedia, sensing

technology, human-machine interaction, network technology, 3D-display, and simulation. The areas it has been applied include military, medicine, psychology, education, scientific research, film and television, entertainment, manufacturing, engineering training, and more. This technology can replicate an environment to simulate a physical presence in a real or imagined world, allowing participants to interact with this virtual world.

In the Second Earth ecosystem, the real-world merges with the virtual and generates a new environment and new visual representations, in which the physical world and digital objects can coexist and interact in real time (AR). Users can interact with holographic projection

information in the virtual world of Second Earth, and instantly switch to any language. Virtual characters can be customized and replaced at will, and their clothing can be changed according to the scenario or changed according to user preferences. In the virtual world, trading virtual products is safe and convenient. Additionally, there are many types of virtual currency derivatives.

### 3. STARLINK

Starlink is a satellite constellation built by Elon Musk's SpaceX to provide satellite internet access with global coverage. The system will consist of thousands of small satellites in low-earth orbit and work in conjunction with ground-based transceivers.

SpaceX is fully utilizing its experiences in rockets and spacecraft to deploy the world's most advanced Internet system. With far better performance than traditional satellite Internet and a global network that is not restricted by ground infrastructure, Starlink will provide high-speed broadband Internet access to locations where an internet connection is otherwise unreliable, expensive, or completely inaccessible. Starlink's goal is to provide services in the northern United States and Canada by 2020, and rapidly expand to densely populated areas by 2021.

Starlink is determined to meet or exceed all regulations and industry standards. At the end of a satellite's life, the satellite will use its airborne propulsion system to de-orbit within a few months. In case the propulsion system fails to operate, the satellite will burn in the earth's atmosphere within 1-5 years, which is far less than the time required in high altitude areas.

Since the successful launch of the first satellites in 2020, it can directly integrate with and supplement existing 3G, 4G, 4G LITE, and traditional wired Internet.

## 4. HARDWARE AND EQUIPMENT

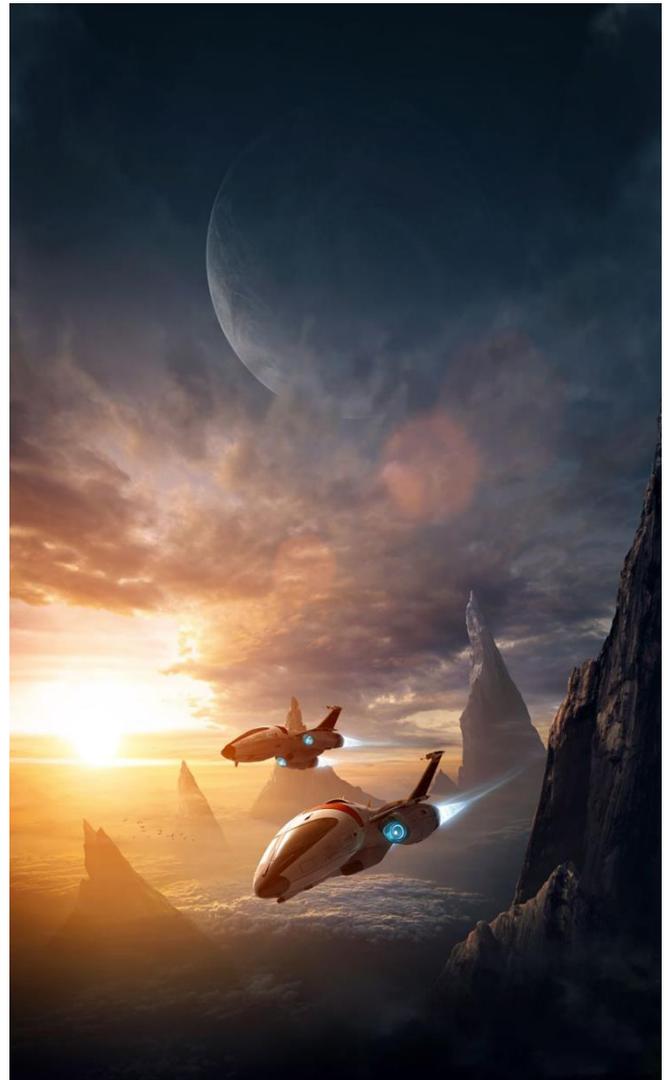
At present, the vast majority of sales of virtual reality hardware devices come from VR glasses, primarily Sony PSVR, Oculus Rift, and HTC. For the existing supply of virtual reality hardware & equipment, Second Earth is temporarily using traditional head-mounted displays, but will use nano-scale ABS materials to optimize its hardware product lines in the future.

