

Fair Guessing Chain

**A SOCIAL PAN-ENTERTAINMENT GUESS
PALTFORM BASED ON BLOCKCHIAIN**

V2.0



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Chapter 1 Project Background

1.1 History Background

The “blockchain” has become the most popular concept nowadays. Traditional internet solves the transmission of information but cannot solve the problem of “trust deliver” at low cost. The multi-center, without intermediary, self-organizing, data-sharing trusted network can be found through the application of blockchain and the remold of the blockchain of traditional industries. Blockchain technology will drive the world migrate to the value Internet from the information Internet. Digitize the asset, break the industry barriers, release the liquidity of the real economy, promote the development of the economy through the excavation of the value of the real economy.

Guess is an entertainment of human daily life, initially using for the fair lottery draw, and finally gradually evolving into an industry of game guess, two-person game, welfare lottery, entertainment financing and so on. Fair guessing chain is a Fair guess service platform serving for the Guess scene, taking the guess scene involving in the modern society as the pointcut, including sports guess, game guess, lottery draw and so on. Use blockchain technology to serve the fair guess, public guess, which designed to solve the controversial issues of opaque process, easy information falsification and untrustworthy channels in traditional guess scenes, increasing circulation efficiency, reducing transaction costs, protecting customer interests.

1.2 Industry Background

Guess industry involves a wide range of areas, including traditional lottery, sports guess, game guess, also including legal gamble and entertainment market in some countries. According to statistics, the global guess industry market size reached 536 billion (some countries include gamble and entertainment market). As the third region of the global population, the development of the gamble industry of the Southeast Asian countries has been an important industry. The Philippines is the largest gamble scale in Southeast Asia. And the 2018 Philippine market’ s total gamble revenues are expected to grow by 9.4%, including online gamble, internet lottery and other emerging internet gamble, which play a key role in the country’ s gamble industry. Gamble will be a mainly application scene of fair guessing chain, which will be building a full range of deep cooperative relations with the Philippines, Cambodia and other Southeast Asian countries gamble entertainment companies, to provide a new guess service.

1.3 Blockchain Background

The blockchain is essentially a decentralized distributed ledger database, whose value is to generate a series of data blocks with cryptographic correlation algorithm by constructing self-organizing networks. Each of data blocks contain the information of valid confirmation of multiple trades. And the trade time is orderly and cannot be tampered. A distributed consensus mechanism is established to realize the decentralized trust system. For example, Bitcoin’ s the underlying architecture technology is blockchain technology, using the features of decentralized, unforgeable, open and transparent, distributed accounting, tamper-proofing, intelligent contract and so on, realizing transferring the value to the world without intermediary.



At the same time, as a kind of database, blockchain has several major characteristics. First, records can only be added to this database, and cannot be removed or changed. Second, the blockchain database is distributed in multiple computers, which have a partial or complete copy of the database. For example, the Bitcoin blockchain is stored in millions of machines. In addition, there is an important feature that we can deploy computer code to the blockchain for permanent storage and wait to be executed. Therefore, the blockchain has the feature of immutability, and distributing in multiple computers, which means that hackers are extremely difficult to tamper it.

1.4 Token Coin Background

The token coin is also called the digital currency, the virtual currency, which is a kind of cryptocurrency issued by non-bank organizations, credit institutions, electronic money institution. Cryptocurrency is a monetary system, which its value is the public recognition instead of manufacturing material and physical use. This recognition is an endorsement of scale, whether active or widely used or mandated as a legal tender using as a means of payment based on virtual or specific environmental circulation. The world's first digital currency is Bitcoin. Bitcoin is an ecosystem that encompasses a range of concepts, including payment systems, cryptocurrency, digital assets, and the underlying blockchain technology. In addition to all these concepts, it is also a trust mechanism that establishes peer-to-peer or distributed trust across the nodes of the network.

The first token coin issuing is called ICO, a form of fund-raising for the project, which is a proof of stake for investors, a means of payment in platform to buy services. The issue of cryptocurrency can run the assets in the blockchain so that the blockchain can protect property security, having the advantages of reducing the cost of circulation and others. Everyone has the absolute control of their own private property through the preservation of the database, eliminating intermediary agencies to reduce the cost of circulation and improve efficiency. The issue of token coin must follow the basic law of market economy: The value of token coin should be derived from the market price of products or services, and reasonable pricing. The total amount of cryptocurrency issued should be strictly controlled.

Chapter 2

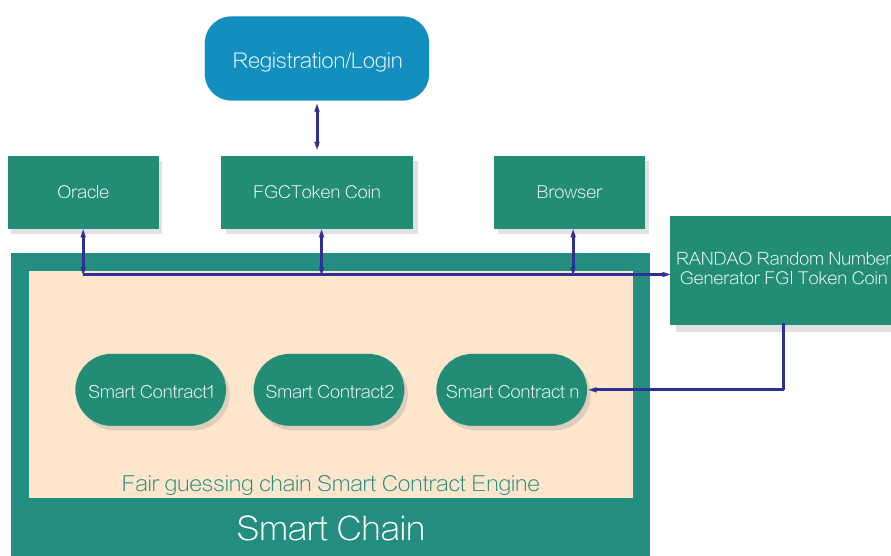
Introduction of Fair Guessing Chain Platform

2.1 Product Introduction

2.1.1 Description of Fair guessing chain Platform

The fair guessing chain using the features of decentralized, distributed ledgers, tamper-proofing of the blockchain technology, as well as a random number generator based on the Participatory Decision Making, has created a fair guess service platform. The platform is a platform with traditional lottery, internet lottery, sports guess, personalized guess release, online social, designing to provide a safe, standardized, impartial, entertainment and diversity of channels for entertainment guess activities for customers.

Fair guessing chain relies on the underlying technology of blockchain to construct application ecosystem. Basing on the underlying intelligent contract of blockchain, using the features of the blockchain code open source, the transparent rule and the decentralized, the bottom system of the Platform public chain and the governance framework of the autonomous community are established, which can realize the intelligent contract on the bottom system of the blockchain. It defines a rule implementation of a token coin, issuing FGE, FGC TOKEN through the double TOKEN economic model. The former used for ICO issue as a token of interest, which can be used to hold the interest of the fair guessing chain platform, enjoying the income dividend and the vote right, etc. The latter ensure price stability with legal coin, reducing market volatility loss, being the main entertainment token on the platform. Based on the mature fair guessing chain underlying protocol and infrastructure, it can quickly realize the issue of guess products and liquidation. On one hand, users can participate in the guess at any time. On the other hand, it can also use the API (Application Programming Interface) & SDK (Software Development Toolkit) to achieve a variety of customization, creating the guess market for all the vertical field.



