1.INTRODUCTION

Introduction

The emergence and development of the block chain technology has revolutionized the power of the centralized service platform in various areas, both in the country and in the industry, and this has led to a decentralized world.

As a concept of block chain, 'block' is one of data distribution processing technology. Transaction data of P2P (Person to Person Transaction) is stored in all blocks, transmitted through multiple users, verified and verified each book, You will receive.

Each of these blocks is assembled into a 'chain' structure. Since many users have the transaction history, it is possible to make transactions transparently and securely because it is impossible to modify or change the information of the book.

The block chain technology has been rapidly applied to various fields and is rapidly developing. And 10 years later, as of today, about 1,600 kinds of coded money are being traded at about 300 trillion won worldwide, Depending on field applications and platform functions, the scope of application can be broadened to industry-wide and intellectual properties such as Cryptocurrency, Public & Security, Industrial Applications, and Transaction & Payments It means a next-generation industrial revolution achieved by the convergence of information and communication technology.

As the needs of government agencies, financial institutions, and global corporations expand to utilize the advantages of technology, the future of the block chain is showing an active role in the development and utilization of related technologies and participation is expected to accelerate further.

Based on this, WAD provides a solution for linking block chain technology with companion animal ecosystems and providing an integrated system for unified management of companion animal information. Through this, we will implement a complete and systematic animal registration system and solve the fundamental problem of abandoned gods to create a beautiful and healthy companion animal ecosystem.

2.OBJECTIVE

Objective

In recent years, the market size and industry of companion animals has been steadily growing as the number of companion population has reached 10 million, but the growth of abandoned animals and euthanasia, companion animal sale fraud, government policy management, and many of them are expected to become more serious. However, the absence of a fundamental solution for abandoned animals can lead to greater social and structural problems behind the constantly developing pet market.

To prevent this, our WAD platform has implemented "Iris Recognition Service" which is the core technology of WAD only, and it is possible to organize the history of the animal care, genealogy, and pedigree with the block chain technology that will lead the fourth industry to build a complete system.

WAD's "Iris Recognition Service" will be a WAD platform that will contribute to solving social problems and lead a healthy and transparent companion animal ecosystem by reducing the social costs and efforts for abandoned animals that grow into social problems and raising responsibility for companion animals.

3. BACKGROUND

Background

Companion animals

The pet is not bad, but why is it a companion animal? It is called Companion Animal because of the various benefits and gratitude that animals give to humans. Unlike the way people comfort the animals through the upgrading of their titles as much as they have been given to the animals, 'Companion' means a partner or companion together.

This name appeared in the 1983 symposium "Relationships with Humans and Pets" in Vienna, Austria, in commemoration of the Nobel Prize-winning world-wide zoologist Dr. Konrad Lorenz, who was technically named "companion animal".

While pets mean that they are not edible, pets mean family.

3.1 Domestic companion animal market

- 3.1.1 Continuing growing companion animal market

As the number of households having companion animals is increasing, the market for companion animals is expanding. In recent years, new words such as Petconomy (Pet + Economy) have emerged reflecting this phenomenon. New services such as pet taxi, pet kindergarten, pet funeral service, IT combination products are on the market.

In addition, pets insurance to reduce the burden of medical expenses of the owner of companion animals is in the spotlight, and the trust goods that the owner of the companion animal can join for the companion animal to be left alone after the death of the owner has been also released.

With the rapid growth of poultry related industries, the demand for specialized poultry manpower is also increasing, and specialist certifications such as poultry managers, companion animal behavior corrector, companion animal funeral instructor, breeder (breeding expert), and post-secondary educational institutions provide related courses to train professional manpower.

As the market size and industry of companion animals continues to develop in this fast-growing companion market, there will be a time when demand for high-quality, specialized services related to companion animals will be required..

- 3.1.2 Domestic companion animal related market

In Korea, the number of households with companion animals is steadily increasing due to the recent increase in the number of one-person households, low fertility rate, and aging population. According to the Ministry of Agriculture, Forestry, Livestock and Foods, the proportion of households that raise domestic companion animal's accounts for a large proportion, from 17.4% in 2010 to 21.8% in 2015, an increase of 4.4 % points over the past 5 years.

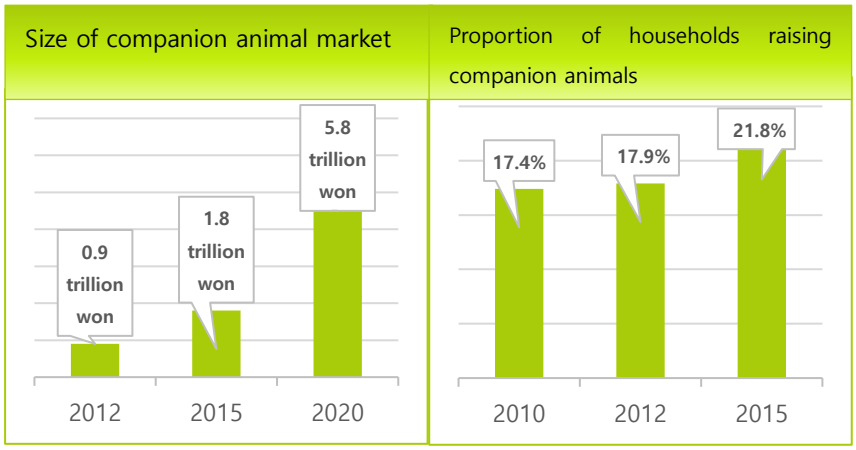
The total number of companion animals is estimated to be 8,740,000, and the number of people raising companion animals is estimated to be 14,810,000..

Background

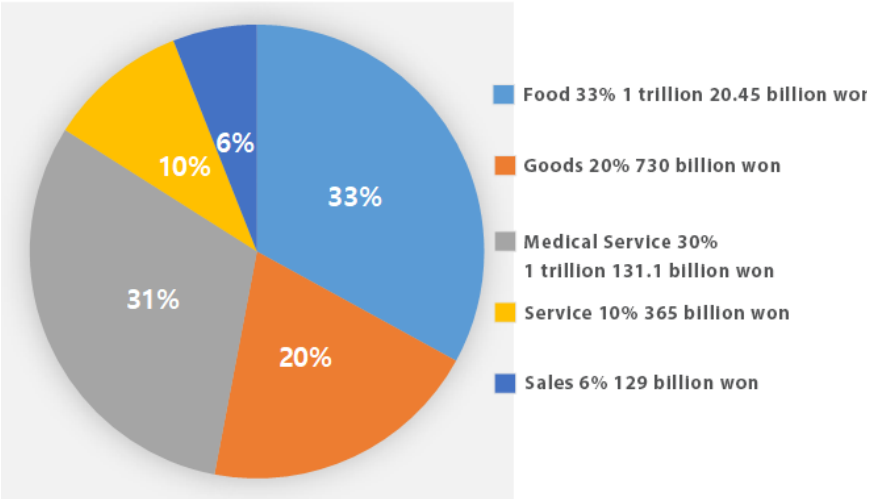
The number of domestic companion animals increased by 82% in 2 years from 5.5 million in 2014 to 10 million in 2016. With the high growth potential of the market and government active policy support, large companies are also entering the pet animal industry.

In addition, when the 19th presidential election in 2017, the proportion of population related to animals is absolute so that each party's prime minister presents pledges on companion animals. As a result, trends in the companion animal related market will change rapidly.

