Glass Chain

——Chain199 Distributed Commercial Blockchain Platform

The Singapore Optometry Foundation

Abstract

According to the World Health Organization's ("WHO") 'World report on vision', at present at least 2.2 billion people around the world have a vision impairment. Among 2.2 billion people, at least 1 billion have a vision impairment that could have been prevented or is yet to be addressed, such as myopia (nearsightedness), hyperopia (farsightedness), glaucoma, and cataracts. The WHO once released that 90% of the channels for humans to obtain information were through their eyes. Among the three major diseases affecting the quality of human life, eye diseases ranked third, second only to malignant tumors, cardiovascular, and cerebrovascular diseases.

At present, the development of eye health industries in most countries around the world is still at a low level, especially in low- and middle-income countries. Dr. Tedros Adhanom Ghebreyesus, Director-General of the WHO, once said that eye diseases and visual impairments are very common and often still go untreated. In addition, there are still huge hidden dangers in terms of user privacy, data collection, data integrity, data security, management standardization, and gray data transactions. At the same time, factors such as the lack of professional talents in the ophthalmology industry, the lack of awareness of people's optics, and the ineffective integration of related industries have also limited the rapid development of the field of eye health. In this era of big data, data is the most precious asset of mankind. How to ensure data security, fast storage, extraction, and empower data has become a problem that society needs to solve.

The founding team of Glass Chain has innovatively integrated the Internet and Blockchain technologies to build a global distributed commercial Public chain application platform, dedicated to the science of optics, consulting services, the traceability, sales, and customers of optics products. Services and other applications.

Provide online optometry medical services for the Public and establish personal vision health files. Glass Chain is a service provider and consumer of the optometry ecology. It provides mechanism-based token incentives based on their contribution value and proof of work, and distributed records are recorded on the Blockchain.

Through 54 months of hard work and practice, the founding team of Glass Chain has broken through multiple blockchain programming technical problems and achieved another major innovation in blockchain programming technology, leading the global blockchain technology to take a historic step forward.

The world's first block chain entity-level smart contract collection, Chain199-DeCom system, supports the convenient application of block chain technology by physical enterprises, and successfully completed the enterprise-level application of distributed commercial block chain.

Glass Chain is the first application on the Chain199-DeCom system.

Content

1 The Status of the Global Optometry Industry

The WHO released the first World Vision Report. According to the report, population aging, lifestyle changes, and limited access to eye care are the main factors contributing to the increasing number of visually impaired people, especially in low- and middle-income countries. At least 2.2 billion people in the world are visually impaired or blind, and at least 1 billion have a vision impairment that could have been prevented or has yet to be addressed.

The report shows that the overall incidence of myopia in high-income countries in the Asia-Pacific region is as high as 53.4% in the world followed by 51.6% in all of the East Asia region. It is estimated that the incidence of myopia among Chinese urban adolescents is 67%, and in South Korea myopia is as high as 97%.

In the urban population of China and Australia, the incidence of myopia in children is relatively high. This may be caused by a combination of lifestyle changes, urbanization, school education systems, population distribution, ethnicity, and socioeconomic status.

1.1 **Problems in the Global Optometry Industry**

Lack of knowledge about Optometry

Many colleges and hospitals that provide optometry education lack the awareness of sustainable optometry discipline development, they lack a clear positioning of talent training and discipline construction. And they also fall short to figure out who the optometry serves? What kind of services to provide? What kind of talents should be cultivated to meet the needs of society and medical care?

Lack of professionals

The development of optometry in many countries started late, reports show that in many countries it started less than 20 years ago, and most of the talent training is still at the level of undergraduate or even junior college. For the increasing eye health problems, there is an urgent need for high-level optometry professionals.

Both visual inspection, vision diagnosis, and treatment require optometrists; The training of optometry talents requires optometrists even more.

Optometrists qualification confusion

The qualifications and materials of optometrists in the optical shop are confused. Spectacle is a kind of medical equipment. If the glasses are not correct, it is equivalent to taking the wrong medicine, which can be extremely harmful. Some optical shops are too pursuing speed and profiteering. However, they are not equipped with professional qualified optometrists. For instance, some of the materials those optical shops have in stock are mixed or poorly inventoried. Some consumers have had adverse reactions after wearing the newly equipped glasses. This has caused the general Public to question the efficacy of the optical shops and creates doubt in the eyes of the public.

Optometry and the glasses industry are not effectively combined

How to organically connect and integrate the optical industry with a medical background and the traditional eyewear industry? Form a unified standardized ophthalmology diagnosis, create treatment and industry standards. It may take a long time for these changes to occur however,the premise is the improvement of the Public's awareness of optics and the change of vision health awareness.

We urgently need a blockchain technology incentive system to incubate and cultivate the vision industry for the benefit of mankind.

2 Glass Chain

2.1 Introduction

Glass Chain was founded by the Singapore Eye Optometry Foundation, a distribution eye optometry service platform based on the bottom layer of the blockchain. It is the first eye optics industry traceability built with technologies such as the Internet of

Things (“IOT”), blockchain, and big data analysis. A comprehensive service platform for sales and incubation. With the characteristics of blockchain technology such as non-tamperability, traceability, and incentive mechanism. The platform will carry out the cultivation of talents in the field of optics, the traceability of optics equipment, commodities, and the incubation of qualified chain vendors.

Glass Chain is the first application on the Chain199-DeCom system.

Chain199-DeCom uses blockchain technology to gradually build a programmed society. Using the consumer capital theory and its application, to achieve the code programming of business behaviors, Chain199-DeCom uses the main business marketing models of representative companies from all over the world as a model, and uses programming to complete a collection of distributed commercial blockchain smart contracts. It allows companies to use blockchain technology more conveniently, faster and more efficient.

The Glass Chain ecological platform uses an incentive mechanism to combine industry, academia, research, medical, prevention, and control health care to reduce costs, increase efficiency, and to empower physical stores. Glass Chain is building a strong and credible blockchain medical integration Public service platform to serve the global optical industry market and build a complete Glass Chain ecology. Through the blockchain token incentive mechanism, we will motivate professional doctors in ophthalmology to provide professional services, at the same time, use the incentive mechanism to cultivate patients' good eye habits.

Glass Chain uses distributed storage technology and desensitization technology to generate patient’s health reports. The report effectively analyzes the trend of myopia in children and adolescents in various countries, the factors of refractive errors, the treatment situation, and other potential eye related ailments. Through big data analysis Glass Chain can customize effective programs, promote the healthy

development of the ophthalmology industry in many countries!

2.2 Funding Team Introduction

The founding team and technical team of Glass Chain is a very experienced international team. The team members are:

1. Technical Team (Parrot Team):

   Proficient in blockchain and related development languages, proficient in the structure, construction of various smart contracts, and other related projects. The team consists of senior international engineers in the Information Technology ("IT") industry.