The wearer is immersed in the virtual world through a head-mounted display and receives exchange information superimposed on the real image. The Second Earth HMD restricts human vision and hearing and guides the user to experience being in a virtual environment. The display principle is that the left and right screens display images for the left and right eyes respectively, and the stereoscopic effect in the brain can be produced after the information is received by the eyes. The Second Earth HMD will use a more precise ultrasonic sensor measurement system to ensure AR/VR system accuracy.

The virtual reality tracking system will be integrated into the headset, including built-in sensors, gyroscopes, and magnetometers. Second Earth will use smartphones as primary platforms and access terminals, supporting both Android and Apple. In terms of compatibility,

the platform uses a non-native system, which means the products from the developer are multiple systems on the same platform. If necessary, to edit the native system, the software platform will generate an independent hard-fork after the open source code is released, so that more developers can participate. On the PC side, the system will be compatible with Linux, Window, UNIX, and Apple operating systems.

For the controller, we will use a six-degrees-of-freedom hand controller. In terms of the transmission system, Second Earth will adopt ASIC transmissions instead of a Bluetooth transmission system to equip AR/VR equipment with better functions.



## Chapter 4

# SECOND EARTH APPLICATION ECOSYSTEM

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## 1. PRIMARY APPLICATION SCENARIO- IMMERSIVE VR TRAVEL

VR technology has been recognized as an important industry in the 21st century and one that will most assuredly influence people's lives on a fundamental level. It will enhance user experience and unleash potential synergies across dozens of industries, thereby enhancing the value of those industries, especially in games, art, design, agriculture and many other fields.

In the virtual world, there is an infinite sense of freedom, which is released when breaking away from the physical world: there is no friction, gravity, or other physical constraints that hinder people's progress. Second Earth does not allow the physical and real world to remain independent, but fuses the two together to "embed digital bits into physical atoms", all of which will redefine a new way human travel and communicate in the future!

The Second Earth Project therefore regards tourism as a preferential industry for virtual reality applications. Through 360-degree immersive virtual travel, users can explore every corner of the earth without ever leaving home and experience the fusion of bits and atoms to form a new amazing world.

With our users' help, we will be able to draw a virtual world map, the Second Earth, which is the same size as the real world and matches every point on the map. Second Earth is building an almost unimaginable 1:1 virtual replication of the earth;

this world will become the next great digital information exchange platform.

Second Earth can also complete collecting GIS data by simply taking photos and receiving rewards via the PoM mission system, overcoming the challenges facing the existing GIS industry today and allowing rudimentary products to be perfected through the Second Earth platform integration.

## 2. ADVANCED ADVERTISING SYSTEM

One of the main reasons why online marketing is getting more and more attention is because of its ability to deliver metrics and data for analysis as well as reaching people wherever they are. Virtual reality technologies can add another layer to this. It has one more dimension than traditional media, which leads to more effective advertisements with a more streamlined user experience.

Second Earth will first conduct early virtual reality advertising tests with various traditional online marketing concepts. Currently there are CPM, CPC, CPA/CPS, and more customized content marketing derivatives that are still being tested. To explore other forms of advertising, Second Earth has established cooperation with cryptocurrency advertiser Adragon to pursue cooperation in the nascent blockchain ads industry.

CPM (Cost Per Mille) cost per thousand people. CPM is a display advertisement that is paid for. As long as the advertiser's content is displayed, the advertiser pays for this. It focuses on the

number of IPs and will be the source of advertising in the early stage of the Second Earth ecosystem. Second Earth has contacted more than 20 global CPM companies to discuss utilizing AR/VR virtual reality through CPM cooperation.

**CPC (Cost Per Click)** cost per click. CPC is a pay-per-click advertisement, which is charged based on the number of times the advertisement is clicked through. This model is generally adopted for keyword advertisements, primarily for news. In terms of interactive content, the Second Earth Project will be embedded in the Bing CPC platform as well as search engine platform advertisements in several major countries. Second Earth has contacted more than 20 global CPC companies to discuss utilizing AR/VR virtual reality through CPM cooperation.