Picture 1 Fair guessing chain - Fair Guess Service Platform(FGSP)



2.1.2 Fair guessing chain Concept

Fair guessing chain aims to create a fair, safe and highly entertaining guess service platform, always upholding the full process of TCOC operating philosophy of public transparent, concise operation, code open, community autonomy.

Transparent: Focus on the whole process of product operation, to ensure that the process is open and transparent, fair and impartial. It is different from the existing longest chain voting mechanism, using the most advanced based on public data generation of random number of participatory decision making algorithm, to ensure openness, fairness and transparency.

Concise: The entire platform modules can be instrumentalization of the fair guessing chain can be instrumentalization, and integrating a lot of open source modules, so that all customers' whole process concise and smooth, do not waste time and energy regardless of participating in the Guess project, or own customizing and releasing the guess projects.

Open : The quiz chain platform encapsulates the functional components required by the upper application. The developers need to register as a developer to obtain the permission of interface (provide RPC access interface, data analysis, deployment of intelligent contracts of RESTFUL, Websocket) to achieve corresponding functions. The platform provides the visual management tools needed by the developer for operational maintenance. Developers can customize and publish personalized guess tasks through API and SDK, and establish guess markets in various vertical fields.

Community: Fair guessing chain is designed to create a fair guess service platform for customers who like guess and can become a communication platform for blockchain technology enthusiast, guess task publishing companies of traditional lottery, sports lottery, welfare lottery, gamble and fans. To create a decentralized IM tools, customers can build their own community, forming their own community and their own guess friends circle, releasing personalized guess tasks, it is a community platform with functions of guess task releasing, guess project participation, online communication, online voting.

2.1.3 Double-chain System of Fair guessing chain

Double-chain system is a very good way to realize fast transaction of blockchain decentralized feature and optimal efficiency. Fair guessing chain plan to create a double-chain mechanism (public chain + proprietary chain). The public chain basing on the election mechanism of the accounting person, using the open feature of the public chain, let more people participate in the private chain of registration nodes and bookkeeping, and giving certain returns. The proprietary chain is based on the open source technology of the Ethereum and creating a relatively independent blockchain environment on the basis of jointing public chain. In this environment, customers can deploy their own proprietary smart contracts to build exclusive autonomous communities. Relatively independent environment can help customers to publish relatively closed quiz assignments in the business. It also can apply for the public chain registration node to obtain distributed accounting rights. The double-chain system helps the fair guess service platform (FGSP) realize the decentralization of the interest, bookkeeping and transaction. At the same time, it supports instantaneous, low-cost flow of assets on the chain, improving transaction efficiency.

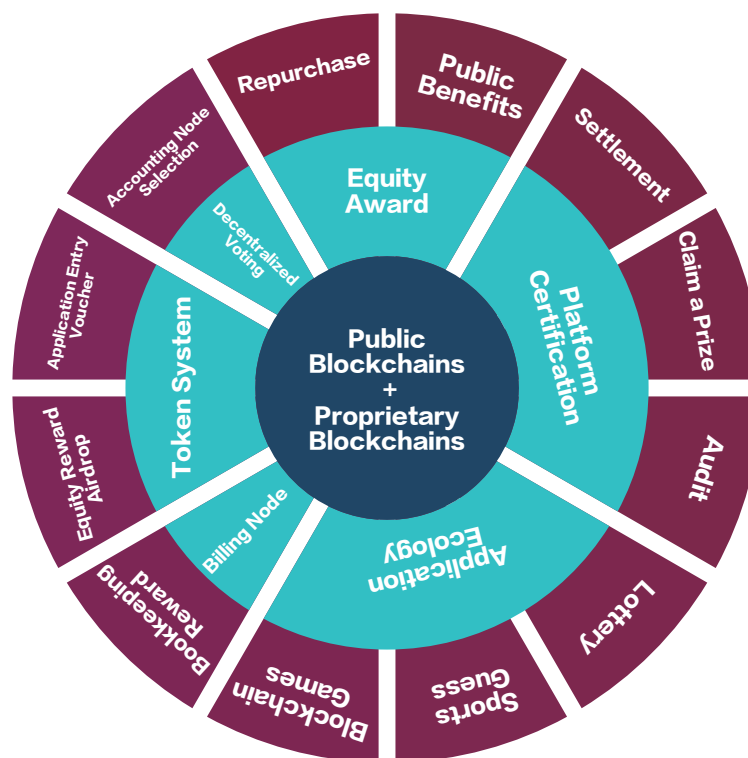
Fair guessing chain select the Ethereum as the underlying technology of a fair guess service platform. The reasons are as follows:

1. Ethereum provides a complete programming language and programming interface;

2. Ethereum's ERC20\ERC721 token coin. Ethereum can easily issue token coin, making it easy to build a model of token-based economics. Almost all wallets support ERC20 token coin nowadays. The popularity of CryptoKitties, Let's go is the use of non-dividing token coin ERC721 token coin replace the physical representation.

3. Code open source. All smart contract codes are located on the public chain of Ethereum, and anyone can view, understand and verify them.

4. The tools of the Ethereum are complete. The Ethereum currently has the most complete set of tools in the public chain circle. The user can train with training.



Picture 2 Double Chain Technology Framework

2.2 The Significance of the Fair guessing chain Platform

2.2.1 Social Significance of the Fair guessing chain

The number of guess platform have no knowledge of the rules and data sources. It is difficult to ensure the fairness of the guess platform because the ambiguous winning algorithm and the guess process are not transparent. And it is difficult to obtain the data of the guess and guarantee the authenticity of the obtained data. In addition,



the traditional guess platform participation process requires the user to recharge into the channel or open a certain credit line according to the user's credit first. And then the channel will charge it in user's own account system. The ability of the channel to keep assets for users and whether it faces the risk of operational supervision can determine the safety of the user's assets, which is a certain risk for the users.

Fair guessing chain can effectively protect the guess information of the participants. The whole guess process is open and transparent, tamper-proof. Fair guessing chain can reshape the trust system of the guess industry, improve the contractual spirit of the participants and provide a good entertainment environment. The atomicity of transactions can be realized by deploying smart contracts on blockchains. Both pre-traded mortgage token coin and post-deal payment token coin are stored in the user's own blockchain address. Users do not have to transfer to the channel in the entire transaction process. The channel does not trust the user's order money. Asset loss or channel escape are impossible. Even if the channel closed, it will not have any impact on users. Digital chips and other data block encryption function can effectively protect all the information security of all guess entertainment users, especially to meet privacy requirements of high-end VIP customers. In addition, the default smart contract allows long-term betting, and once the long-term bets are triggered, the smart contract will execute or provide evidence directly.

2.2.2 Economic Benefit of the Blockchain Guess

The use of the digital currency based on the blockchain can overcome the disadvantages of geographically restricted existing in the traditional lottery games. The purchase and redemption of lotteries and other guess products can be completed from anywhere at any time as long as there is a network, and even in areas where there is no banking infrastructure. This will greatly extend the coverage of traditional quiz and improve the potential stock of the guess market.