2. Optometry Advisor:

   A team of ophthalmology experts from first-line hospitals led by J.M.

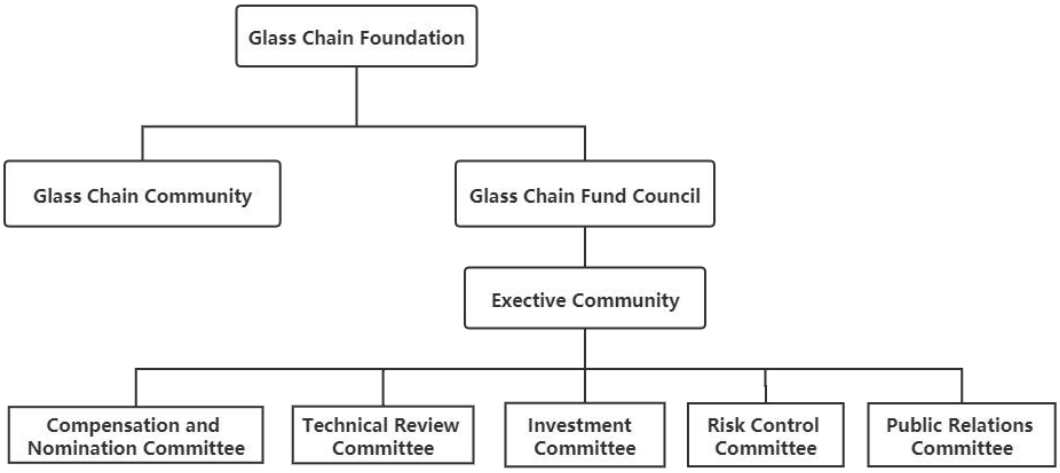
3. Optometry Industry Ecological Collaborator:

   Optical lens manufacturer led by the Esfino team.

   A team of physical glasses operators with more than 10 years of experience led by Jsdoo.

2.3 Glass Chain Foundation Organizational Structure

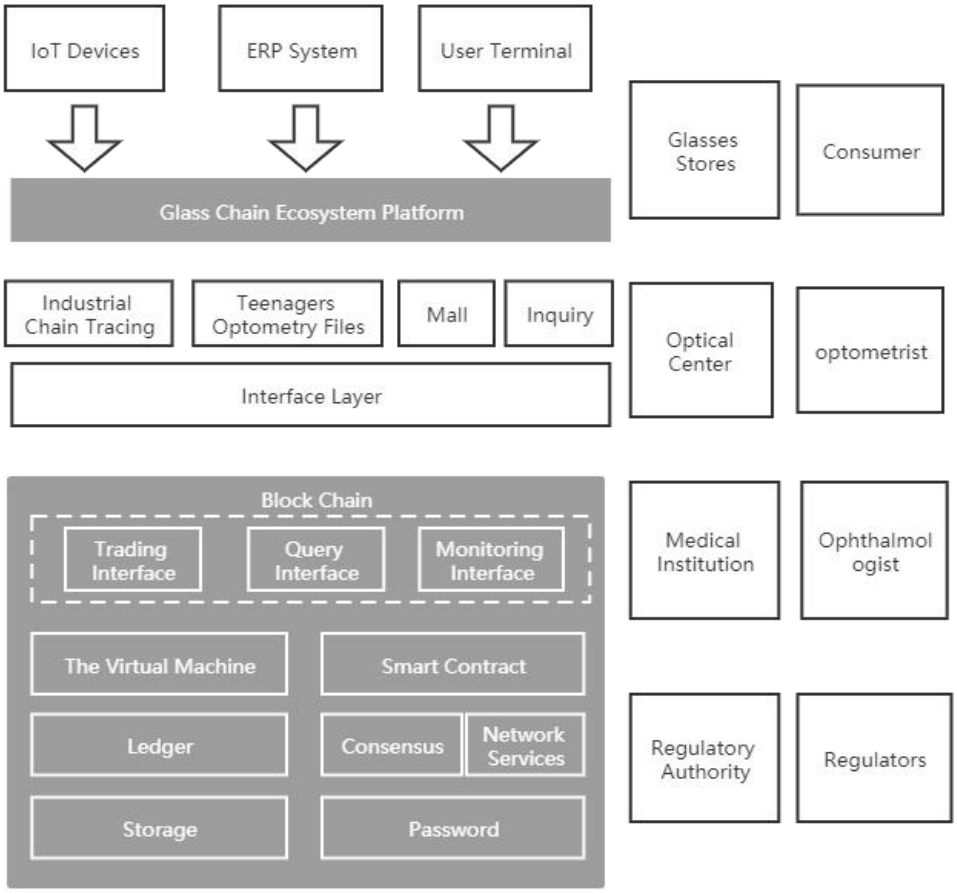
The organizational structure of the Glass Chain Foundation is composed of the Fund Council and various executive members. They are all responsible for operating and managing the community, protecting, and managing the funds raised for the community.



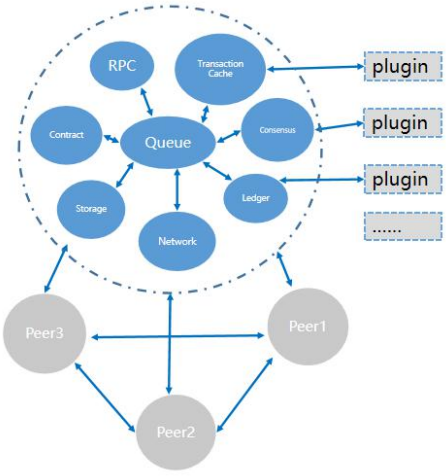
3 Technical Structure

3.1 Glass Chain Platform Architecture Design

The top layer of the Glass Chain ecological platform is the application layer, the middle layer is the interface layer, and the bottom layer is the blockchain layer. The platform transmits data to the blockchain layer through the interface through the IOTequipment, Enterprise resource planning (“ERP”) system, user terminal, and in real-time through the IOT which collects data to establish a credible data source. All of these steps in the process use the characteristics of the blockchain because it is safe, non-tamperable, and traceable to establish a credible big data network for the Glass Chain ecology. Such as: Young people’s optometry archives, traceability of upstream, and downstream industrial chain, quality products mall, professional consulting, etc.



3.2 **The Logical Architecture of the Blockchain Layer**



The underlying development framework of blockchain using plug-in technology, which keeps the main function of blockchain and adds plugins as extended functions.