**CPA & CPS.** CPA (Cost Per Click Acquisition) is an advertisement that is priced according to the actual effect of advertising, that is, it is billed according to the effective questionnaire or registration of the response without limiting the amount of advertising. Many SEOs of EDM and traditional websites are carried out by CPA. CPS (Cost Per Sales) is an advertisement that calculates advertising costs based on the actual number of products sold. This kind of advertisement is more suitable for shopping, shopping guides, and website navigation websites. It requires precise traffic to bring conversions. That means, after the consumer sees the advertisement and clicks on the advertisement, after understanding the content further, certain specific actions are completed on the advertiser's website. CPS interfaces are generally Visa and Mastercard. Second Earth has signed more than 5 global CPA and CPS company contracts and is negotiating cooperation within the AR/VR industry.

**CPVS (Cost Per Viewing for The Second World).** Second Earth advertisement is the world's first customized advertisement in the virtual world. The primary display form is viewing, similar to mobile advertisement CPV, but mobile advertisements do not provide direct incentives to users. Due to its customized features,

advertisers can place precise advertisements, and users who participate can obtain revenue through advertisements, or fulfill missions in the virtual world according to the economic model and gain revenue, creating a mutually beneficial situation for the platform, users, and advertisers.

### 3. AR/VR GAMING & E-COMMERCE

Second Earth will also combine virtual reality technology with gaming in the future, so that citizens of the Mirrorworld can fully immerse in the virtual environment.

Second Earth VR (virtual reality) games will provide players with a truly realistic game experience. Citizens can experience and influence and interact with the gaming environment through specialized equipment and accessories (including VR headsets, gloves equipped with sensors, manual controllers, etc.).

VR games can be run on stand-alone systems, dedicated game consoles, or advanced laptops and PCs. These laptops and PCs can power leading VR headsets such as Oculus Rift, HTC Vive and Lenovo Mirage Solo. A subset of virtual reality games uses related technologies called augmented reality (AR) and mixed reality (MR). These virtual elements are placed in the player's real world when viewed through a headset or camera.

Second Earth will also launch more popular AR (augmented reality) games. AR games usually overlay a pre-created environment on top of the actual environment. AR games can construct a new environment based on the existing surrounding environment. In game development, creating an environment is a time-consuming task, and there is a constant demand for new scenarios, because once people have fully explored one environment, they want to move to another environment. Augmented reality games expand the game field

by using the sheer limitless diversity of the real world to keep the game interesting. Second Earth will make full use of the smartphone's camera, gyroscope, clock and GPS to realize a location-based augmented reality gaming.

According to game classification, the content of Second Earth games includes personal virtual reality games and multiplayer online virtual reality games. Some VR games (including VR and AR-based games) can put citizens in a combat environment, while other VR games may feature different scenarios, such as racing and chess. At the same time, citizens can also choose virtual reality games that solve problems, move objects or explore new places.

AR/VR games and immersive traveling will be implemented in the Second Earth add-on app, Terra-2.

In addition to AR/VR game content, Terra-2 will also develop a virtual reality e-commerce platform. This platform can provide merchants with their own VR panoramic system, quickly build a panoramic VR display platform, and can also provide a wealth of functional plug-ins to meet the individual needs of merchants, and seamlessly integrate them into a merchant's website or app. Via Terra-2, the AR/VR technology can quickly move enterprises to the mobile terminal in the form of 720° 3D, allowing merchants to show the powerful strength of their products and promote sales without leaving home.

Merchants can also publish personalized missions through the Second Earth action mission system, using SET as an incentive

mechanism. Thereby they can show their product image to all citizens of Second Earth through virtual reality advertising, or through NFT products.

Terra-2 is a door to a new virtual world for all citizens of Second Earth to explore! Terra-2 will include more VR/AR applications enrich the ecosystem of Second Earth.

## 4. V-DeFi+NFT Financial Services

Following the development trend in the blockchain industry, Second Earth will provide decentralized financial services for the aforementioned commercial application scenarios. The underlying financial services of Second Earth will be realized through smart contracts on the SET public chain, including basic as well as advanced financial service functions.

The basic financial services of Second Earth include deposit box staking & collateralization, decentralized exchanges, hash power collateralization, NFT asset auctions, merchant NFT trading and lending services.