The market for companion animals has also doubled from 900 billion won in 2012 to 1.80 trillion won in 2015. In 2020, the market size is expected to expand rapidly to 5.8 trillion won



Size of companion animal market and trend of households with companion animals



Market forecasts by domestic pet animal industry in 2018 (approx. 3.65 trillion won)

Background

3.2 Companion animal market trends

- 3.2.1 Large companies entering into the companion animal market

"Capturing 6 trillion won Blue Ocean" ... Entering the animal market of major companies such as Shinsegae, Lotte, CJ "

In the past, large corporations did not actively participate in the companion animal market because they considered the companion animal market to be a suitable business for small and medium enterprises. However, as the population of companion animals rapidly increased and the growth potential of related industries grows, companies that are virtually blocked by export and domestic demand are making the companion animal industry a new growth engine.

	Categories	Business contents
LG HNH	Bath supplies	Launched petcare brand, O's Siriuse. panion animal shampoo/conditioner etc. with natural ingredients.
Aekyung	Bath supplies	MOU with companion animal expert company. Launched Petcare brand, Whistle and release
CJ	Food and snack	Launched pet food brand, O'FRESH & O'NATURE. Introduced carton pack to companion animal food
Pulmuone	Food and snack	Operates AmiO, an organic pet dog food brand using whole grains, raw meat, and vegetables.
KGC	Food and snack	Launched Giniepet, companion animal health food brand containing red ginseng ingredient.
Kolon Industries	Living goods and clothing	Launched the Pennect brand with fashion brand Dasom.
E-Land	Living goods and clothing	Launched Petbone, a pet accessories brand. Opened the companion animal store in Modern House in NC Department Store.
GS Retail	Distribution	As of August 2016, pet product sales increased 48.5% year-on-year
Shilla DFS	Distribution	Launched brands for companion animal supplies such as Sniff, Cosmounit, Dentist's appointment, Roughwear etc. through online duty free shops.

Industry Spending by Major Companies

- 3.2.2 Release of companion animal related financial products

As the population of companion animals grows into the 10 million mark, financial companies are releasing related products and services one by one to catch them as their customers.

Companion Animals We are living in a more close and deeper relationship with companion animals, so we have been paying close attention to companion animals for disease, injury, dressing, and health care.

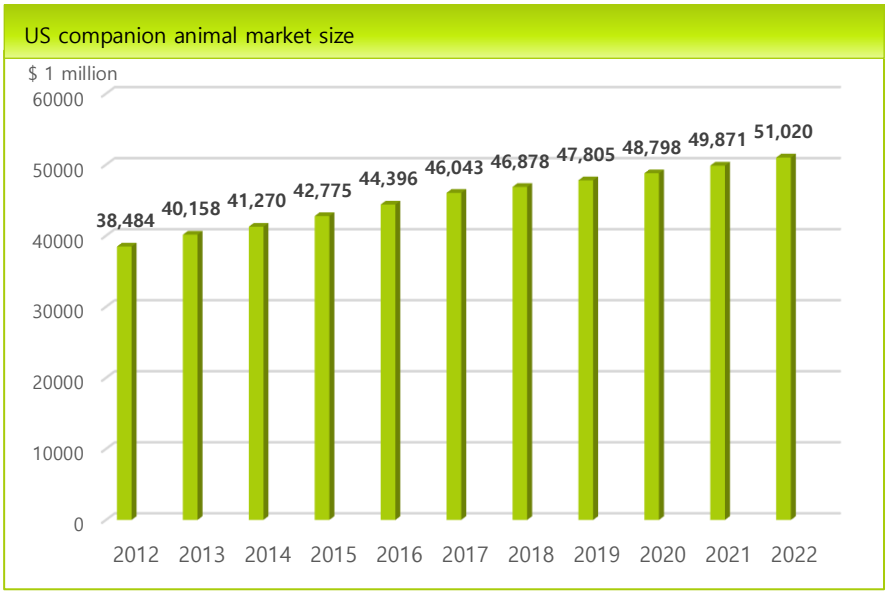
In order to maintain this, it is becoming a common tendency to prepare for accidents such as illness, injury, death of companion animal by joining deposits, savings, trusts and insurance products

Background

Overseas companion animal market status

- 3.3.1 Companion animal market size and forecast in the US

- 84.6 million households have companion animals in the US, which is 68% of the total population.
- In 2017, the US companion animal market is expected to grow to $ 46,040 million, a 3.7% increase from $ 44,399 million in 2016, to $ 512 million in 2022
- .The US companion animal supplies market has grown at a CAGR of 2.3% over the past five years (2011 ~ 2015).



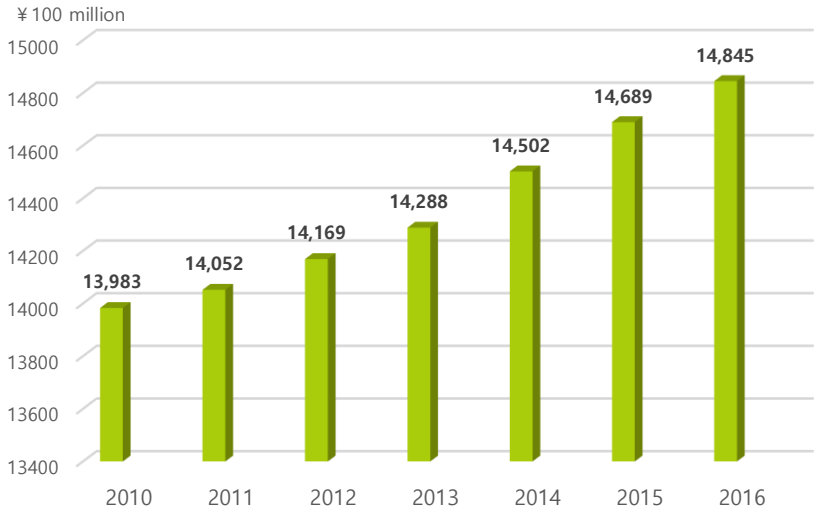
Companion animal market size in the US

- 3.3.2 Companion animal market size and forecast in Japan

- In Japan, about 27% of all households have companion animals
- Companion animal food (food, snacks) and supplies are estimated at 569.2 billion yen (about 5.5 trillion won), including about 15 trillion won including medical and insurance related industries.
- In Japan, the criterion for companion animal abuse was the establishment of the "Animal Protection Management Act" in 1973, which was the starting point of the animal welfare system.
- Japanese companion animal related insurance and funeral services are increasing the number of businesses providing services like human beings to animals..

Background

Companion animal market size in Japan

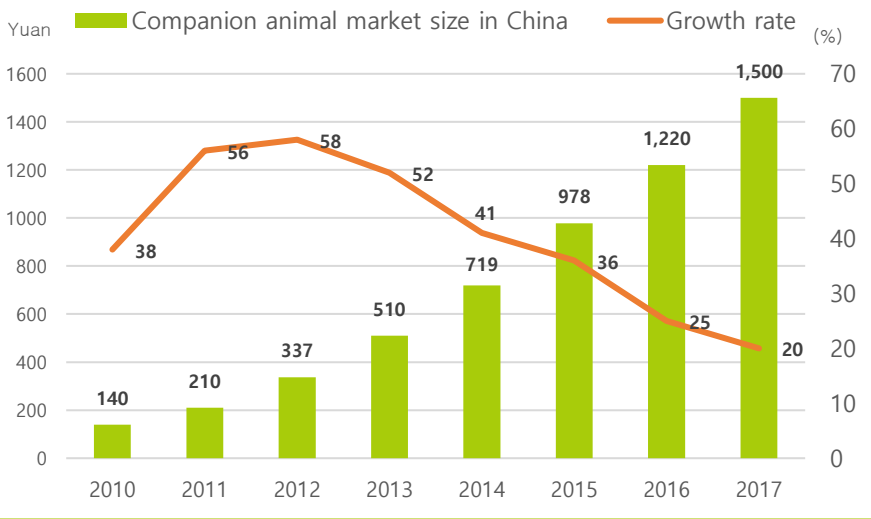


Companion animal market size in Japan

- 3.3.3 Companion animal market size and forecast in China

- Companion animal market size and forecast in China
- The market size is expected to be about 222 billion Yuan in 2020. (China Pet Industry White Paper, 2016)
- The consumption of companion animals is rapidly increasing due to the increase in consumption due to border growth, the increase of single-person households and aging population.