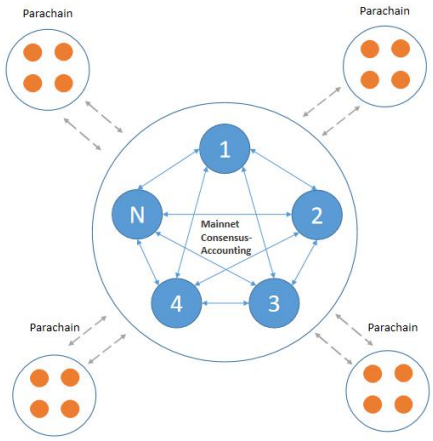
The plugin design separates the extended functions from the system framework, reduces the complexity of the framework, makes it easier to expand functional modules, and adds smart contracts.

3.3 Public Blockchain System + Parachain Architecture

Parachain and Public Blockchain share the same consensus network, connected to the main chain node through a unique Remote Procedure Call ("gRPC") interface. .On the main chain, transactions are only used for consensus and storage, and the actual transaction execution is on the parachain, which does not interfere with the main chain. Parachains only run their own data. Complex contracts mainly run on parachains. Only some basic core contracts are run on the main chain. Therefore, the stability of the Public main chain will be relatively strong, thereby ensuring the stability of the entire blockchain network. Parachains each execute their own transactions, and multiple parachains coexist, achieving the parallel execution of transactions.

3.4 Technical Framework

The Glass Chain technical framework includes smart contract system, security system, InterPlanetary File System ("IPFS") storage system, and cross-chain system. At the same time, it integrates the underlying complex technical system and heterogeneous systems to achieve a distributed system that supports compatibility with various major protocols and cryptographic standards distributed entity management and multi-dimensional authentication protocol. And also it supports cross-chain and cross-system interactive mapping of various heterogeneous blockchains and traditional information. The technical system also provides secure



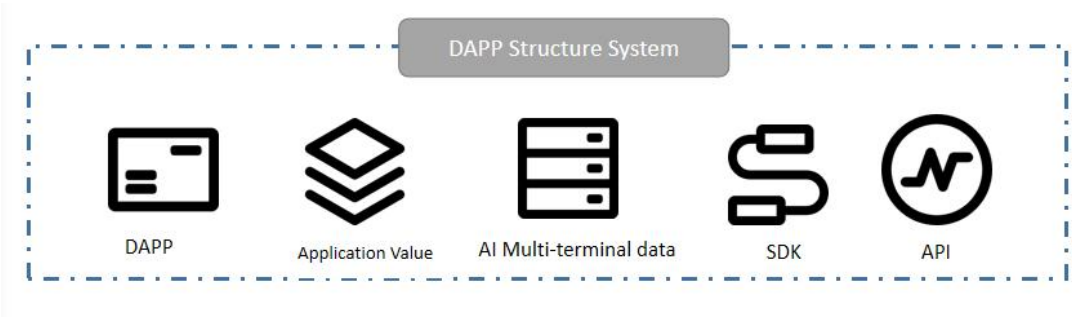
data storage, heterogeneous smart contracts, hardware key management, encrypted data analysis, etc.

The project absorbed the modular idea of Linux kernel design, developed multiple functional modules, and assembled them to form a module plugin warehouse. It achieves compatibility with a variety of consensus mechanisms, including a variety of main consensus, as well as a variety of self-developed consensus mechanisms. Plug and unplug different consensus algorithms to quickly build private chains, alliance chains, Public chains, and parallel chains.

In terms of privacy protection, the scheme of proxy re-encryption, and secret key fragmentation is adopted for data sharing storage and to ensure data privacy.

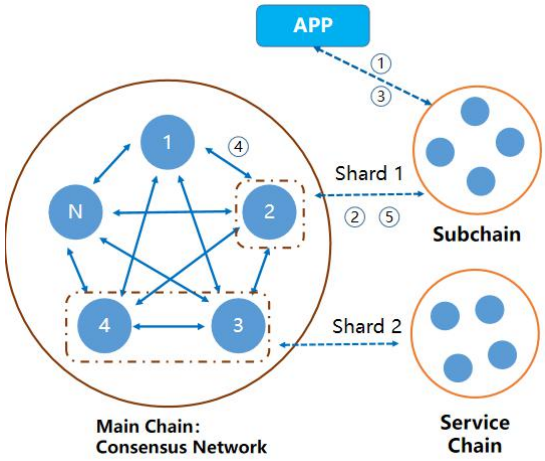
3.5 **DAPP Framework**

Glass Chain provides Decentralized Application ("DAPP")development components and Software Development Kit ("SDK") to simplify the development of DAPP. The combined toolkit does not require developers to focus on business and scenarios to be familiar with the underlying technology of the blockchain. In addition, the Glass Chain network provides a distributed database of trusted data,it also provides a platform for the interactive use of distributed communities, cross-border circulation of value, and further supports the realization of various upper-level applications.



3.6 **Multi-Layer Architecture System**

Multi-Layer Architecture Process：



1) After the transaction is signed by the application layer, it is sent to the node cache section through the RPC module, and the cache section checks the legality of the transaction.

2) Broadcast the transaction to other nodes through the P2P network to ensure the consistency of the transaction.

3) The consensus module constructs a block regularly, and broadcasts the consensus message of the block to other nodes in the chain network for consensus processing.

4) The block is handed over to the smart contract module to execute the transaction. After the execution is completed, the consensus module sends the block to the storage module for processing. Use the underlying storage technology of the blockchain to store transaction data in the node database.

5) Broadcast the block to other nodes through the P2P network, the node that receives the block verifies, and executes the transaction in the block again and stores the block.

3.7 Core Technology

3.7.1 Smart contracts collection

Glass Chain is compatible with the Chain199-DeCom system code and establishes a set of smart contracts to manage all smart contracts developed by developers on DAPP based on the Glass Chain, also is used for contract upgrades and destruction. In addition, the contracts generated by the Glass Chain for the credit investigation system, smart payment system, and full-chain super nodes will be placed in this collection. All developers will inherit the contracts of the open source chain to derive and use transactions suitable for their own industries. The contract reduces the developer's development work, quickly implements DAPP and applies it.

3.7.2 Decentralized storage structure

The block data of Glass Chain adopts the IPFS style and can be equipped with a decentralized storage structure for storage. All blocks are referenced by the pointer of the previous block to ensure that the data is not tampered with. The sha256 function is used to hash the data, the Elliptic-curve cryptography (“ECC”) asymmetric encryption algorithm is used for identity authentication, the Advanced Encryption Standard (“AES”) algorithm is used to encrypt the private key, the Merkle tree is used to verify, and store transactions.

Blocks are packaged every 1000 blocks and stored on the 100 nearest nodes in the network. When each piece of data stores 100 nodes, in the extreme case where half of the nodes are down, the probability of data loss is only 1/2^100 ≈ 10^-30, so the data can be stored safely.

The latest 10,000 blocks in the network are not stored in a distributed manner, which can improve query efficiency and deal with block data rollbacks.