Once the basic functions are built, more services will be independently built through the power of Second Earth's distributed global community. A series of advanced applications such as decentralized lottery, decentralized derivatives and NFT in-game properties and points can be built on the public chain of Second Earth.

## Chapter 5

# SECOND EARTH ECONOMIC MODEL

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## 1. SECOND EARTH AND SET

The Gaia Project, also called Second Earth, features a native cryptographic token: SET (Second Earth [=Second Earth] Token). SET is the core token at the center of all economic actions within the Second Earth virtual economy.

## 2. ISSUANCE MECHANISM

The SET token will be issued on a public blockchain with high throughput and a smart contract capability. A fixed amount of tokens will be mined every day and distributed to users according to their token holdings (POS), plus their shares in mission completions across the entire network (POM). This leads to a dynamic token issuance in such a way that those who genuinely contribute to network growth (through data gathering and sharing = completing missions) will receive more tokens than those who only hold tokens but do not contribute. Moreover, this issuance model will prevent unfair manipulation and unbalanced accumulation by a few large holders.

Total supply: 510.1 million

Initial supply in the Reshaping stage: 5.101 million

Number of Noah Explorer: 102

Initial price: 0.2 USDT

## 3. TOKEN MINING POOL

After the initial issuing phase is completed, the remaining tokens will enter the token mining pool. They will be allocated to all users based on their individual contribution values and Proof-of-Mission consensus, as well as the crucial incentive mechanism for the entire Second Earth virtual economy.

## 4. MINING AND DISTRIBUTION MODEL

Every day, the tokens generated through smart contracts are allocated automatically to the explorers and pioneers who have complete the missions based on global GDP proportion. The mining pool in Second Earth uses a comprehensive behavior method for chaotic data (big data statistics & Kelly Formula calculation) to calculate the miners' contributions to the ecosystem, based on mission completion (PoM), token holdings, and other relevant data.

Second Earth uses big data statistics & Kelly Formula calculation to analyze the hashrate of explorers and pioneers, where everyone's behavior can be digitized, making the reward mechanism be as fair as possible since all the behaviors are recorded as data. According to the national GDP ranking, the allocation of tokens can be done for the second time. But they will not come into the secondary market until the national value production (GA) is used to unlock.

## 5. NATIONAL PRODUCTION VALUE (GDP)

The SET economy’s mission-driven design is an exciting and innovative design for economic cooperation and development. Through issuing missions - an incentivized generation of economic behavior - and the receipt of corresponding rewards, it incentivizes the pioneers. At the same time, it also must match the same amount of "national production value" (GDP). The existence of the national production value can effectively control and incentivize completing missions and dynamically match the explorer’s liquidity in the mining pool. Through the national production value, it is effectively determined how many tokens an explorer can monetize (meaning: exchange on the secondary market). At the same time, explorers who do not have enough national power, will have to either purchase GDP from the secondary market or encourage their pioneers to be more active and fulfill more missions. Based on explorer needs, there is a motivating incentive to complete missions and keep the community active, forming a virtuous economic cycle.

SET issuance is divided into two steps. In the "genesis stage", through the mission system, a quota of SET tokens is allocated according to the proportion of completed missions across the entire Second Earth economy (= SET per fulfilled mission). However, SET token distribution is not carried out at this stage.

After the genesis phase is completed, the algorithm automatically allocates the number of tokens that each pioneer can hold according to their respective contribution (determined through the PoM consensus mechanism). At the same time, the system will release tokens from the mining pool into the economy according to the parameters set in the on-chain smart contract and thus complete the token mining process.

## 6. BURNING MECHANISM

After the initial pioneering phase ends, the contribution value that is not converted into tokens will be burned.

## 7. CONTRIBUTION VALUE AND HALVING CYCLE

The amount of newly issued tokens is halved according to the halving formula, which is dynamically adjusted. The halving formula (see below) will be written into the token issuance contract and is automatically executed according to the predetermined design.

This method can effectively achieve a sufficiently decentralized and fair way to distribute tokens in the Second Earth economy and prevent a single malicious actor or large capital power from disrupting the overall economy and/or token distribution system.