Companion animal market size and forecast in China



Companion animal market size and forecast in China

4. MARKET PROBLEMS

4.1 Absence of systematic companion animal management

4.2 Lack of strong entity certification

4.3 The need to provide a total service platform

Market Problems

"The greatness and moral progress of the nation can be judged by the treatment of animals in that country." Mahatma Gandhi named the animal as a barometer of a country's moral level. The animal right, which is comparable to human rights (which, of course, avoids the least amount of pain but not the same level as humans), is a measure of human rights.

4.1 Absence of systematic companion animal management

"Increased abandoning and regulatory limitations of companion animals"

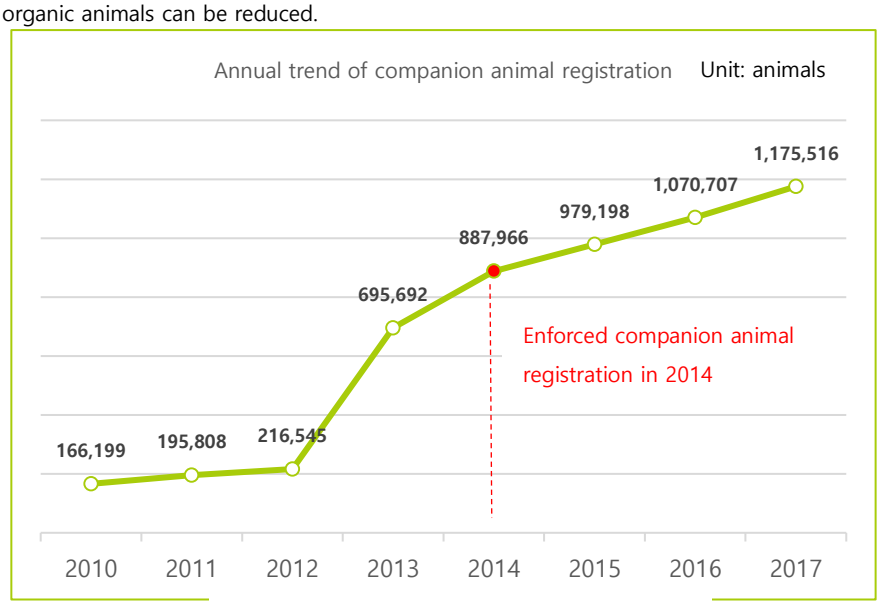
There are many problems in the development of the companion animal market. As the number of companion animals increases and the number of abandoned animals that are discarded is increasing, the government has imposed 'animal registration obligations' since 2014 and about 1 million animals have been registered by 2016.

Animal registration is mandatory, and if you do not register a companion animal in your area for 3 months or longer, you will be charged a penalty.

In fact, compulsory animal registration has a significant impact on reducing the number of abandoned animals, but companion animals that have been registered so far are only about 20% of the total, and the hassle of the registration method and the built- It is a situation that is causing congestion due to the resistance of animal protection groups.

Despite the fact that the number of domestic companion animals is ten million, the effect of promoting unilateral animal registration system by the government and local governments seems to be insufficient. To overcome this, direct and strong systematic regulation is required for market participants.

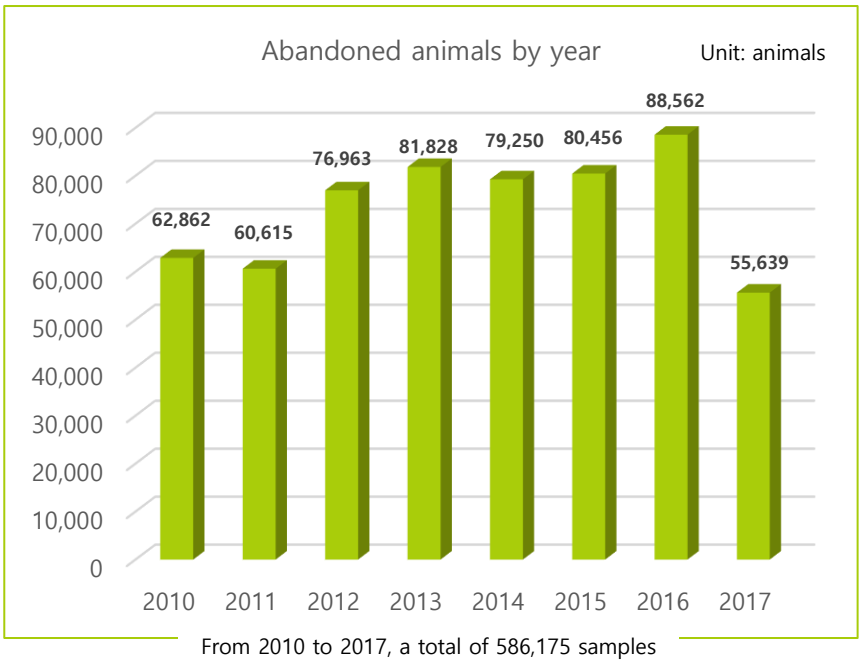
If companion animals are registered and managed systematically, the status of domestic companion animals can be grasped, and ease of management and social costs caused by organic animals can be reduced.



From 2010 to 2017, a total of 586,175 samples

Companion animal registration

Market Problems



From 2010 to 2017, a total of 586,175 samples

Abandoned animals by year

4.2 Lack of strong entity certification

When companion animals are bought or adopted, information on bloodline identification and health status (mental and physical) is a very important step, but there is no reliable and systematic management system to verify them.

Because of this, most of the cases do not provide contracts and companion animal documents at the time of pre-sale and adoption, so breeding companies sell cheaper information or mix breed, which does not have a blood certificate, at an expensive price. Age, health status, medical care, medical history, etc. Most of the proprietors tend to sell it, and the damage is going back to the buyer

4.3 The need to provide a total service platform

Currently there is a lot of inconvenience in the companion animal market due to the lack of a platform to provide various services related to companion animals in bulk.

In order to strengthen the effectiveness of animal registration system, which is the root cause of all problems in our WAD platform, 'iris recognition technology' is used to certify objects and all companion animal data is constructed on a block chain network. This system is optimized for companion animal industry. It will form a market.

5. SOLUTION

5.1 Systematic animal registration alternative method

"WAD Iris Recognition Service"

5.2 2 Systematic Total Service

"WAD Application"

Solution

5.1 Systematic animal registration alternative method,

"WAD Iris Recognition Service"

WAD's unique iris recognition service enables a more systematic and powerful companion animal management system. By registering the companion animal's iris, we can block-chain the whole information of the object and expect a better and more secure companion animal management system than any other registration system.