Each guess is based on a smart contract of the fair guessing chain platform. Through the Ethereum-based platform, the fair guessing chain technology will make quiz more efficient and convenient, and will fundamentally complete the upgrading of the guess industry. The global guess entertainment platform based on blockchain technology is not only an innovative blockchain entertainment platform, but also accepts the payment of digital currency such as BTC ,ETH,etc., and will bring more than 20 million digital currency players worldwide into the guess market.

2.2.3 Application of New Technologies such as AI and Big Data

The fair guessing chain will introduce big data technology to improve the service quality and efficiency of the guess entertainment industry. Big data can provide a comprehensive and accurate probability analysis. Fair guessing chain customers can dynamically adjust the odds and betting amount at any time according to the big data service provided by the fair guessing chain, and ensure the maximization of their own interests. On the other hand, the quiz chain will also analyze the user data of the access platform, such as personalized recommending products based on user, custom and preference. It can help optimize user service strategy; On this basis, the fair guessing chain can provide microfinance, credit cards, insurance and other digital financial services to provide better services to users.

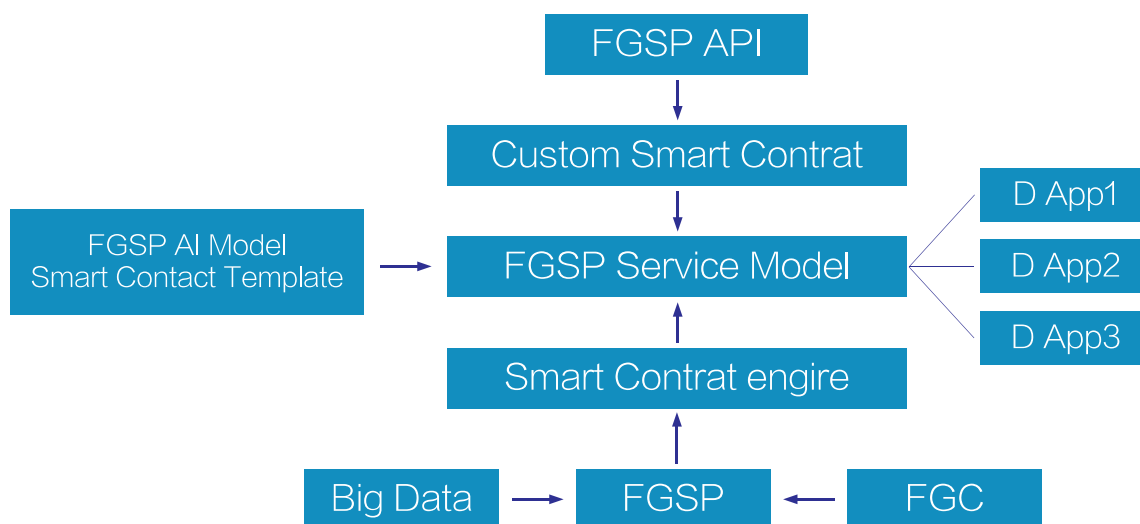


Fair guessing chain will also use artificial intelligence technology to improve the quality of the guess entertainment service level, combined with large data and machine learning platform to improve the efficiency and high quality of guess entertainment. Artificial intelligence application in customer service can deeply analyze the user's habits and try to figure out the user's intention to carry out more personalized customer service and save the labor cost of the platform.

Chapter 3 Introduction of Function Module

3.1 Fair guessing chain Basic Technical Framework

The quiz chain builds a basic technology framework based on the bottom-layer smart contract mechanism of the blockchain, which consists of four layers: the public chain bottom TOKEN, the big data and AI layer, Smart Contract layer and service extension layer. The first layer is the public chain bottom TOKEN, which is used to issue the cryptocurrency FGE, as a certificate of interests and platform-approved trading methods; The second layer is big data and AI layer. The bottom layer of big data provides various data support for the application of upper-level entertainment quiz activities. The AI layer artificial intelligence technology can also provide a series of auxiliary functions, including smart betting, intelligent identification, etc. The third layer is the Smart Contract layer, which is based on the smart contract layer for guess public chains. It can customize smart contract templates for multiple guess entertainment guess scenarios, and also provides APIs for packaging smart contracts and provide them as tool kits. Customers can conveniently customize quiz projects and set up vertical gambling markets; The fourth layer is the service development layer. Fair guessing chain platform (FGSP) will assist customers to graft their own distributed applications. Customers can build their own proprietary chain on the basis of the public chain to create a closed and specific scale of the exclusive entertainment guess community. Use the decentralized IM tool provided by the platform to realize the integration of guess entertainment, intimate social. Fair guessing chain platform will provide a series of low-level data access and interaction interface based on multiple languages, providing a series of services including registration, transaction record, ownership certificates, data query engine and so on.



Picture 3. Basic Frame Diagram



3.2 Key Techniques of Fair guessing chain

The Fair guessing chain allows developers to create any scalable, standardized, and easily developed collaborative applications. Fair guessing chain will be a global common blockchain. Based on the bottom of the public chain, a new type of software application is formed, which is a true decentralized betting application embedded in the trust chain of logic running in the program. At the bottom level, the fair guessing chain is a multi-level, fully integrated packaging package based on the open source technology agreement of each function modules. As a whole, it is a comprehensive platform for creating and deploying discrete quiz and entertainment applications, enabling the interconnection of public chains and P2P networks. At the same time, the fair guessing chain also has a complete smart contract engine. Users can automatically generate templates and deploy them through graphical interface, which greatly reduce the user's learning curve and the development of smart contract burden. Thereby greatly reducing the usage threshold of the use of the quiz chain. And has a complete set of tools that can extend the application scenarios of smart contracts.

The fair guessing chain intends to issue a double token FGE based on the Ethereum smart contract that conforms to the ERC20 token (Ethereum token: Permitting wallets, exchanges, and other smart contracts to dock various tokens in a common manner). To develop the smart contract engine, which belongs to the equity category certificate, it will be traded on the large-scale mainstream exchange. In addition, a type of token FGC conform to ERC20-standard (Fair guess Coin) is issued based on the Ethereum smart contract. The FGC is generated by smart contracts when the fair guessing chain is officially launched. When the users of the fair guessing chain make predictions about any item posted on the fair guessing chain, they must use the FGC to operate: start items, guess items, and verify items.

The random number generation algorithm of fair guessing chain is a participatory decision-making algorithm based on RANDAO thinking, which takes participants as random sources. Based on the strong robust and decentralization of the blockchain network, a transparent RANDAO algorithm is calculated based on the random number provided by the participant, to obtain the absolute random number based on the participant random source, which is safe and reliable. Provide absolute random factors for various guess games. The transparent random numbers needed for various kinds of game play are obtained through the random factors to ensure absolute fairness and transparency of the lottery.