### 1.) Contribution value algorithm

The mining pool in Second Earth uses a comprehensive behavioral analysis method based on chaos theory to calculate miners' contributions to the ecosystem. The analysis is based on mission completion, token circulation, token holdings, and other relevant data to determine the contributions each miner has made. Additionally, Second Earth adopts the optimization method on the Ramanujan black hole formula proposed by Srinivaser Ramanujan.

$$N = \left( 1 + 2 \sum_{k=1}^{\infty} \frac{\cos^{k-1} \theta}{\cos^{h-1} \theta \pi} \right) \lim_{x \rightarrow \infty} \left\{ 1 + 2 \sum_{k=1}^{\infty} \frac{\sin^{-1} \theta}{r! \cos^{-1} \theta} \right\}$$

When a particular value is input, the modular  $\theta$  function may be described as follows: it is not similar to the modular form, but the characteristics are similar. Such special values are called singularities. When these points are approached, the function value tends to move towards infinity as the function  $f(x)=1/x$ , it assumes a singular point  $x=0$ . As  $K$  infinitely approaches 0, the resulting function becomes closer to the average.

## 2.) Pioneers and explorers execute the Hurwitz quaternions hash power distribution mechanism

Pioneers and explorers implement the Hurwitz' quaternary hash power distribution mechanism, which will be described below. About 10%-40% of the daily mined tokens are used to reward the explorers according to national power rankings. Everyone's contributions will be captured by the contribution system and thus brings the reward mechanism close to absolute fairness. The system will accurately identify your contribution to ensure the ecosystem's sustainable development.

The SET holding amount is defined as a dual variable address. Global address circulation variable flow  $e$ , global pioneer's + BSGS, and system changes occur with the XY coordinates set by GIS. The parameter  $c$  of the mining pool and the national power ranking  $a$  are the weighted multipliers of  $2ei\vartheta$  of the modeling parameters. The specific algorithm is below:

$$N = \lim_{x \rightarrow \infty} \left[ \prod_{k=2}^x 2e^{i\theta} \left[ \left( \frac{\sum_{m=1}^x X_m}{x} + \frac{x - \mu}{\sigma} \right) + \partial \frac{-X \pm \sqrt{b^2 m^2 - 4ac}}{2a} \right] \right]$$

## 3.) Trigger condition for halving period

The goal of SET is to recruit 100 million explorers from around the world to enter the Mirrorworld. Only the users' facial recognition information will be required, not the user's personal information. The SET halving cycle will be triggered based on the increase in the number of participants in real time. When more and more real explorers join Second Earth to jointly build this virtual ecosystem full of commercial prospects, SET will form an entire virtual

economic system independent of but interconnected with the real world. After the interaction frequency curve is gradually coupled, the long-term absolute deflation/short-term relative inflation of the economic model will be closer to the equilibrium between virtual world and reality. At this stage, the halving cycle trigger conditions are:

$$N = \sum_{k=1}^{\infty} (a^2)^{(p-1)/2}$$

First, the solution can be converted to  $g^{a'}(x'a) = g^{a'} b'$  by using the original root + BSGS, that is,  $x'^* a = b'(\% p-1)$ , from which multiple solutions can be deduced.  $a$  is the degree of difficulty in halving the hash power, and  $p$  is the degree of repetition in the mission process in the Second Earth economy.

Halving period calculation formula, also called the modulus operation:

$$N = q + \frac{\delta y}{\delta x} \left[ \frac{\Delta y}{\Delta x dx} + \left\{ \frac{\partial^2 \Omega}{\partial v^2} \ddot{x} + \partial y \partial b \right\} \right]$$

Given two positive integers: the dividend  $x$  and divisor  $y$ , a modulo  $n$  (abbreviated as a mod  $n$ ) gives the remainder of  $a/b$  when Euclidean division is utilized, which is, the halving cycle time, the halving calculation, the halving height, and the contribution value remainder. The results of an integer modulo  $n$  is: 0 to  $n - 1$  (a mod 1 is always equal to 0; a mod 0 is undefined, and it is impossible to cause a division by zero error in halving program language).