Through the introduction of an innovation system called "iris recognition", it will be sold on the basis of trust from the beginning of adoption of companion animals, and it will be possible to diversify and enhance the diversity of individual objects through the individual authentication basis of companion animals owned by individuals. In addition, by referring to the lineage of the companion animal (maternal and paternal information), it will prevent the hereditary disease and various diseases of the individual in advance, thereby reducing unnecessary treatment costs and enjoying life with healthy companion animal.

This service enables the fundamental resolution of social problems such as animal abandoning problem, companion animal loss, companion animal related accidents due to development of companion animal industry, and quick identification of the identity of the companion through "iris recognition system" We will be able to cope and create environment without organic animals based on clear and systematic management system.

It can be used as a key system for companion animal industry research through general information of companion animal such as medical record, lineage, sales company information, and companion information of the companion animal through authentication of the object by all iris information registration of companion animal

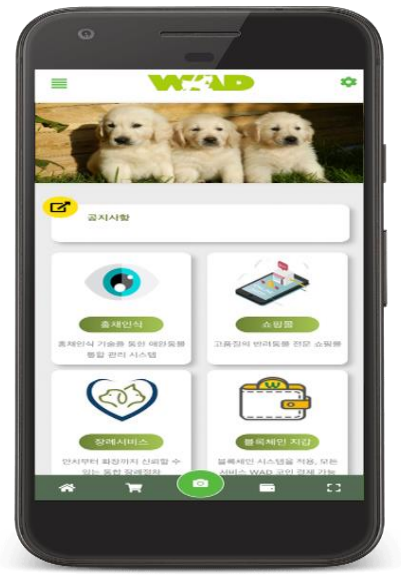
WAD Iris Recognition Process

5.2 Systematic Total Service "WAD Application"

Solution

Companion animal After registering the companion animal with the WAD Application, the total service platform of WAD, companion animal After registering the information data with WAD Application iris recognition system, companion animal companion animal care such as shopping mall, hospital, PET CAFE, We will provide the service through WAD Application in any place easily.

- **WAD iris recognition system**
  It is a powerful service that can register the object through iris recognition and authenticate the object from anywhere after companion animal ID is issued.
- **WAD coin wallet system**
  In the market that participated in the block chain environment, WAD Coin will be used. WAD Coin is easy to use. With WAD Application, it is possible to use on / offline payment module, fast transfer rate and transparent transaction record in the market in collaboration with WAD.
- **Smart Contract**
  Companion animal health care, medical care and everything needed to manage companion animals in a block-chain network, and transparent and secure trust-based Smart Contracts to prevent excessive expenditure.
- **WAD companion animal sale shop**
  We can confirm the bloodline of the object by iris recognition registration which will become a strong authentication means and expect to improve the reliability of the transaction by providing complete A / S after the sale.
- **Operation of WAD franchise hospital**
  Keep the disease management and history of companion animal always up-to-date after collaboration with Franchise Hospital, and avoid excessive billing fees through trust-based smart contracts for standardization of medical fee standards.
- **WAD companion animal shopping mall**
  WAD Application allows you to easily purchase various companion animal products with WAD Coin.



WAD Application menu screen

WAD TECHNOLOGY

6.1 Iris Recognition

6.2 Private Network

6.3 Data storage

6.4 WAD Application

Iris recognition

6.1 Iris recognition

The iris is a tissue between the lens of the eye and the cornea. It changes the size of the pupil by repeating contraction and relaxation according to the amount of ambient light. It makes the pupil smaller in the light, reducing the amount of incoming light, and in the dark it enlarges the pupil, allowing more light to be received.
Each person has a different shape of iris. It can also be used as a biometric element with unique characteristics to identify people, such as fingerprints, because there is no change in shape throughout their lifetime. Since the 1980s, research on iris recognition algorithms has been actively conducted. In the smartphone era, technology has been developed to such a degree that it can be commercialized, and is used in identity verification procedures such as proving device owners.
One of the main advantages of iris recognition is that it can be certified as non-contact (wearing glasses, lenses, etc.) and can only authenticate live people.

Advantages of iris recognition

1) It has a unique form for each person and is suitable for identification.
2) It can be certified by non-contact method,
3) Only live people can be certified,

Iris recognition technology is recognized as a future technology that can cope with the risk of leakage of personal information based on the uniqueness of form and high safety due to it. The fourth industry-related market, such as IOT-based pin-tec, health care, and location-based services, is expected to be applied to a wide range of fields.

- Application area -

Areas	Detailed Areas
finance	ATM·KIOSK, Mobile banking, securities trading, e-commerce, payment and payment methods
Security	Information security (system and data access / authentication control), biometric login (for PC),
Access control	Airport (immigration inspection, illegal entry check, etc.), Business (access control, attendance management, etc.)
Medical welfare	Patient identification, records management, telemedicine, unmanned electronic prescription, etc
Public	Identification of criminals (fingerprint verification, analysis of the written text, etc.), electronic identification (identification), election management (identity verification), etc.
Quarantine	Facial recognition to identify infected persons

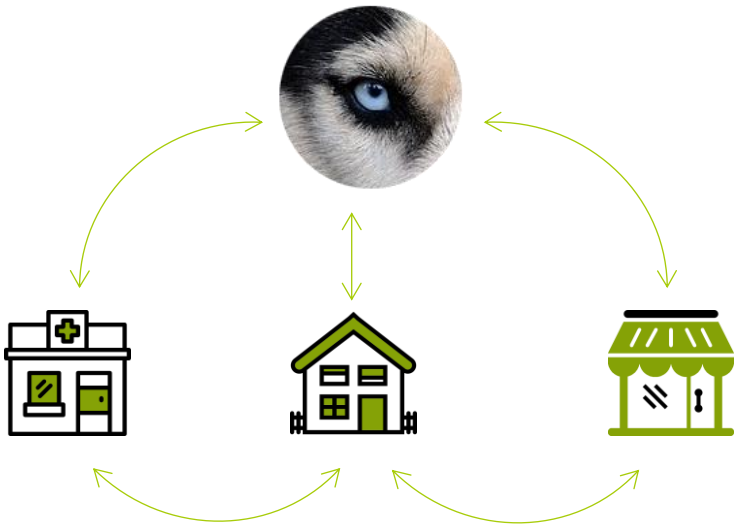
Iris recognition

By 2018, companion animal holdings accounted for 27.9%, and 56.5% of the population, including those who had nurtured in the past, had experience raising companion animals. (Korea Pet Food Association 2018 survey standard)

Compared to the ratio of the number of households that are increasing, the distribution process of the companion animal sale market, the management of the medical records of the medical industry, and the criteria for calculating the medical expenses are vague and the reliability of the caregivers is very low compared to the market size. In particular, there are production and distribution facilities that are illegally operated in the distribution process after unknowing, which causes harm to the order of trade.

Iris recognition and companion animal

Iris recognition technology has the lowest recognition rate among biometric recognition technologies. And each animal has its own form. Taking advantage of these advantages, the registration and database management of the companion animal's iris enables to track and track all activities related to the companion animal that the caregiver is currently keeping, from birth through to retail / medical records.



Iris recognition

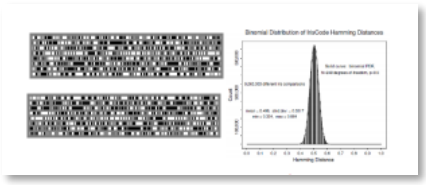
Iris recognition and certification process

To recognize the pattern of the iris, it is necessary to separate the iris part from the image. To do this, it is necessary to calculate the center and radius of the pupil and remove the noise generated during the image creation process.