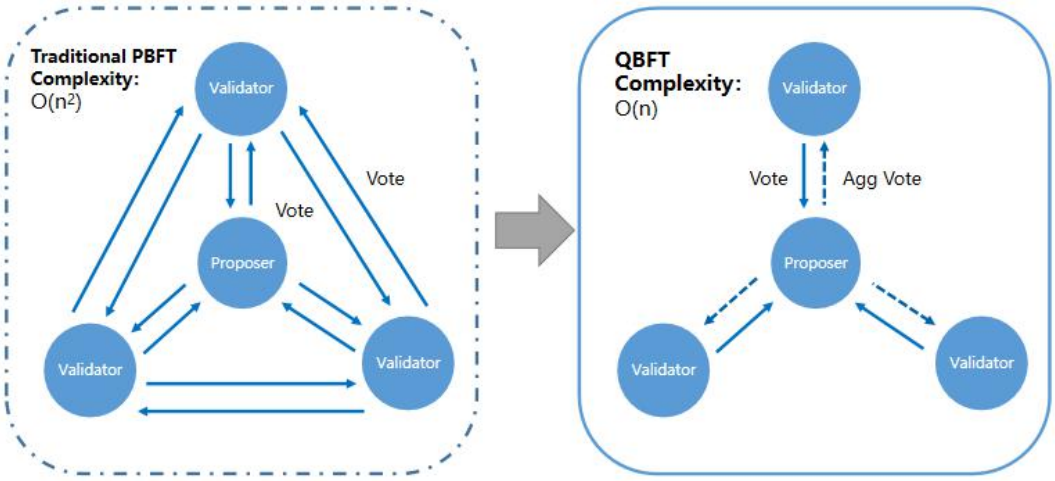
3.7.3 Unique API interface

1) Design unified advanced persistent threats (“APT”)that fits different protocols (blocking and non-blocking), which is based on a flexible and extensible event-driven model height, customizable thread model, and reliable connectionless data socket.
2) Minimize unnecessary memory copies by saving resources using better throughput, and low latency.
3) Secure and complete SSL/TLS and STARTTLS can run well in the restricted environment of IOS and Android.

```
* PHP development API interface server side (part of the code display)
*/
require 'conn.php';
header('Content-Type:text/html;charset=utf-8');
```

```
$action = $_GET['action'];
switch ($action) {
$res = urlencode("Parameter_Wrong");
Exit(json_encode($res)); //available_information
}
```

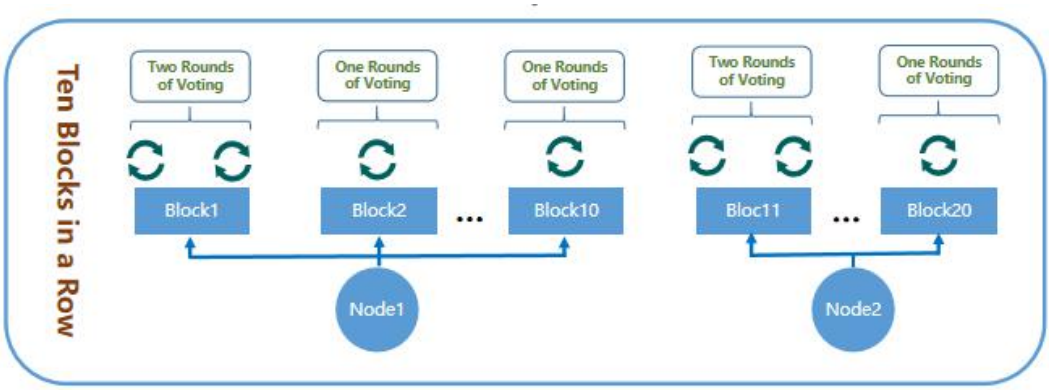
3.7.4 Consensus aggregation signature



The number of traditional **Practical Byzantine Fault Tolerance (“**PBFT”) consensus nodes is n, and the message complexity of the voting process is O(n2), which is not suitable for large-scale consensus node deployment. The improved Proof of Authority (“QBFT”) consensus is that in the two rounds of voting, the consensus node sends its own votes to the Proposer, and then the Proposer collects these votes for aggregation, signature, and broadcasts them to other consensus nodes. In this way, the message complexity is O(n), which is suitable for large-scale consensus node deployment.

When n=1000, traditional PBFT needs 1 million communications, and improved QBFT only needs more than 10,000 communications, which is 100 times better than traditional PBFT.

3.7.5 High-performance continuous block production

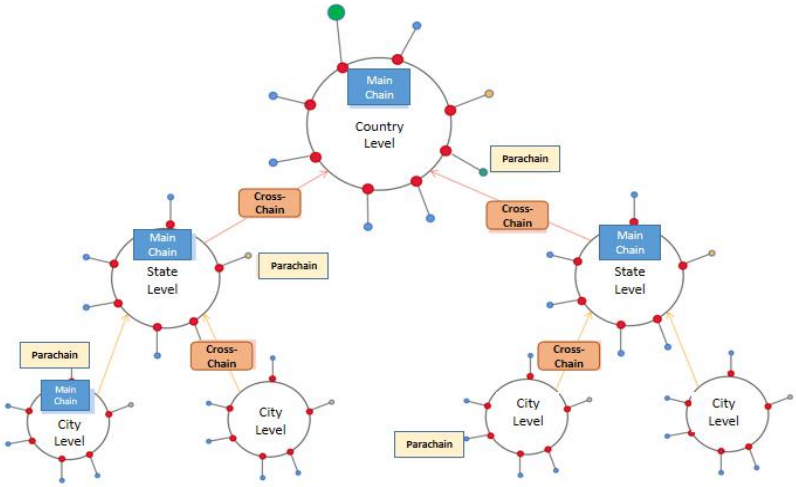


When the consensus node is used as a Proposer, it continuously proposes and packs multiple blocks. The first block is confirmed by two rounds of voting, and the subsequent blocks are confirmed by one round of voting.