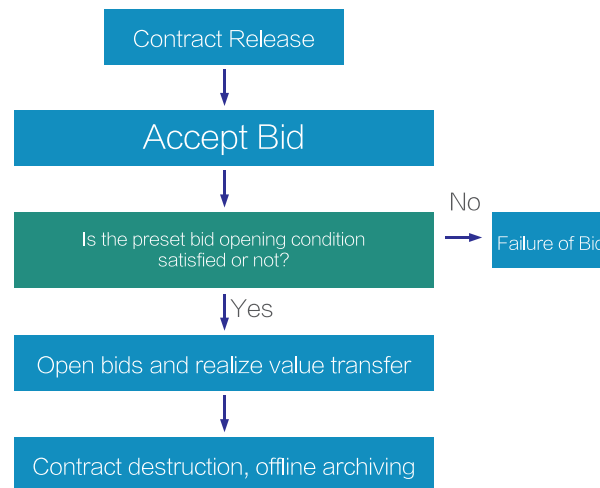
The fair guessing chain decentralized IM tool can help customers communicate peer to peer, having the features of real-time, efficient, secretive. Customers can use this tool to build their own social circle, as a private social tool for inviting friends to participate in guess tasks, publish offline gathering information and so on. A proprietary chain installation can also maintain their own community network through the IM tool.

In addition to supporting the underlying technology of the blockchain, Fair guessing chain will also introduce new high-tech technology, including big data and AI. The fair guessing chain will provide more intelligence, safety, effective services for customers basing on blockchain and big data, combining with artificial intelligence AI development depth of application, including but not limiting to ORACLE, intelligent customer service, intelligent assistant, guess entertainment products personalized recommendations, etc.

3.3 Platform Participants

The participants of the quiz chain public quiz service platform (FGSP) can be classified into three categories according to the functional categories in the smart contract process: project sponsors, project guess party and project verifier.

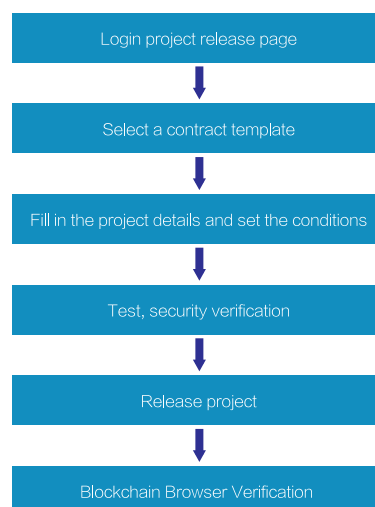
The project exists in the form of a smart contract. The life cycle of the contract is as follows: When a guess party publishes a smart contract, in which the smart contract rules the form of guess, lottery mode, etc., and accepts bets on the entire chain platform; it can also choose to publish in the private chain platform. The lottery will be conducted after the lottery conditions are set and the value will be transferred automatically. If not, the bid will be flowed.



Picture 4. Lottery Frame Diagram of Guessing Project

3.3.1 Sponsor of the Project

The project sponsor can be the public chain user of the fair guessing chain, or it can be the organization and company of the private chain platform built by the service interface provided by the fair guessing chain. After the project sponsor enters the publishing page on the bidding chain platform, filling in the project details, the amount, and the conditions for drawing the prize. The fair guessing chain platform will provide common fixed play contract template in the network platform. The users can choose to use the Smart contract template or use a software development tools such as API to develop a new quiz project. After the smart contract template is verified to be correct, the system will automatically generates smart contract code and deploys it to the fair guessing chain, as shown in the following picture:



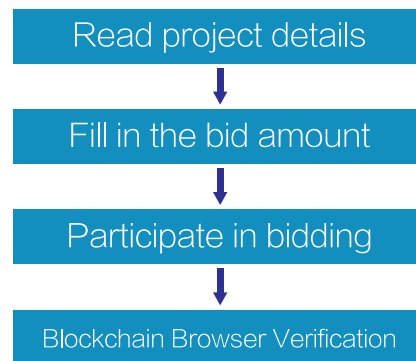
Picture 5. Release Frame Diagram of Guessing Project



The system will preset some smart contract templates. And the platform provides custom template function if the project sponsor cannot find a compatible template. When a successful contract is issued, the project sponsor will obtain the contract address. The status of the contract can also be checked through a system search or a list of items.

3.3.2 Guess Part of the Project

The guess part of the project is the fair guessing chain customers. They can also be the institutional customers for building the private chain. In addition, the platform provides a decentralized IM tool. After a quiz task is released, the project sponsor can invite his friends and peers to participate in the quiz project through the IM tool. Therefore, these people are also one of the project guess part. At the same time, the platform will award certain tokens on this basis. The project guess part can participate the interested items through the list of guess items published by the main chain or directly searching the project name or smart contract address by the search function.



Picture 6. Betting Frame Diagram of Guessing Project

3.3.3 Project Verifier

Based on the principles of fairness, open, justice and transparent of the fair guessing chain, the participants who dispute the guess results can check the content of the contract with the contract address of the project through blockchain browser provided by the system, confirming the guess results, and inviting the authoritative third party with relevant qualifications conducts fairness and impartial verification.

3.4 The Public Service System of the Fair guessing chain

As a fair guess service platform, the purpose of the fair guessing chain is to use blockchain technology to provide a safe, reliable, convenient and intimate full-service content for project sponsors, project guess party, project verifier.



3.4.1 Network Platform Service

Fair guessing chain headquarters will be located in Manila, Philippines, focusing on the global online guess market, and actively exploring other forms of entertainment, to create an open, three-dimensional fair service platform with traditional lottery, internet lottery, sports guess, personality guess. In addition to building the underlying SDK based on the public chain, customized client applications are also available, including but not limited to PCs, WAP station, APP (IOS & Android), PADs, H5 mini apps, etc.

3.4.2 The Access of Third Party Access

Fair guessing chain will provide intelligent contract templates and frameworks, application components, as well as customized APIs and SDK to provide entertainment Guess services to third party organizations or individuals, reduce the online development of entertainment guess threshold, open the exclusive Community network access channels.

3.4.3 Integrated Management of Guess Project

Fair guessing chain fair guess service platform (FGSP) will provide an integrated management system specifically designed for online guess project. It will provide guess project issuance, lottery, and full flow management services that comply with local laws and regulations, including user profiles, commission settings, financial ledger account and other functions.

3.4.4 Cooperation of Online and Offline

In addition to providing online quiz entertainment services, it will also open public-chain interfaces to other entertainment companies in the world, digitize offline transactions, and gradually create online platform for enthusiasts of entertainment guess projects of guess customers and guess institutions and other entertainment guess projects.

3.4.5 Asset Exchange

Many users hold other mainstream digital assets (BTC, ETH, etc.). Fair guessing chain builds a cross-chain wallet based on that, which can accept the transfer and storage of mainstream assets, freely converting FGE tokens circulated on the platform, even directly participating in the guess with its mainstream digital assets as chips. At the same time, the double TOKEN mechanism of the fair guessing chain also issues FGC tokens and legal currency anchor to ensure that the assets are valued in the process of gambling and holding chips and that the value instability caused by the fluctuation of the currency ring is avoided.



3.5 System Module

The architecture of this system is based on the Ethereum technology: the EVM mechanism and smart contract mechanism. To facilitate EVM debugging and contract security verification, the Zeppelin library will be used. The system is mainly composed of the following parts:

3.5.1 Management System of Fair guessing chain Account

3.5.1.1 Register Login Module and Trusted Authentication

The main function of the registering login module is to assign a wallet address to each user who participates in the guess activity. The purpose of this function is to provide users with a fool-like service and get the ID for participating in guess activity. The entire login process includes:

Assign a public/private key pair to each registered user

As the unique ID of the user identity, the public key is used to send and receive the FGC tokens of the guess platform. The private key has two options:

(1) Private key stored on server side

The advantage of this is that the private key can be retrieved by the server when the user forgets the private key. The disadvantage is that the server is centralized, the information is vulnerable to attack, and it is easily intentionally leaked.