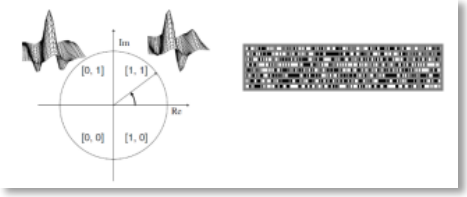
Iris image

Iris region segmentation

Phase unwrapping



Iris code comparison



Extract and Encode

Deriving the result

Finding the center and radius of the pupil takes advantage of the property that the value of the image changes rapidly between the pupil and the iris. To do this, we utilize OpenCV's iris recognition library based on John Daugman's algorithm, the creator of iris recognition technology.

$$max_{(r,x_0,y_0)} \left| G_\sigma(r) * \frac{\partial}{\partial r} \oint_{r,x_0,y_0} \frac{I(x,y)}{2\pi r} ds \right|$$

[John Daugman's iris region extraction formula]

Iris recognition

[Example of a circle extraction function for iris recognition]

```
cvHoughCircles(
        CvArr* image,
        void* circleStorage,
        int method,
        double dp,
        double minDist,
        double param1 = 100,
        double param2 = 100,
        int minRadius = 0,
        int maxRadius = 0
);
```

Parameters :

- image: The original image you want to convert to Hough.
- circleStorage: Can be both an array or a Memory Storage. Save the result.
- dp: Determines the resolution of the image. If this value is set to 1, the resolution is the same. The dp value cannot be less than one
- minDist: means the minimum distance to distinguish two adjacent circles.
- param1: Canny Edge Detector threshold.
- param2: Threshold of the accumulation plane.
- minRadius: The minimum radius of the circle to be detected.
- maxRadius: The minimum radius of the circle to be detected.

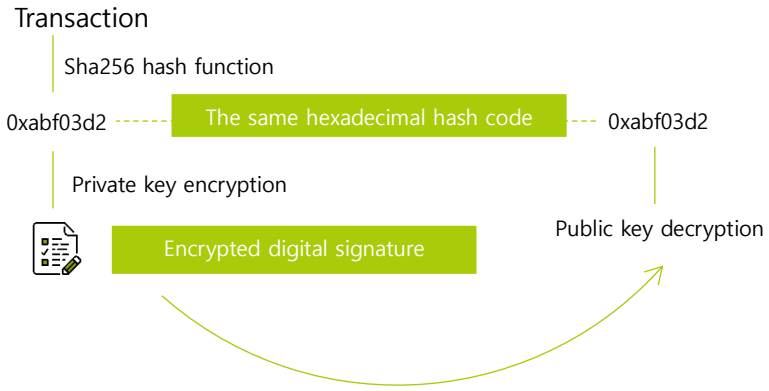
The function cvHoughtCircles is a function that extracts a circular object on the image. It can extract human iris region with more than 90% probability. However, the human iris region and the animal iris region differ in their detection rates due to differences in their shape. Animal iris recognition in WAD application is aimed at detection rate close to 100% by analyzing difference between human and animal iris region and modified existing algorithm for human use and cvHoughtCircles function.

Private Network

6.2 Private Network

The block chain represented by the P2P network-based Distributed Ledger is a proof-of-work process that requires a large number of computer computations to generate blocks and hash cryptography techniques that cannot be decoded. It is near perfect security and has emerged as a core area of the 4th industry. Especially, the concept of cryptography given to miners as a concept of high security and compensation implies that the block chain is very suitable for trading digital money or commodity. In many countries, in order to utilize cryptography in everyday life transactions.

The high security of the block chain is maintained using a public key called RSA, private key cryptography, and a hash function such as sha256. All transactions for a user are converted to a fixed length hexadecimal hash code of any length and encrypted with the sender's private key. This is called a digital signature. The encrypted code can be decrypted only through the public key corresponding to the private key, so it cannot be tampered with by anyone other than the party.

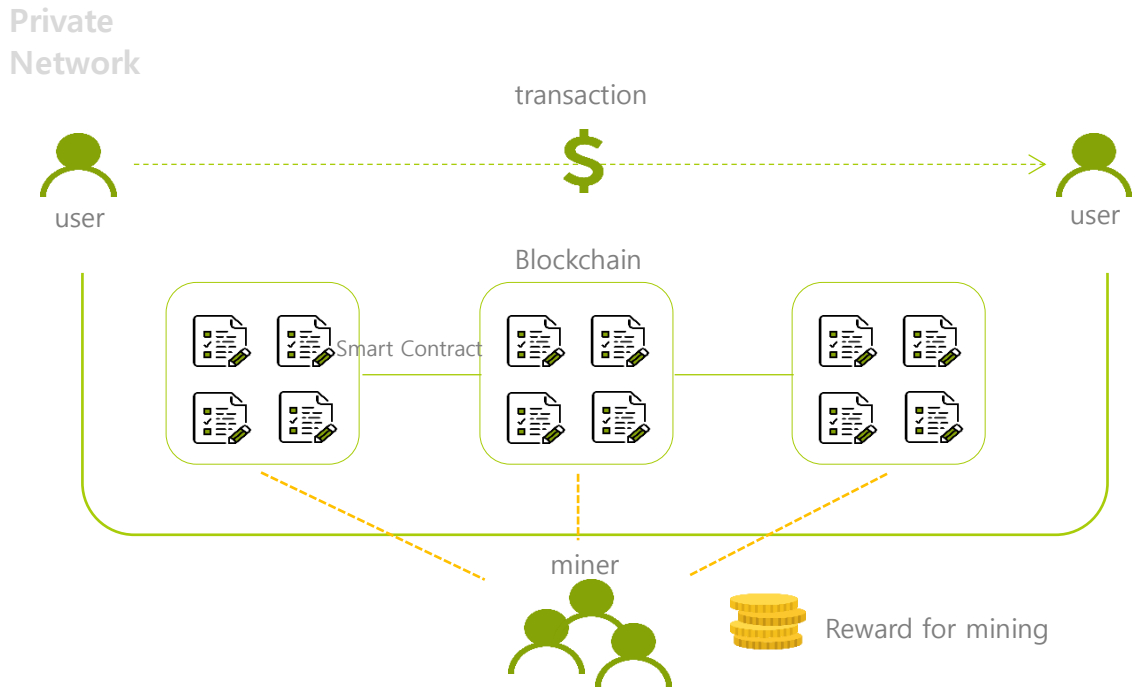


[Digital signature process of transaction history]

Bit coin called first generation block chain has no more functions than currency trading. In other words, there is a limit to the ability to manage other information besides checking balance due to transactions. Etherium is a second-generation block chain that introduces the concept of smart contracts to overcome the limitations of these systems. Smart contracts can have contracts automatically executed or stopped according to predetermined contract terms. This is a way to change existing practices that were needed by mid-managers in all transactions, whether they were on-line or off-line. Time savings, transaction fees, etc., as well as solving reliability risk issues of middle managers. Users can also check their transaction history at any time through their transaction code.

To take advantage of these smart contracts, WAD Coin will select the Etherium block chain platform to increase the convenience of transactions between users. However, despite the advantages of security and smart contract, there are common problems with each block chain platform.

However, block chaining systems that provide a high level of security are obviously inconvenient for users.