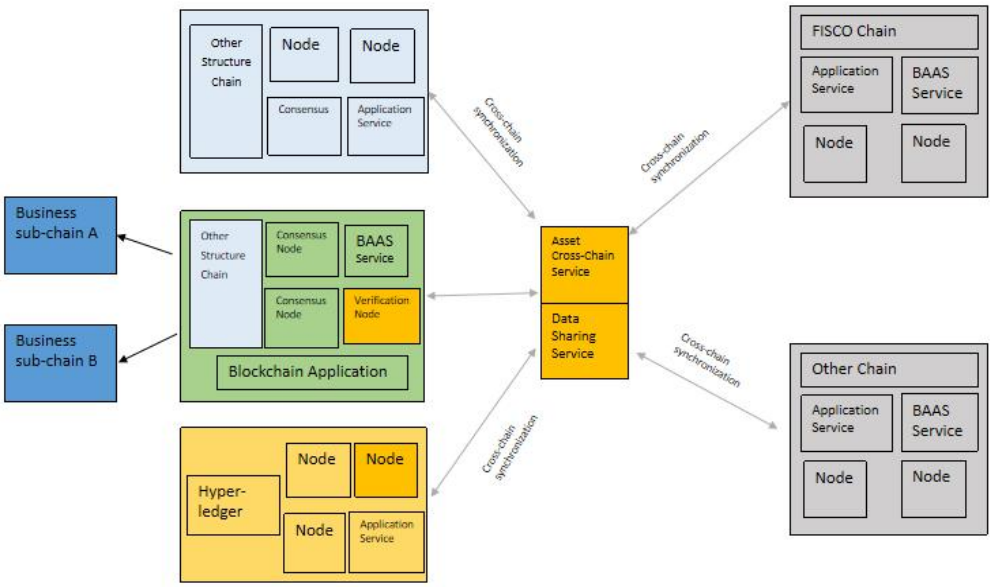
On one hand, this block production mechanism reduces the number of times to switch Proposer. On the other hand, the process shortens the time of consensus, thereby improving the efficiency of consensus. In addition, if a large number of transactions suddenly appear in the blockchain network, Proposer can quickly propose and package multiple blocks, process these transactions in time, and improve the responsiveness of the system.

3.7.6 Cross-Chain Technology

3.7.6.1 Isomorphic cross-chain



3.7.6.2 Heterogeneous cross-chain



4 Smart Contract - DeCom System

The purpose of the smart contract is to create an alternative agreement for the construction of distributed commerce, Decentralized Commercial Machine (referred to as DeCom system), which provides a set of different compromise solutions. We think this is very useful for the physical industry with a complete ecosystem. And it is important to emphasize fast development time, empower the applications that can be used in the entire physical ecosystem, and the efficient interaction capabilities of different applications.

The commercial version of smart contracts achieves this by building an essentially final abstract base layer: a blockchain with a built-in Turing-complete programming language that allows anyone to write smart contracts and distributed applications where they can develop their own rules for ownership, transaction format, and state transition functions. This is the first smart contract that can support huge data on the Internet because it has Turing completeness that can support all physical industry functions to achieve Internet-awareness, value-awareness, blockchain-awareness and astate. Smart contracts, including value, and password "boxes" that can be

unlocked only when certain conditions are met, can all be Built on the Internet + blockchain platform.

4.1 **Account**

Golos Blockchain (“*GLS”)* is the main internal encrypted fuel of Glass Chain, which is used to pay transaction fees. Generally speaking, there are two types of accounts: accounts owned by ecological roles are controlled by private keys and contract accounts are controlled by contract codes. The role account has no code. People send messages from all external accounts to create and sign transactions; in the contract account, every time the contract account receives a message, the code is activated, which will allow the internal storage to read, write, and send other messages or in turn create a contract.

4.2 **Smart Contract Execution Process**

Smart contract execution is divided into the following steps:

1. Obtain proof of equity in the Internet layer;

2. Construct smart contracts that conform to the real industry ecology and reach a consensus;

3. The contract is spread through the P2P network and stored in the blockchain;

4. The smart contract constructed by the blockchain is automatically executed.

In the above described step 1 "Obtaining Proof of Equity in the Internet Layer", the workload certification and equity proof requirements formulated in the smart contract comply with the corresponding industry ecological rules.

In step 2 "Smart contracts that conform to the ecology of the physical industry and reach a consensus", two or more users jointly negotiate a commitment based on their needs, and the commitment includes the rights and obligations of both parties;

these rights and obligations are based on Electronic method, programming machine language; participants use their own private keys to sign; to ensure the validity of the contract. The signed smart contract will be transmitted to the blockchain network according to the promised content in it.

Describe the process of step 3 "Contracts spread through the P2P network and stored in the blockchain", including the following steps:

（1） The contract is spread across the entire blockchain network through P2P, and each node will receive a copy; the verification node in the blockchain will first save the received contract in the memory and wait for a new round of the consensus time to trigger the consensus and finish processing of the contract.

（2） When a smart contract is triggered by the relevant mechanisms of the Internet layer, the verification node will pack all the contracts saved in the most recent period into a contract set, then calculate the hash value of this contract set, and finally collect the contract's hash value. The hash value is assembled into a block structure and spread to the entire network; after receiving the block structure, other verification nodes will take out the hash of the contract set contained in it and compare it with the contract set saved by itself; at the same time it will also send a copy of contract collection that they approved to other verification nodes; through this multiple rounds of sending and comparison; all verification nodes finally reach an agreement on the latest contract set within the specified time.

（3） The newly reached contract set will be spread to the entire network in the form of blocks. Each block contains the following information: the hash value of the current block, the hash value of the previous block, the timestamp when the consensus is reached, and other descriptive information; at the same time, the most important information of the block chain is a set of contracts that have reached a consensus; the node that receives the contract set will verify each contract, and the verified contract will be written back to the

block chain. In the verification, the main content of the verification is whether the private key signature of the contract participant matches the account.

The following is the process of step 4 "The smart contract constructed by the blockchain is automatically executed", including the following steps:

（1） The smart contract regularly checks the state of the automation, traversing the state machines, transactions, and trigger conditions contained in each contract; pushes the transactions that meet the conditions to the queue to be verified, and waits for consensus; transactions that do not meet the trigger conditions will continue to be stored on the blockchain.

（2） The transaction that enters the latest round of verification will spread to each verification node. The verification node first performs signature verification to ensure the validity of the transaction; the transaction that has passed the verification will enter the consensus set, after most verification nodes reach a consensus, the transaction will be executed successfully and the user will be notified.

（3） After the transaction is executed successfully, the smart contract's own state machine will judge the state of the contract. When all the transactions included in the contract are executed in sequence, the machine will mark the state of the contract as completed and remove the contract from the latest block. Otherwise, it will be marked as in progress, and continue to be saved in the latest block and wait for the next round of processing until the processing is completed. The entire transaction and state processing are automatically completed by the built-in smart contract system at the bottom of the blockchain. The whole process is transparent and cannot be changed.

5 Incentive Mechanism: Token Economic Model

5.1 What is a GLS Token?

GLS Token initiated by The Singapore Optometry Foundation, issues the same

amount of token - GLS, as the incentive layer on the system of Glass Chain's Chain199 system.

5.2 GLS Token Rights

Glass Chain is an international distributed commercial application network. GLS provides the application ecology of Glass Chain to medical institutions, optical shops, optical rehabilitation centers, industrial users, professional service providers (doctors, professionals), consumers, brokers, and distributed storage servers (smj miners) miners in accordance with the consensus mechanism for the corresponding number of incentives and recognition.