(2) The private key is saved and managed by the users. And the server does not save the copy.

The advantage is high security. The potential risk is that if the user manages poorly and loses the private key, the corresponding digital assets are lost and cannot be recovered.

Each user registers the process to provide the mnemonic word. Restore the user's private key through mnemonic words

Fair guessing chain user's authentication is conducting on the chain, with token address as the user's unique identity and asset identification, and artificial intelligence face recognition detection technology based on to ensure the authenticity and consistency between digital identity and real individual. Implementing user authentication and asset transfer verification under the control of the smart contract, without any intermediary participation in the whole process, to achieve a reliable verification of the user's identity during the entire life cycle of the bidding.

3.5.1.2 Decentralized Account Management

Account is the user's passport in the Internet world and identity. Traditional user identity is stored in the center of the Web server. The fair guessing chain account management system adopts a decentralized authentication system. The user's identity information and credentials do not belong to any organizations, which is truly manage by the users. The decentralized account system implements user's identity

information and authentication process in the blockchain network, which is dispersed in the whole global equivalent blockchain node. And there is no authoritative node, which guarantees the security of the system. As an impartial “centralized service provider”, smart contracts replace the traditional centralized service provider, which realizes the open and fair “autonomy” for decentralized organizations, and avoiding the centralized account management system, and the risk of the user information being leaked and tampered when the server is attacked, or other man-made reasons such as the interests drive, politics.

3.5.2 Management System of Guess Data

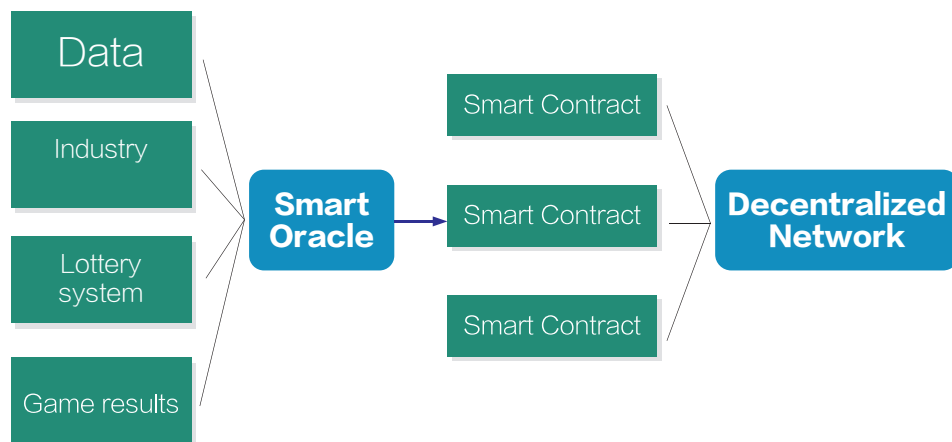


Picture 7. Technical Model of Management System

The blockchain guess system set up by the fair guessing chain. The users participate in the guess project, which can immediately view their own participation project list on the blockchain network. The guess records and processes are stored in the blockchain network, cannot be tampered or denied. Fair guessing chain official platform provides data query function on the chain. Users can trade on the platform to ensure the whole guess process of fairness and security.

On the claim a prize settlement system, the fair guessing chain will link the final guess records to other systems of the distributed ledger, including user identity information and connection Oracle and random number generator based on participatory decision-making. After acquiring guess results, the fair guessing chain will automatically settle bonus tokens according to the smart contract, free from not any centralized institutions or third-party institutions, immediately distributing bonus token to the user's identity address on the blockchain network to ensure the redemption process, which is absolutely open, fair and transparent.

3.5.3 Fair guessing chain Intelligent Contract Engine



Picture 8 Fair guessing chain Intelligent Contract Engine

The needs of the users of the fair guessing chain are various. For the winner's winning logic, some users have very certain winning conditions, and some users are randomly select. For the winning conditions, some users' setting are fixed, such as the requirements for graduating colleges, while other users' winning conditions may be depend on the changes in external conditions, such as the recruitment of certain posts, if it needs a female, then she should be younger than 40 years old; if it needs a male, then should be younger than 50 years old. The fair guessing chain platform provides some of the most common logic for smart contract templates, integrating the smart contract automation generation engine technology. Users can automatically generate templates and deploy them through a graphical interface, greatly reducing the user's learning curve and the burden in development of smart contract, to greatly reduce the threshold for using the fair guessing chain. For those business logics without presets, users can choose to develop by themselves and provide guidance from the platform. Or it can be directly customized development by the platform.

3.5.4 Random Number Generation System of Fair guessing chain

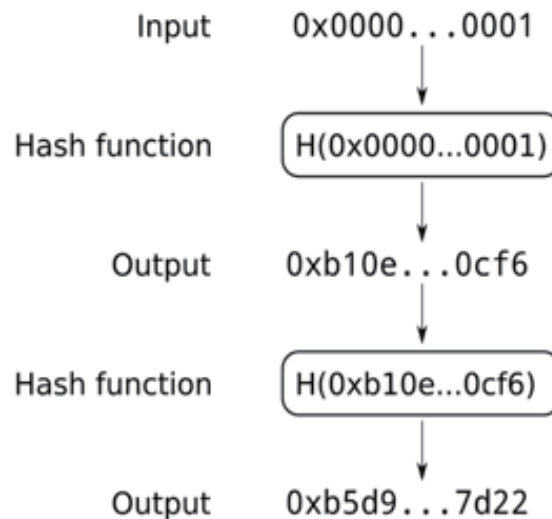
The generation of absolute random numbers is the key technology to guarantee the fair and impartial guess results. It can be regarded as the core competence of the service provider. The industry provides a lot of pseudo random number schemes, and the original solutions are all based on a centralized scheme. Theoretically, they can be broken or modified in various ways, especially in a variety of online guess platform. The safety and reliability of random number generation has been questioned.

The fair guessing chain has design a set of random number generators based on the RANDAO idea which participants' random sources are, to ensure the fairness of the algorithm. The Randao algorithm was hailed as the fairest and most random

random number generation algorithm by the Ethereum founder V. The fair guessing chain algorithm simplifies and enhances the random number generation algorithm of RANDAO, and further avoid the last one betting compared to other sequential winning probability slightly higher.

The Randao protocol layer encapsulates smart contracts on one or more blockchains into various random numbers to form algorithms to meet different business requirements. So it can guarantee the diversity of the random number service, and make the protocol cover a wide range of applications to meet more application requirements. With the advance and development of the blockchain platform, Randao will encapsulate more random number generation mode with market demand. In order to make Randao a standard random number service on the blockchain, the random number service will undergo rigorous testing and safety audit to ensure the quality of the service on-line.