A matter of speed

Transactions on a block chain are not executed immediately after the buyer clicks the Deal button. After the block is created by the miner, the transaction is executed when the transaction is entered into the block. The explorer solves the problem presented by the system in order to generate the block by using the computing power of his own computer. The time required until the block is generated is much longer than the existing financial transaction time is

General Financial Transaction	Bit coin	Etherium
3000 TPS or more	7 TPS	20 TPS

[TPS (Transaction per Seconds) : transactions per second]

The problem with this transaction rate is that the block chain system is open to the unspecified number of people, and the agreement method called Proof-of-Work (POW).

$$(m, n) = \mathtt{PoW}(H_{\mathtt{H}}, H_n, \mathbf{d})$$

In the above formula, Hn is called the nonce value of the block and is the answer to the problem presented by the system for block creation. The larger the nonce value, the longer it takes for the block to be created.

Private Network

Private Network

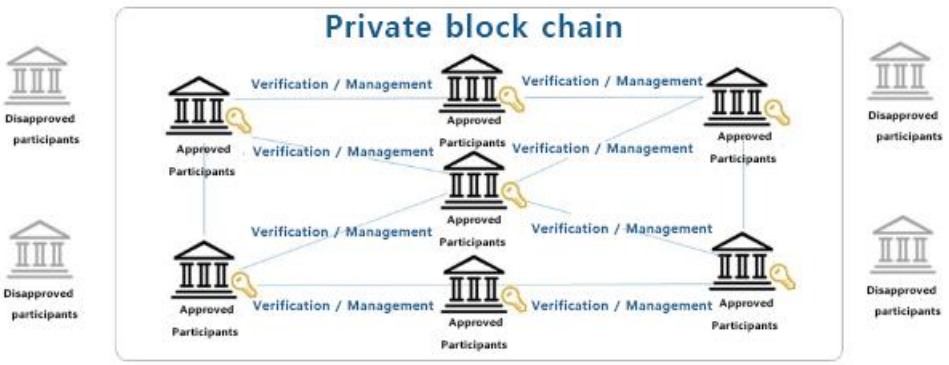
In order to solve the transaction speed problem of the public network block chain, WAD plans to introduce a private network method. In the private network system, a separate local network is set up separately from the public network to which many unspecified nodes are connected globally, so that only authorized nodes can participate in the agreement and only authorized users participate in the transaction. Since the number of participating nodes is significantly smaller than that of public networks, the time required for consensus is reduced so that the transaction speed increases. In addition, unauthorized participants will not be able to participate and will increase security efficiency.

[Comparison between public and private networks]

	Public network approach	Private network approach
approach	Anyone can do it	May be approved/approved
Speed	Slow	Fast (1000 TPS or higher)
Identity	anonymous node	identified node
Upgrade	difficulty	Ease
Fee	Essential	Not needed or rarely needed

Network configuration

WAD's private network configuration is configured using puppeth, etherium's private network manager. The consensus approach is to allow participation only in those accounts that have been confirmed and authenticated after a Proof-of-Authority (POA) has been adopted rather than a public-network Proof-of-Work (POW) This authenticated account is called a validator and performs validation on transmission and blocks..



[POA agreement method]

Private Network

WAD's private network allows you to configure the network in the desired direction by specifying detailed options differently from the public network.
From the validator account setup, you can specify many things like network name, agreement algorithm selection, block generation cycle, sealer to create blocks, and create an independent network with unique identity of WAD. The generated private network can also be used with the etherium-based visual interface network status monitor tool eth-netstats, and can also use the http-based status monitoring tool suitable for WAD project characteristics

[eth-netstat monitoring]

Data Storage

6.3 Data Storage

The most significant feature of WAD applications is the adoption of block-chain technology rather than the existing centralized server approach to data storage.
A block chain is a process in which a block is created according to the agreement of individual members (nodes) and a transaction is recognized when a block is created.
Individual nodes all store blocks on their computers. The block becomes a distributed ledger that enters the transactions in order in time, and the user (the trading partner) can check the details of the transaction through his or her own transaction hash.

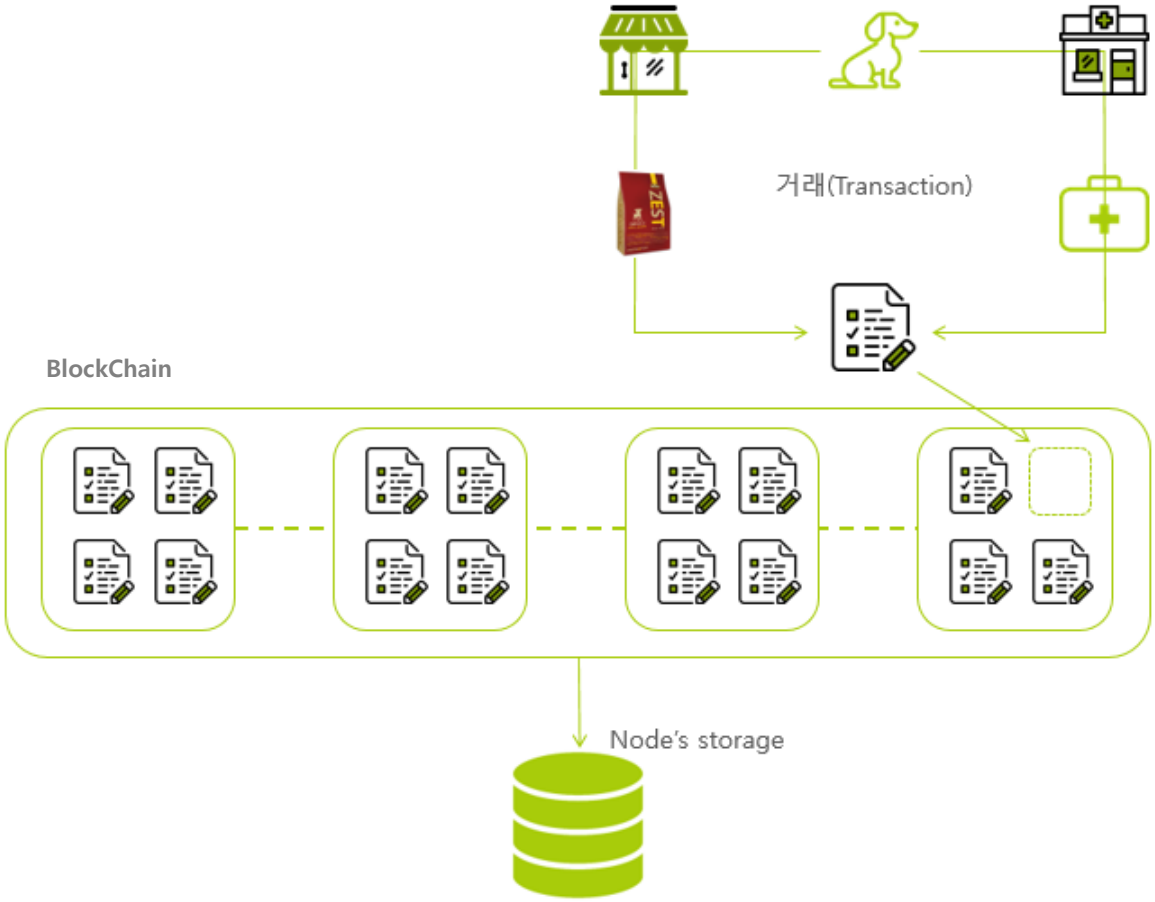
The existing central server-based approach is highly dependent on the central system. Therefore, there is a risk to the stability of the server performance, the moral reliability of the middle manager. However, there is a limitation in re-agreement for all existing blocks as well as the corresponding blocks for data up / down modulation in the block chain system. In the present situation where the number of blocks increases exponentially and it is almost impossible to hack the nodes' computers and rewrite the data of many blocks at the present time when a large number of nodes exist. The high security of the block chain is due to these characteristics, which is why WAD applications have adopted the block-