5.3 Significance of GLS Token

Through the calculation of the blockchain, the holders of the GLS can obtain the corresponding distributed income to encourage various roles to provide better services to the Public, to inspire, and to cultivate good eye habits for patients. Lastly, to promote the patient to have a healthy vision. And establish a credible incentive system for related data through smart contracts to achieve building a shared value for multiple parties.

5.4 GLS Token Economic Model

5.4.1 Computing Power Mechanism:

Pos.T, the full name is Proof of Stake.Ticket, miners obtain expected incentive certificates according to the division of roles in the Public chain system and application ecology. And they can get the same amount of GLS acceptance reward after they are verified as qualified on the Glass Chain.

5.4.2 Ecological fission mechanism:

1) The mining node of this public chain system is equipped with the world's first cat-claw intelligent dual mining server-Mouse Cat machine (abbreviated as "smj"). SMJ machine contains two ends,

one end is used for public chain mining; the other is used for online ecological enterprises on the chain management and mining operation. This function achieves one server connecting five enterprises and communities on the chain.

2) Glass Chain blockchain technology can quickly complete the expansion of physical parallel public chains, and parallel public chains can share communities across chains.

5.4.3 Staking and release mechanism

1) Staking Mechanism: Optometry ecological service providers need to stake GLS to obtain tickets to enter the ecology, and follow the mechanism that the number of tokens mined on the day is less than the total staking number. If the number of tokens mined on the day> the number of staking, the staking token must be increased to >= the total tokens of the day to continue participating in the Glass Chain ecosystem. The adding tokens rules are as follows:

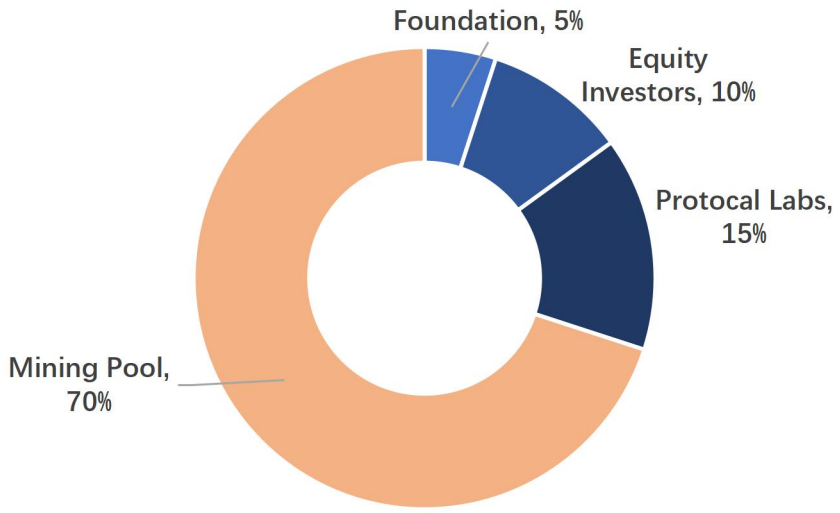
```
func addWalletDeposit(){
  if (dailyTokenCount > inital_deposit) {
     add_deposit = dailyTokenCount - inital_deposit;
  }
}
```

2) Release Mechanism: According to the initial distribution ratio of Token, the rewards in the ecological construction follow the 180-day linear release mechanism. The Tokens mined from Glass Chain will be released in 180 days.

5.4.4 Punishment Mechanism: After the system determines the malicious node, the gray light mechanism is automatically activated, and the malicious node's account will be blocked immediately and all

unreleased assets will be frozen.

5.5 GLS Token Initial Allocation



Token Name	GLS
Circulation	2 Billion
Foundation	5% (As a long-term community construction)
Equity Investor	10% (According to the mining progress, the ban will be lifted gradually in 6 years)
Protocol Labs	15% (Official team, as R&D expenses and network construction cost, the ban will gradually lift in 6 years)
Mining Pool	70% (Production reduce half every 6 years)

6 Project Development Strategic Planning Process

Time	Event
June 2017	Distributed commercial public chain application system project approval.
April 2018	The parrot development team completed the prototype design of the distributed commercial public chain and put it into development.
May 2019	The chain organization community is established.
November 2020	White paper v1.0 is publicly released.
November 2020	The distributed commercial public chain platform system completed internal testing and went online for trial operation and activated global nodes.
December 2020	The NFT sector started developing, it evolved from the digital art to the trading platform.
February 2021	Open community co-governance incentives, started investor growth system.
July 2021	The distributed commercial public chain application system was released. The Glass Chain is equipped with an ecological server to expand the physical application and to achieve the ecological closed loop.
July 2021	Metaverse digital model was developed.
October 2021	Token GLS (anticipated) debuts on the exchange market.
March 2022	NFTs evolve from the digital art to trading platform, open for applications.
May 2022	Incubation of large-scale projects in the community, such as "Agarwood chain", "Land chain", etc.
June 2022	Metaverse games are gradually released in accordance to the progress of the project.

August 2022	Complete the global application market of the distributed commercial public chain system, and provide blockchain application technical support for the development of the global digital economy.

The system is divided into three stages for open applications:

Stage One: (open for operation): offline entity application scenario end (acccess via server);

Stage Two: (opened for operation): Internet application scenarios (mall, online vision consulting, etc.);

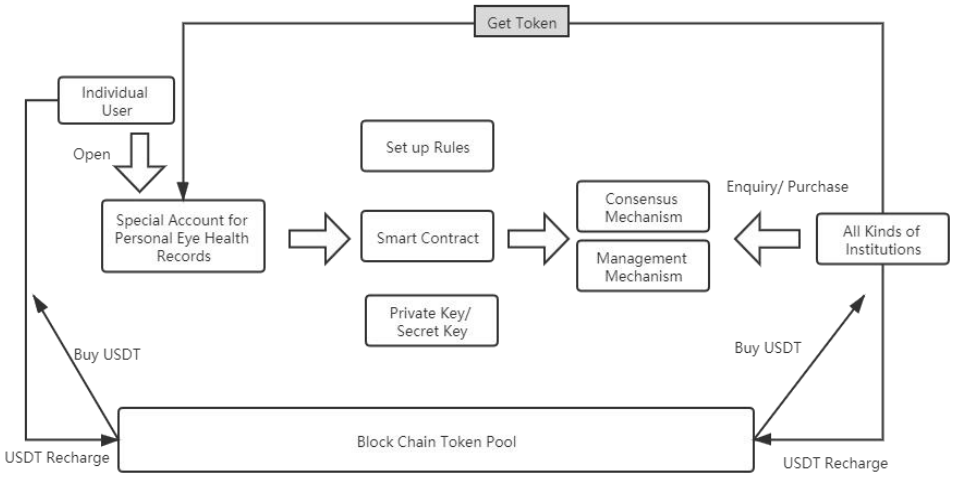
Stage Three: (to be opened according to the progress): digital virtual scene application terminal.