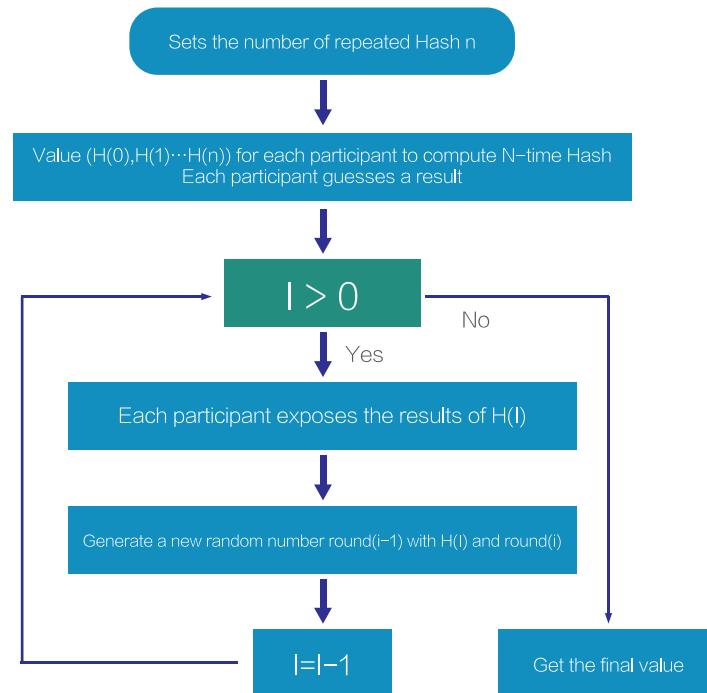
The random number generation algorithm of fair guessing chain has two characteristics: Repeat Hashing and Participator Contribution. A repeat hashing is a data source that is hashed multiple times, and the result output of the last hash is the input of the next hash operation. Here is the schematic:



Participator Contribution refers to the system can obtain a final value from the contribution of multiple participants. The different values of participator contribution will lead to different final values. At the same time, any participator is at the same starting point as the rest of the participators in the final value formation. A valuable feature of the participator's contribution is that as long as one of the participants is trustworthy, the final value is guaranteed to be trustworthy. There is only one case where the results are not credible: all participants conspire.



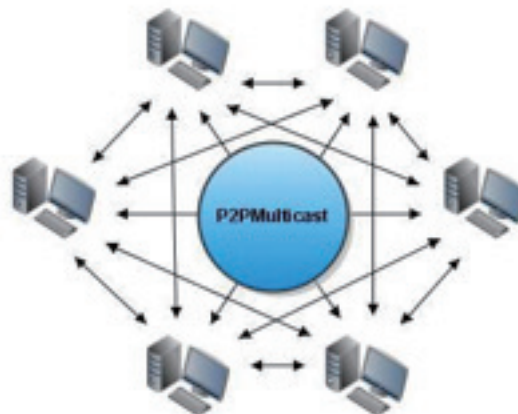
The specific random number generation process is as follows: :



Picture 9. The Randao Model of Participatory Random Number Generation Algorithm

3.5.5 Decentralized Information Communication Tool

In order to enlarge the participators of the fair guessing chain platform, we set up a decentralized information communication tool based on peer to peer protocol in the initial stage, so that fair guessing chain customers can publish project information through the information exchange tool. The decentralized communication tool based on peer to peer protocol can ensure information security, prevent leakage and detection. Due to its decentralized storage mode, the information does not need to be temporarily stored by the central server, thus preventing the data backup of the centralized storage organization. The information transmitted in the communication tool is end-to-end encrypted, which makes the user more intimate and pure about the exchange transactions and personal communication of the project.



Picture 10. Model of P2P Instant Messaging



3.5.6 Other Auxiliary Tools of Fair guessing chain

3.5.6.1 Blockchain Browser

Fair guessing chain is based on the Ethereum technology. For each project activity, code that contains the business logic of the activity is deployed on the chain in a smart contract manner. All the smart contract codes on the Ethereum are transparent and can be viewed through the Blockchain browser tool

- <https://www.etherchain.org/>
- <https://etherscan.io>
- There are lots of similar tools

Fair guessing chain also provides a blockchain browser similar to Ethereum, allowing users to query the corresponding contract code.

3.5.6.2 Contract Template Assistant

The Fair guessing chain presets with a number of commonly used project templates to meet daily high-frequency needs. But there are always some unique needs in the market, and these needs are real. Based on the belief that the market is king and the user is king, in view of the complexity of the current smart contract programming, fair guessing chain will launch a ranking mechanism, allowing registered users of the platform to request the creation of smart contracts, which are regularly voted by users to generate rankings. The fair guessing chain platform will develop templates for top-ranked requirements or provide guidance and conduct security checks. After the actual operation test of the market, the target template will enter the preset template list to serve the majority of users.

Chapter 4 Expansibility

4.1 Oracle

An oracle is a trustworthy entity that introduces information about the state of the external world by signing, allowing a determined smart contract to respond to the uncertain outside world, such as a World Cup guess, in which smart contracts need to get results before they can execute the contract. Oracle has the characteristics of tamper-proofing, stable service and auditable. It can ensure the normal operation of smart contract by providing data chain. However, there is a problem that the source



data is not credible for a single oracle. We propose a decentralized oracle mechanism under multi-point situation to ensure the correctness and reliability of the results. The oracle source data will come from multiple trusted nodes. At the same time, the token reward mechanism selects the volunteers to participate in the decision process from the users on the quiz chain network. When the results of multiple trusted nodes are different, the blockchain network participants will conduct multi-authentication of results and ensure the security and reliability of the oracle data through multi-point data + multi-point verification, thus ensuring the openness and transparency of the entire guess system.

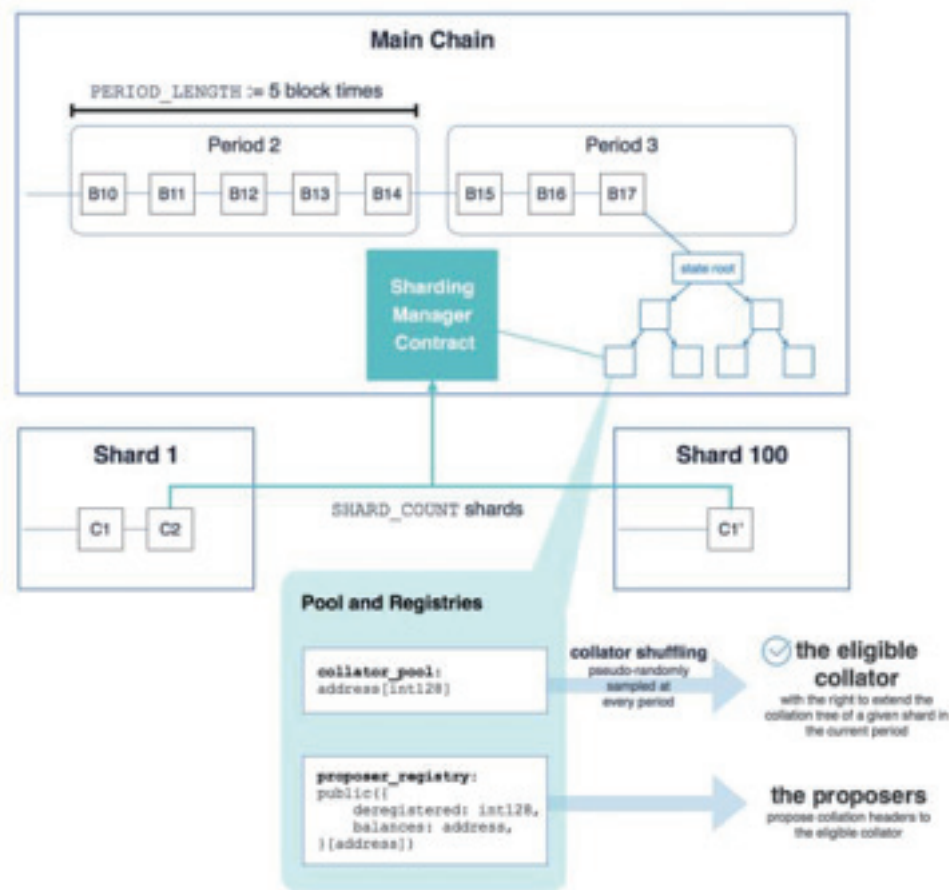
In addition, the fair guessing chain can also access the third-party information intermediary (Oracle), the results of the project is determined by Oracle. These Oracles provide a series of APIs, the fair guessing chain determines the winner of the project by invoking these Oracle APIs. Oracle can be centralized or multi-centralized.