[Central server method]

[Distributed storage of block chains]

Data Storage

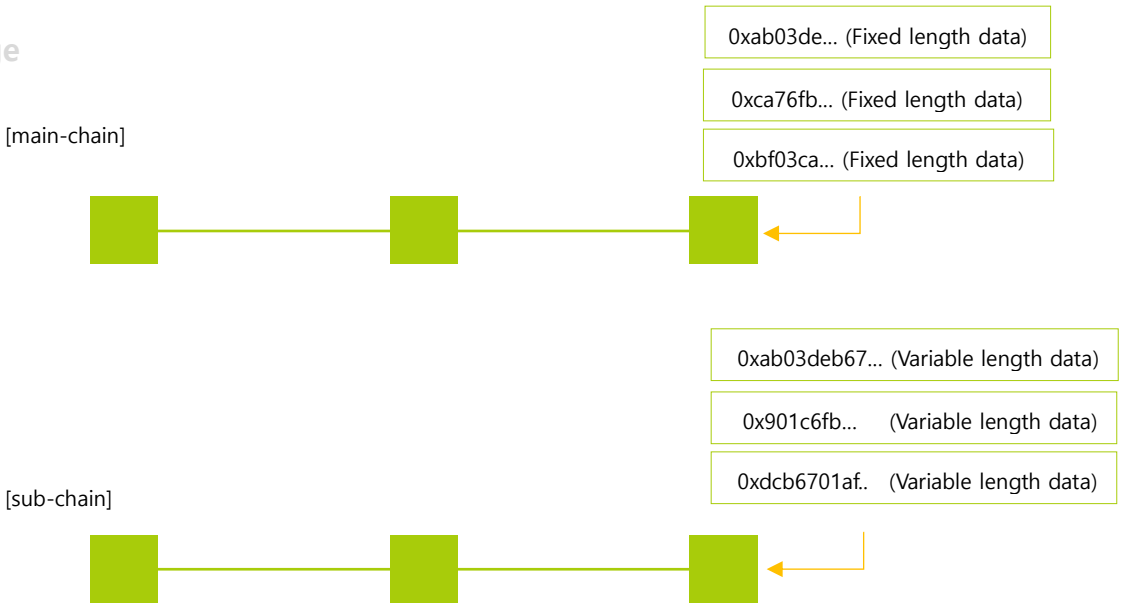
All information such as membership information and transaction details of WAD users, pre-sale records of companion animals, and medical history are stored in blocks of private block-chain systems built on the Ether platform. With the high reliability of the sha256 hash cryptographic functions and RSA asymmetric key cryptography, your data is securely stored in a block chain system that is much more secure than traditional data storage methods.



On the etherium platform, when executing transactions, the user can encode and send additional data in the optional data field. However, due to the length limitation of the data that can be transmitted, there is a problem of transmission data length in order to record additional transactions of the user in the WAD application.

In order to solve such a problem, a block chain path is divided into a main-chain and sub-chain so as to separately record variable-length data such as fixed-length transaction hash data such as WAD coin transmission, iris recognition result encoding data generated in a WAD application.

Data Storage



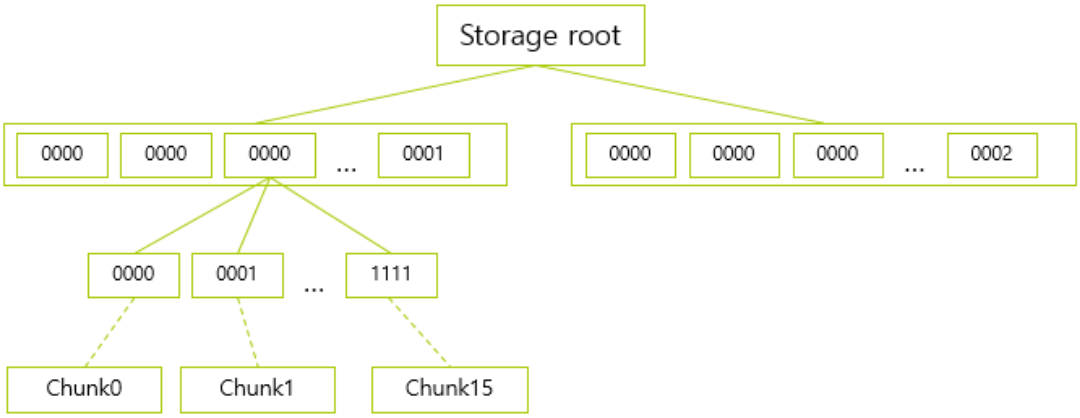
Storage / Search Algorithm

The WAD coin stores and retrieves data using a data structure called the Merkle Patricia trie, which has been used for many projects and has been proven to be reliable. Compared to the existing tree structure, the storage space is much smaller, and search is also much faster because each node shares common parts.

```
def compact_encode(hexarray):
    term = 1 if hexarray[-1] == 16 else 0
    if term: hexarray = hexarray[:-1]
    oddlen = len(hexarray) % 2
    flags = 2 * term + oddlen
    if oddlen:
        hexarray = [flags] + hexarray
    else:
        hexarray = [flags] + [0] + hexarray
    // hexarray now has an even length whose first nibble is the flags.
    o = ''
    for i in range(0,len(hexarray),2):
        o += chr(16 * hexarray[i] + hexarray[i+1])
    return o
```

[Data encoding function in Patricia data structure]

Data
Storage

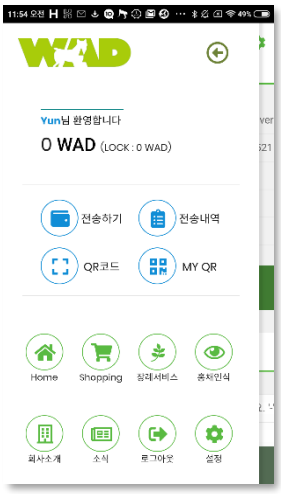


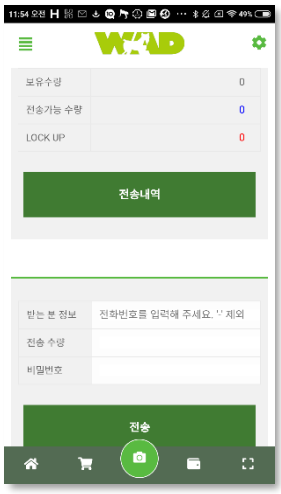
[Patricia Tree structure]

WAD Application

6.4 WAD Application

WAD application is a companion animal total care service solution aiming to provide high-quality companion animal related services such as shopping mall, wallet function, iris recognition technology and pre-sale / medical service. We are convinced that users will enjoy the best user experience by combining innovative block chaining technology that is emerging as the core of the 4th industry and providing innovative services such as sale of presale / medical records and purchase of shopping mall through self-coin.