7 The Future Applications

7.1 Applications

7.1.1 Establish a trusted ecological alliance to reshape the value of personal eye health data.

Bring blockchain technology to medical institutions, optical centers, optical shops, regulatory agencies, etc. To establish a credible alliance ecological node. At the same time, build an eye health data cloud service platform based on blockchain technology, return the value of everyone's eye health data back to everyone, and use the commercial value of blockchain for empowerment and incentives.



7.1.2 Build a credible industrial chain system

Blockchain technology can achieve data that cannot be tampered with and can be traced. Each IOT device uploads data in real time and can be consulted at any time to build a credible industrial chain system.

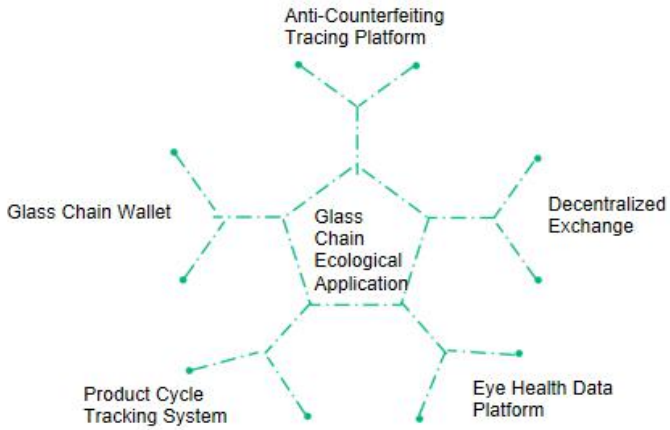
7.1.3 Application ecological value system

Real economy services： Token sharing,Assets on the chain,Anti-counterfeiting traceability,Big data transactions, etc.

Financial assets： Exchanges and wallets,Asset digital securitization,Transaction settlement payment,Wealth management, etc.

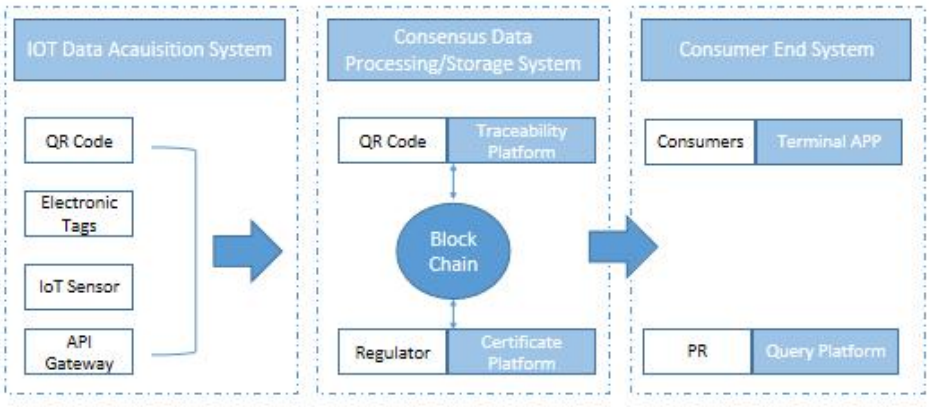
Public utilities: Charity,Public welfare,Government management,Cultural education, etc.

Social application： Health care,Artificial intelligence,Social tourism,Electronic bills, etc.



7.1.4 Anti-Counterfeiting traceability identification platform

The Glass Chain traceability appraisal platform is user-oriented platform, which includes medical drugs traceability, professional doctors, professional licenses; And the functions of terminal commodity consumers to query the traceability information of the purchased medical,pharmaceutical commodities, and other commodities. The Glass Chain traceability identification platform is an important component of the traceability identification platform ecology. The overall ecosystem includes the following parts:



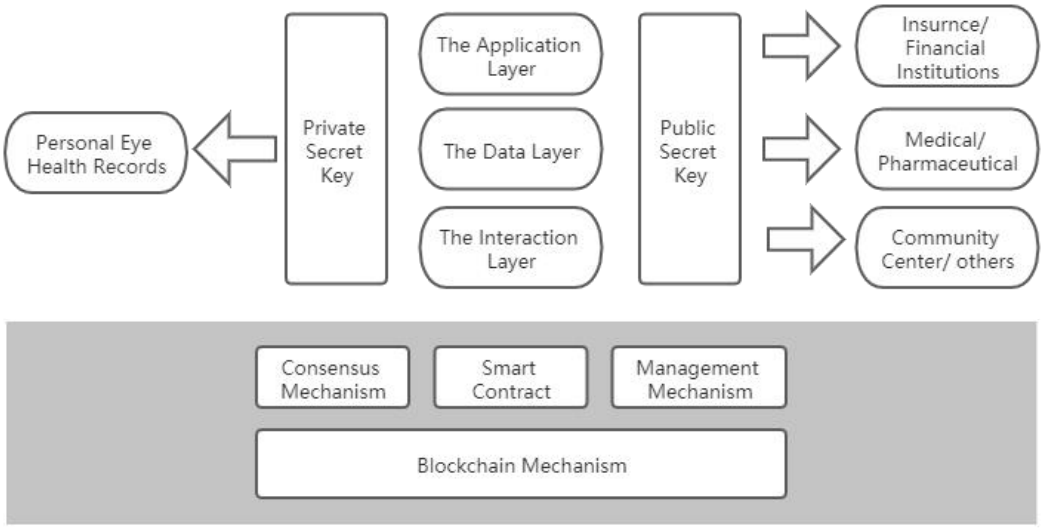
7.1.5 Build blockchain vision profile and protect personal eye health data

The Glass Chain provides the function of establishing vision files for children and adolescents. Parents upload their children's vision data every time they visit the eye hospital(clinic). It will form a personal vision file, which is shared on the chain, and through the statistics of adolescents' vision, a portrait of adolescents' vision is formed. And customize a targeted prevention and control program for myopia.

At present, There are many problems in the eye health field (including optical shops, eye optics rehabilitation centers, and eye hospitals), such as incorrect data collection, incomplete data collection, irregular management, information islands, leakage of individual privacy, and data gray trading and so on. The low data quality has seriously affected the subsequent circulation, sharing, application, and restricted the development of service quality in the entire eye health industry.

This shows that it is very necessary to establish an open eye health data blockchain system. Singapore Optometry Foundation uses the features of blockchain to be non-tamperable and traceable to establish a credible big data network for the Glass Chain ecology, promote the popularization of U.S.OPT in countries, and regions where the optometry is backward, and use

block chain technology and digital assets to empower and encourage various roles in the Glass Chain ecology.