Taking the query of the price of MIX2 as an example, suppose there is a third-party system (Oracle) can provide authoritative accurate, tamper-proof, stable, and acceptable audit price query interface. The Oracle first obtain the price of the MIX2 from the Xiaomi official, transferring account to the address of specific blockchain, writing price information into the transaction notes, so that the smart contract only need to see the specific address of the transaction record, the price of MIX2 can be acquired. Because the blockchain automatically store the blocks that contain the transactions, the smart contract can get the price information almost requires access to the local information. Not only the access efficiency is ensured, but also the price consistency is ensured. In general, the oracle (third party) pushes the data to the blockchain without the need for a smart contract to actively pull data from the third party.

In most cases, an oracle is enough. But in the process of dealing with significant assets, an oracle does not guarantee completely reliable. The fair guessing chain has set up a number of oracles to provide accurate data interface network, that is, multiple oracle model, also called the oracle network.

4.2 Future Extendibility of the Ethereum Technology

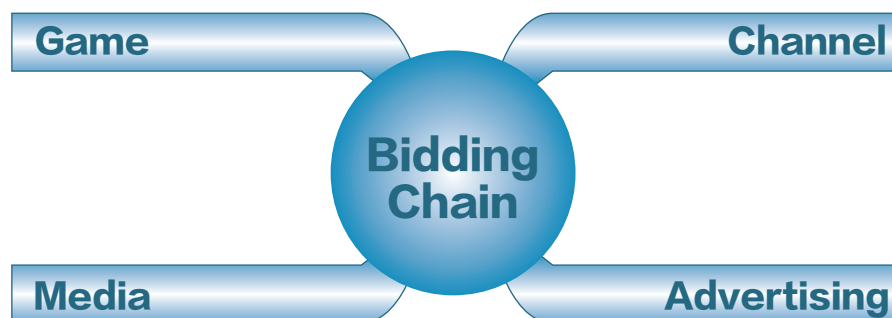
Vitalik, founder of the Ethereum, announced the latest developments in its leading sharding technology. Sharding is actually a traditional database technology that divides large databases into smaller, faster, and more manageable parts. In a blockchain network, sharding transforms each block in the network into a sub-blockchain (100), which can hold transaction data and eventually form a block on the main chain. In this way, the transaction capacity of each block will be expanded about 100 times. The launch of this technology of the new Ethereum has become a big probability event. Fair guessing chain based on the Ethereum technology can enjoy the benefits of its own evolution, greatly enhancing their trading capacity and data storage efficiency, further optimizing the fair guessing chain service platform user experience.



Picture 11. Model of Ethereum Technology

4.3 Application Context

Since the fair guessing chain provides an open and transparent mechanism, to ensure the fairness of the guess result of each project. The definition of the project is very extensive: buying and selling second-hand furniture can be a project, and a dating partner can also be a project. Therefore, the fair guessing chain can be widely applied in our real life. Here are just some of the possible applications:



Picture 12. Application Scenarios of Fair Guessing Chain



Take the lottery as an example, we firmly believe that the blockchain lottery is the future of the entire lottery industry. The fair guessing chain platform also supports the complete blockchain lottery developer ecology. The smart contract blockchain lottery system developed based on fair guessing chain, as well as the blockchain lottery application developed by developer ecology, all of them supporting the direct use of FGC to purchase and trade lottery tickets (in countries where allow this activity). We will also support the use of mainstream digital currencies as chips and bonuses.

Taking blockchain games as an example, since the launch of the CryptoKitties at the end of November 2017, a large number of blockchain game developers have been competing to imitate. The success of CryptoKitties and the relatively low entry barrier have led to blockchain games to some extent initial homogenization. The current core gameplay of blockchain games is still relatively single, mainly buying, collecting, betting and other types. Whether it is pets or celebrities, the virtual props of each players are unique. From a technical point of view, blockchain games are similar to trading coins, which are different from the traditional games, bringing game experience to player by operation and plot. The blockchain game is a speculative process by obtaining the rare property of an item to obtain high returns. Based on the quiz chain platform, blockchain games will be more interesting. In accordance with the ERC721 token contract, the quiz chain blockchain game and quiz are also complementary and have broad prospects for development.

4.4 Cross Chain Purse

We will allow guess parties to use the digital currency on the mainstream digital currency exchange as a guaranty and even subject matter, to develop a cross-link wallet. The cross-chain wallet will become a trading center and personal digital asset management platform through the effective operation of the fair guessing chain platform. Multi-asset support for cross-chain wallet products including BTC, ETH, QBT and other trans-chain multiple currencies, extending to the digital currency-related to social communication, currency trading, payment, quotes, consulting and other functions. It also provides digital chip exchange for various types of gaming platforms, game manufacturers, issuing digital assets to the basic property rights of gamble industry and its supporting industries.

Chapter 5 Token Mechanism and Issuing Program

5.1 Double Token Economic Model of Fair guessing chain

The public-chain system has excellent characteristic of decentralized. But it is not friendly to fast trading (such as guess gambling). The alliance chain has great advantage in efficiency and rate, but it cannot reach the complete data transparency and supervision.

In view of this, the fair guessing chain will adopt the double Token economic model. One is FGE (Fair Guess Equity) Token, belonging to the equity certificate, which will be traded on the large-scale mainstream exchange. A stable currency FGC (Fair Guess Coin) Token, belongs to the function certificate, using in the guess betting.



5.2 FGE Token

FGE Token trades on the exchange, its main functions and values are as following:

Financial value. Its financial value comes from the improvement of the value of fair guessing chain. Once the user of fair guessing chain platform increased, the demand for FGE token increased. As demand for FGE token rises, so does the price of FGE trading.

Use value. Fair guessing chain has a real and clear scene application. The platform will draw a certain percentage of the processing fee for each successfully completed contract. The holder of FGE token pays a certain amount of FGE monthly to the platform to obtain a certain percentage of the fee reduction.

Stimulation value. In order to stimulate the depth and breadth of the use of fair guessing chain, the future fair guessing chain foundation will award users who successfully complete the transaction on the platform. For example, in a lottery scene, there will be rewarded with 1 FGC for each transaction of 100 legal money. It has great significance for the platform of the fair guessing chain to be a continuous import of the user and self-growth. At the same time, for the users long-term holding and consuming of FGE, the platform will return a certain proportion fees.