## Chapter 6

# SECOND EARTH ROADMAP

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### 1. FIRST STAGE: NOAH'S LANDING (2020)

Second Earth white paper and business plan are released

Global recruitment of Explorer Noahs and Pioneer Noahs

The Second Earth SET application goes live

Terra-2, an AR/VR add-on app, goes live

The mission mining mechanism for obtaining contribution value is launched

### 2. SECOND STAGE: RESHAPING (2020-2021)

OTC trading of SET/GA

POM mining and action mining starts

SET blockchain browser goes online

SET public chain test network

SET smart contract, DeFi and NFT framework

SET decentralized autonomous organization (DAO)

### 3. THIRD STAGE: REVIVAL STAGE (2021)

VR traveling starts globally simultaneously

Merchant registration system launches

Virtual reality action mission system upgrade

### 4. FOURTH STAGE: CONQUEST (2022)

AR/VR games go live

Massively multiplayer PVP virtual reality game released

*With its own SET public chain and the first V-DeFi + NFT financial service bottom layer, Second Earth will provide services for all future applications on Second Earth.*

*Second Earth aspires to become the world's largest VR entertainment company by 2030*

## Chapter 7

# SECOND EARTH CREATORS AND SUPPORTERS

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The following individuals are the project's mental architects, not the project's shareholders or investors, simply creative minds who conceived of the idea of a virtual world to save the real world. The Second Earth community thanks everyone for participating.

### MAIN INVENTOR:

Jacob Rothschild, Israeli businessman and member of the renowned Rothschild family, put forward suggestions, and RIT Capital Partners invests.

### PROJECT INVENTOR:

Malcolm Denmark, currently SpaceX, imaging engineer at Starlink.

### ADVISORS:

17 network technology experts, and professionals across 55 fields.

### DEVELOPER TEAM:

Thomas White  
Current SpaceX laser communication manufacturing engineer, leading the SpaceX Falcon 9 program.

Michael Bradley  
Geekwire network commentator, expert in real-time artificial intelligence algorithms.

Michael Ouyang  
Greenpro Capital Corp. listing strategy consultant, assisting the company in listing in the United States.

"Rhomelmabini" (alias)  
One of the earliest members of the Bitcoin

Forum, a five-star member, aerospace enthusiast.

"Kemarit" (alias)  
Blockchain enthusiast, has repeatedly proposed the theory of blockchain and virtual world message interaction.

"DragonRider" (alias)  
SpaceX reddit forum leader, aerospace enthusiast.

Michael Sheetz  
Joined CNBC in June 2017. He mainly reports on technology and finance and the aerospace industry. Important member of the Dow Jones News Fund.

"Mmohebpoo" (alias)  
Webmaster of the avforums website in Australia, adept at building AR models and hardware equipment management.

Ralph Stommel  
An important member of the International Association of Virtual Reality Professionals, adept at VR modeling and 360-degree VR design.

Leslie Sweet  
Expert of remote sensing water resources surveying and mapping in Texas, USA. H-E-B Director of Public Affairs in Central Texas.

Anirudh Koul  
AutoML artificial intelligence intelligent deep platform construction expert.

Kate A. Smith-Miles  
Professor at Monash University in Australia, adept at meta-learning for algorithm selection.

Agnieszka Ławrynowicz

The most important core of the W3C machine learning model community group, discusses standard model development, maintenance, and promotion for machine learning.

Einzel Wolf

Expert in ultra-long-range information interaction systems.

Jose Tdct

CPM operation expert, adept at website SEO and Email Marketing.

Matej Cechvala

The owner of Matuloo, earliest global CPC advertiser.

Sputnik Yuri

VR game hardware modeling enthusiast.

Donna Ayers

The earliest promoter of insurance advertising alliances. Committed to becoming a leader in the VR industry.

Stuart Allaway

KPMG consulting expert, Fidelity International consulting expert.

Ramandeep Mac

Senior management at India's largest consulting company, Tata Consultancy, AI consulting manager.

## Chapter 8

### DISCLAIMER

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1. This document is only used to convey project information and does not constitute relevant opinions on buying and selling digital assets.

2. Second Earth is still in the development stage, and its philosophies, technologies, consensus mechanisms, algorithms, codes, and other technical details and parameters may be updated and changed frequently.

3. Regulatory policies may change at any time, and the existing regulatory permission or tolerance for the Second Earth project or its pre-sale plan in any country may only be temporary. In various countries, Second Earth

may be defined as a virtual commodity, digital asset, or even securities or currencies at any time, which means that in some countries, according to local regulatory requirements, Second Earth may be prohibited from trading or holding. These countries currently include the USA, China, North-Korea, Singapore, Iran, and Syria.

4. Any similar proposals or suggestions will be carried out under a trusted clause and permitted by applicable laws. Information or analyses above do not constitute investment advice or specific recommendations.

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