7.1.6 Open and shared digital economy

Using digital Token to motivate high-quality optical services to improve consumer experience and physiotherapy effects. Through digital tokens to encourage people with low vision to cultivate good physiotherapy habits to promote efficacy. The key to treating amblyopia is to adhere to good habits according to physical therapy requirements to achieve a multiplier effect. The encrypted tokens are digitized through the blockchain, and the tokens are motivated based on the data and curative effects. The token can be exchanged in the mall and used for online and offline medical consultation.

7.1.7 Blockchain big data platform

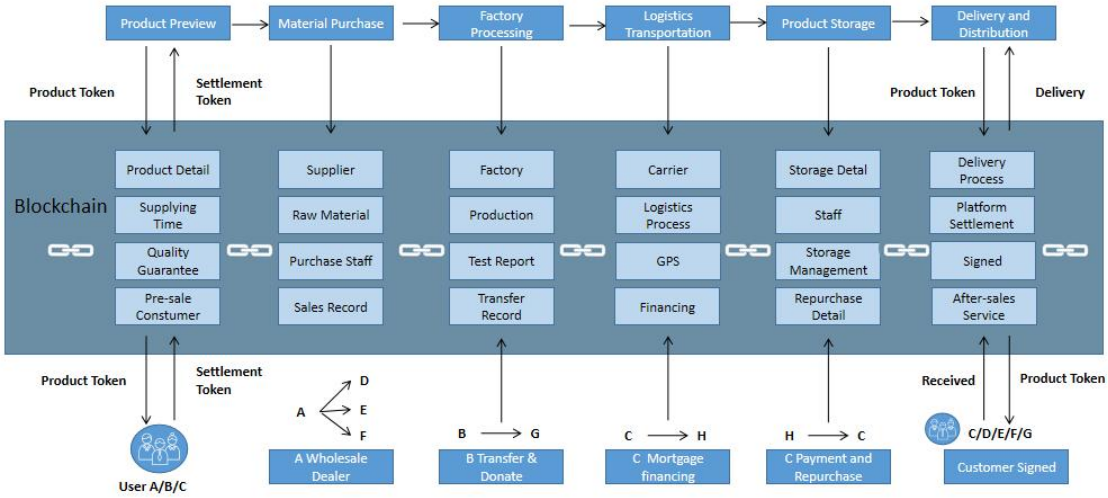
The Glass Chain's data owner uses blockchain to sign their data. The data on the chain is uniformly transmitted and stored in the entire network. And other nodes can independently verify the data on the chain in the entire network, with a very powerful system to ensure the data on the chain is authentic, reliable, and difficult to tamper with. From the perspective of resource utilization efficiency, the data on the Glass Chain must be small

data, critical data, and high-value data, rather than big data, unnecessary data, and low-value data.

7.1.8 Glass Chain ecological product life cycle tracking system

In the optics industry, glasses are simple optical devices made to correct vision and or to protect the eyes. They are composed of lenses and frames. Glasses are not only a tool to protect the eyes, but also a cosmetic decoration. There are many affordable glasses stores in many countries around the world, and consumers pay more attention to the price of glasses, leading to a serious phenomenon of "bad glasses driving out good ones". On the one hand, the eye technician personnels are not professional enough, on the other hand, consumers are ignorant of choosing inferior products. However, functional glasses have such problems, and the harm to consumers is particularly huge. How to ensure the sales of genuine products and professional sales requires the establishment of a product life cycle tracking system.

The blockchain-based Glass Chain ecological product life cycle tracking system is combined with the online and offline sales system. For example, functional glasses can be pre-sold, circulated, from raw materials, production processes, logistics, warehousing to distributors, and consumers. The blockchain-based system will complete the tracking and tracing system of the entire product, so that consumers can rest assured and allow businesses to establish authentic brands.



7.2 Glass Chain Derived Entity Application Ecosystem

Glass Chain will be based on the distributed commercial system, Chain199-DeCom system, and the entity enterprise ecology, building the blockchain innovation of entity enterprises. The world's largest "Agarwood Chain" with a complete physical ecology is being built on the Chain199-DeCom system; and the "Soil Chain" built to improve the global acid soils, and promote high-efficiency agriculture.

7.2.1 Use blockchain technology to accelerate the blockchain Reform of Physical Enterprises

Glass Chain uses the Chain199-DeCom system and provides the blockchain technology to help the enterprise from the "entity" turning to “on-chain” companies. It increases the efficiency of automatic commodity circulation, and the on-chain management of participants in the physical industry ecology to achieve the digital transformation of enterprises.

7.2.2 Supply chain management

The DeCom system supports a variety of complex business logic in physical enterprises, develops blockchain, and supply chain "Double-strand fusion".

Use blockchain technology to solve the problems of inequity of information and lack of transparency in the supply chain operation in the physical industry. Use DeCom smart contract technology to solve the construction of a new collaborative production system plus it promotes capacity sharing, and improves the level of supply chain coordination in the physical industry.

7.2.3 Rebuild the sharing system within the chain

The DeCom system helps the physical industry ecology to achieve the data circulation and interaction in different physical chains. And the system will build a trusted physical environment where multiple entities participate together. It reconstructs the data sharing system, optimizes the data sharing business process, and eventually achieves the trusted measurement of data sharing. Throughout the life cycle to achieve the manageable, controllable, and credible new models of blockchain data assets.

7.2.4 Support the development of NFT Metaverse Project

The Glass Chain system can carry the three core requirements of the Metaverse project:

1) Trustworthy asset value;
2) Identity authentication;
3) It has the replication of the underlying logic of all production and lifestyles in the virtual world to the physical world.

The Glass Chain platform's technology and social ecology can effectively support the development of the Metaverse project and the independent issuance of the NFTs. It supports wide-area expansion of ecological consensus.

8 Disclaimer

This is a conceptual white paper that explains in detail the notionsand core technical concepts of the underlying Operating system, ecosystem, and Token system of the Glass Chain. This document is updated iteratively based on the technology, but Glass Chain is not obligated to update this white paper regularly or provide any additional information. Please read the following contents in detail:

1.It's not open to everyone.

The Glass Chain is not open to everyone, and anyone who wants to participate needs to complete a series of steps and provide specific information and documentation.

2. Controlled products are not available in the jurisdiction.

This white paper does not constitute a prospectus or an invitation in any form, nor is it intended to constitute an invitation or an offer for securities in any jurisdiction or for any regulated product and has not been reviewed by regulators in any jurisdiction.

3.Offer no advice.

This white paper does not constitute a recommendation as to whether or not you should participate in the Glass Chain ecosystem and purchase its digital assets, nor should it serve as a basis for your participation or purchase decision.