Developer ecological rewarding value. The developer ecology is an important part of the fair guessing chain system. The developer's ecology is an important part of the fair guessing chain system. Developers need to submit and freeze a certain number of FGCs to the authorities through the blockchain scene application developed based on the open API of the fair guessing chain system. These APIs not only give developers the opportunity to be used by consumers, but also obtain rich development and distribution returns, to promote the flow of FGC token and large-scale applications.

System buy-back destruction. The fair guessing chain foundation will take part of the annual revenue for the FGC token buy-back and destroy.

5.3 FGC Token

FGC is a necessary token to participate in the application of fair guessing chain scene. The advantage of FGC compared to FGE is that it guarantees that FGC will maintain price stability when converting into a legal currency. Users need to use FGC Token in order to participate in guess and betting projects. The FGC Token can be exchanged with FGE Token or purchased through the OTC market.

FGC Token's issue is based on a proprietary chain networks, which can be freely traded in P2P, anonymous, secure, and centralized environments. At the same time, FGC provides valuable assets and payment services of issued digital assets and guarantees the value of the issued digital currency.

5.4 Issue Program of FGE Token

A total of 1 billion pieces of the FGE Token were issued, which was created once by the quiz chain. The total upper limit has been set, can not be changed, never issue more of them. FGE token are assigned to different holders according to certain rules and ratios. A certain proportion of the FGE token are funded in a suitable manner to the appropriate people in suitable countries for the execution and operation of the fair guessing chain project, including but not limited to the technical R&D construction and iteration involved in this white paper, and market operations.



5.5 FGE Token分配方案

Amount	Proportion	Distribution Program	Explanation
5 billion	50%	合规方式向适当人群发售	It is used to fair guessing chain operation, mainly including development, market, operation, third party organization service, attracting talents and so on.
2.5 billion	25%	Founding Team Development team Consultant Team	It is used to reward the relevant teams have made efforts and contributions in the construction and development of the fair guessing chain, and thanks them for their support to the project in the form of human resources, technology development, community development, and consulting. Tokens will be locked during _ years, cannot be circulated, and released linearly on a monthly basis for two years after the lockout ends.
1 billion	10%	Market Promotion Commercial Distribution	The business distribution in the process of seeking business integration, equity replacement, and community support, as well as the communication needed to support project promotion and platform improvement, including “airdrops” .
1 billion	10%	User Incentives	There will be rewarded with 1 FGC for each transaction of 100 legal money. It has great significance for the platform of the fair guessing chain to be a continuous import of the user and self-growth
0.5 billion	5%	Foundation Operation	The foundation has long been responsible for the management of the platform in development, construction and developing, as well as the related affairs of open source community projects. This section is used for long-term foundation operations.

5.6 FGE Token Sales Program

The FGE Token will be sold in an appropriate manner to the right people in strict accordance with the laws and regulations of the world. A constant total distribution amount of FGE Token is 1 billion, of which 50% (500 million) are using for external sale.

	Cornerstone phase	Private placement phase	Public phase
FGE Token			
Time			
ETH			

Chapter 6

Core Founding Team and Consultants of Fair Guessing Chain

6.1 Fair guessing chain Core Founding Team



Leon Liu

Big data technology expert, Internet financial insurance product specialist

With over 20 years of experience in the information industry and 15 years of experience in the financial and insurance industry

Working experience:

- Equifax senior system analyst—one of the three major U.S. credit centers
- served as a technical or managerial position in Canada Life Co., Royal Bank of Canada, property and casualty application software company, HP's Insurance Systems Development subsidiary, AIA and other financial and insurance companies.

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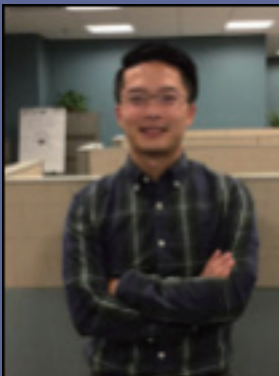
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Peter Z. He



Sean Tang

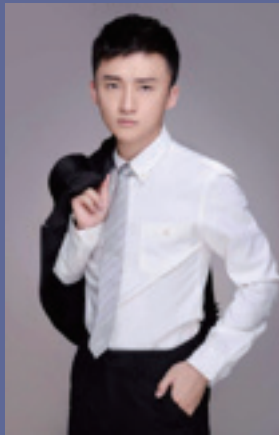
Graduated from actuarial and statistical engineering, University of Toronto, Canada, honors degree in Bachelor of Science

Work in a quantified hedge fund platform for a global top 500 insurer

IT+ actuarial trans-border expert, with 10 experience in the insurance industry

Working experience: be responsible for the quantitative hedging of insurance fund investment, participate in platform development and investment decision; Engage or lead the team in: Insurance new product development pricing, insurance product reserve calculation, insurance product risk control, reinsurance pricing, group insurance pricing, insurance product underwriting platform development, pension platform development and maintenance

The member of Actuary and MAAA



Harry Hsu

Master of science and technology policy at Cambridge University,
master of graphic communication, National Taiwan Normal University;

Working Experience:

TUTORABC Brand PR Director, DHgate Dunhuang Network senior marketing PR manager;

The presenter for 2016 China Innovation and Entrepreneurship competition, Hong Kong and Macao Games host, 2018 global block chain Broker Summit Moderator, 2018 Peace Development Forum Moderator;

The author for “That year, I’ m in Cambridge unveiling Voldemort’s Mask” , “Richard Strauss Biography” , “Niberon Ring” and so on;

The columnist of Taiwan World Magazine, “China Times” .

He graduated with a master's degree in electrical and computer engineering from the University of Western Ontario, Canada.

Currently working for a reinsurance company, responsible for disaster model development

6 years of project management and 8 years of software development experience

Important work experience:

Responsible for disaster model analysis software development, disaster model risk analysis, terrorist attack risk software development, reinsurance treaty analysis, multiple GIS-based smart city projects



Cheryl Ma

6.2 Consultants

A master's degree from the University of Western Ontario, Canada, with Project management PMP, risk control Crisc and other professional certificates

former IBM (Toronto) Research and Development Center mainframe compilation optimization development specialist;

Currently work in Ontario Gaming Bureau Network Division approval expert



Tracy Lee



6.3 Early Investors



Chapter 7

Fair guessing chain Implementation Road Map

January 2019, launch mobile terminal;
 March 2019, launch smart contract engine;
 May 2019, launch cross-chain wallet.

2019

February 2018, completion the fair guessing chain white paper version 1.0, establish a technical framework;

March 2018, Start the bottom chain design and module research and development, establish partnership with legal gaming entertainment companies in Philippines, Cambodia and other countries;

May 2018, Complete the fair guessing chain white paper 2.0 version and blockchain browser; test the first DAPP chain;

June 2018, internal test the second, third, fourth DAPP chains; start to develop multi-decentralized IM tools; the cross-chain wallet and ORACLE get into the research and development phase;

July 2018, open test the DAPP, one-time create FGCE Token based on Ethereum, start private equity;

August 2018, launch FGE Token in the mainstream digital currency exchange and DAPP; block chain guess game landed in Hainan;

September 2018, complete the multi-center IM tool development; October 2018, the development of the first version of Oracle was completed;

2018

December 2017, the fair guessing chain core team was established, conducting market research, integrating key resources;

2017



THANKS