Shopping mall

Companion animal caregivers can purchase quality companion animal supplies through the WAD application. Purchase and payment of goods are done through WAD coin on the block chain platform and users can check their purchase history at any time through their own transaction code. Transaction history is recorded securely without any risk of straying / alteration depending on the distributed data management characteristics of the block chain. In addition, since purchases are made on the block chain, the commission fee for the middle manager is reduced compared to the existing shopping mall, thereby enabling a cheaper purchase

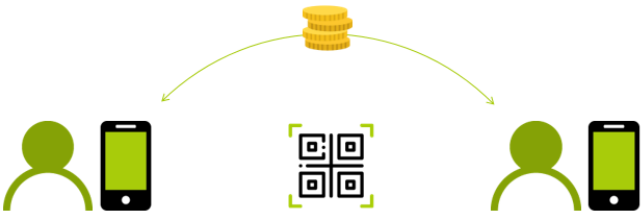
WAD Application

Iris recognition technology

WAD application introduces iris recognition technology to enable transparent and systematic management of companion animal sales records such as sales records and medical records.
The unique characteristics of the animal iris form can be recorded and stored in the block chain. From the records at the time of sale to various beauty and care, caregivers can view / browse all records of their companion animals. This will help to establish a more opaque companion animal sales industry and unstructured hospital treatment prices in a more transparent and systematic manner.

Wallet features

Users can send WAD coins to others through the Wallet feature of the WAD application. In addition to the existing transfer method in which the recipient's information can be directly input and transmitted, the remittance allows the recipient's information to be automatically entered by recognizing the individual QR code assigned to each user through the mobile camera. This improves user convenience by eliminating the hassle of typing and preventing the possibility of transmission errors due to errors.



7. TOKEN SALE

7.1 Overview

7.2 Token distribution

7.3 Plans for attracted funds

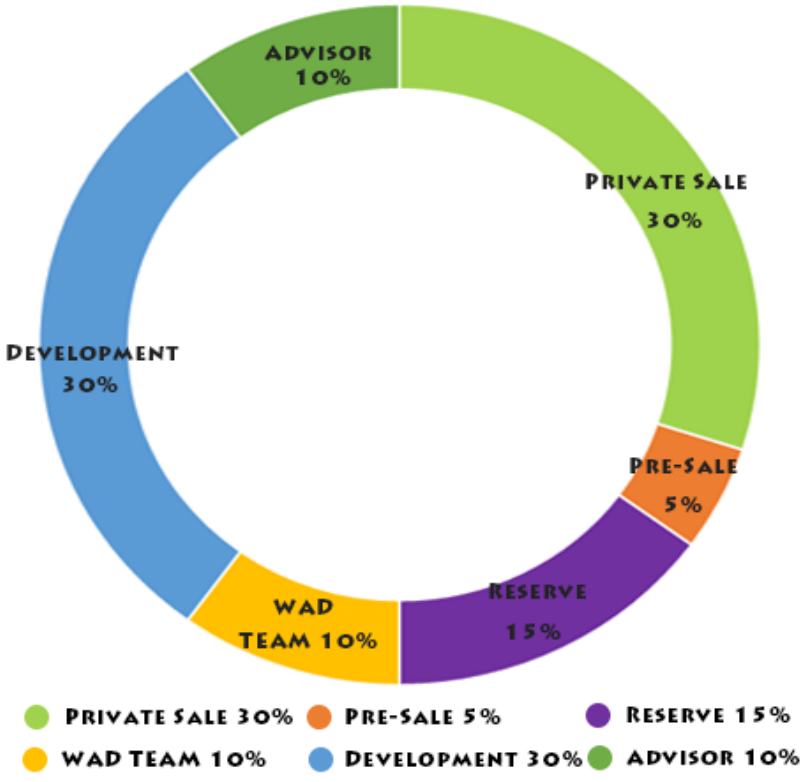
Token Sale

7.1 Overview

Total Token Supply: 8,800,000,000 WAD
Hard Cap : 50,000 ETH
Rate : 1 WAD = 0.022$

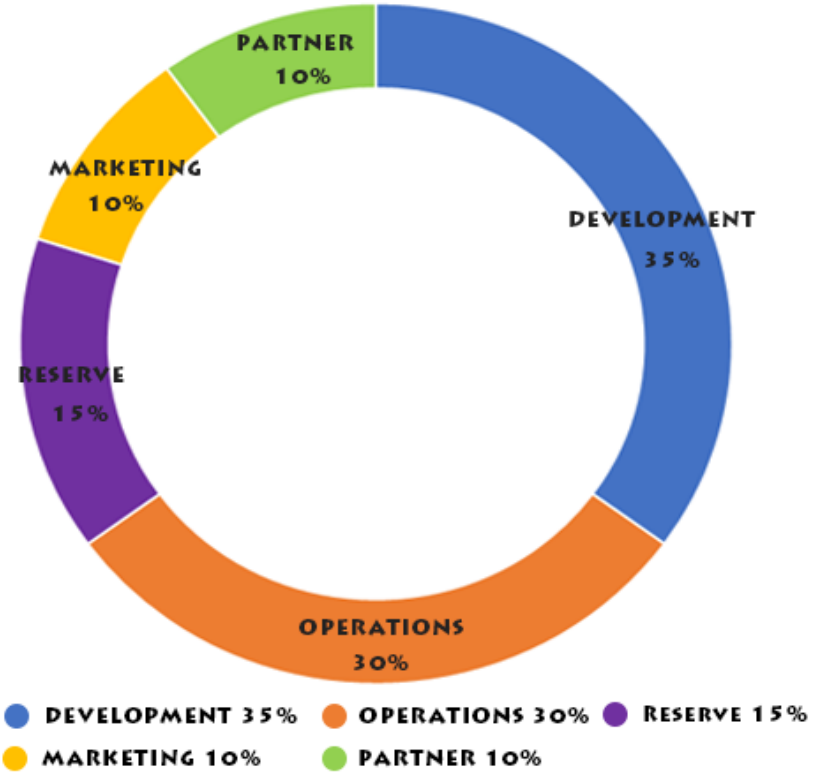
If the Soft Cap (5,000 ETH) is not reached, the coins sold will be refunded.
If a Hard Cap is achieved, the ICO participation application made after that point will be rejected and the participating etherium (ETH) will be returned to the participant.

7.2 Token distribution



Token Sale

7.3 Plans for attracted funds



8. ROAD MAP

Road Map


01
2017 4Q
-Business Planning
-Began market research
02
2018 3Q
Business plan announcement-
Team member composition-
03
2018 4Q
-Token issue (October)
-WAD Wallet Beta released (November)
-Hong Kong Nine COIN
Exchange MOU List Up
-Block Chain Association MOU
(December)
04
2019 1Q
Presales-
White Paper Presentation (April)-
Token hard fork-
Listed on ICO-
WAD Wallet Alpha Release-
05
2019 2Q
-Iris recognition application
-WAD Wallet 2.0 Released
-
06
2019 2Q
To be announced later-

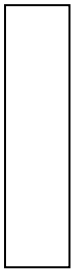
9. TEAM AND ADVISORS

9.1 WAD Team

9.2 WAD Advisors

Team and Advisors

9.1 WAD Team



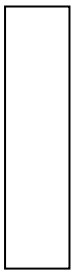
Ham, Sang-Wook

Lee, Jang-Wook

-Developed many Dapps
-Database related national research
-Online payment and reservation system development

Kim, Yoon-Kyu

-Participate in numerous online payment projects
-Former hotel reservation site backend engineer



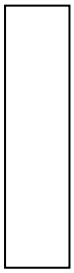
Hong, Kyung-Ho

-Developed multiple shopping malls
-Developed many corporate websites
-Former B-exchange researcher

Kim, Jong-Hyuk

-Multiple core modifications based on Etherium go language.
-Many Github Participation.
-Former H company autonomous vehicle researcher

9.2 WAD Advisors



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