

A Trustworthy Blockchain Infrastructure Enabled by High Performance Mining

12 Ships Foundation

11th May 2020

Contents

1. ABSTRACT	1
2. CURRENT STATUS AND PROBLEMS OF MINING MARKET	3
3. SOLUTIONS.....	7
3.1. High performance & low power ASIC chip, support multi-algorithm mining.....	7
3.2. Immersion cooling type miner—Take Panokseon II as example	8
3.3. Thermal energy recycling using mobile container module.....	10
3.4. Smart mining pool management	13
3.5. High performance blockchain—HashChain	19
4. ROADMAP	20
5. Token.....	21
5.1. Token Economy	21
5.2. Use of raised funds.....	21
5.3. Token Allocation	22
6. TEAM & ADVISORS	23
7. LEGAL DISCLAIMER	25

1. ABSTRACT

To make a transaction with someone unknown, you need an authorized agency or a broker in the middle. However, if you go through an agency or a broker, it is inevitable that you spend more time and money. It gets even worse if you do business with someone living in a foreign country.

The blockchain technology reduces such cost and time with innovative IT technology that goes beyond common sense. To make it possible, voluntary participation in mining is essential; also, in order to prevent the risk of counterfeiting or hacking, a high-performance, cryptography operating mining machine is required, which consumes a large amount of electricity.

The 12Ships has a goal of securing stable profitability and contributing to the blockchain revitalization by providing smart mining solutions, based on eco-friendly mining Infrastructure with our own high-performance mining machine.

First of all, we want to solve problems of the current air-cooling mining machines that consume a lot of electricity and make a lot of noise and dust. In order to cool the hash board equipped with the low-power, high-performance ASIC chip manufactured by Samsung's 11nm semiconductor process, we adopted immersion cooling method, which is immersed in the non-conducting liquid. This is a cooling method that effectively lowers the temperature of the Asic Chip while maximizing the performance, compared to air-cooling method. In addition, we plan to provide eco-friendly mining infrastructure that can use heat energy from immersion cooling system for agriculture/fisheries, commercial/domestic use to recycle discarded thermal energy.

Using this thermal energy as the heat source of the vacuum dryer, lava sea water of Jeju Island creates healthy and clean lava sea salt and mineral water.

This Mining Infrastructure is built in a 20ft container type, easy to move and easy to maintain.

Second, for transparent and democratic operation of the mining infrastructure, we established 3S Operation as our core policy. First, you can check the mining status in real time and check the CCTV footages in the mine by using a convenient dashboard called Smart Monitoring.

Lastly, we will democratically operate the mining pool by allowing token holders to set major agendas of mining pool operation such as mining targets, re-investment ratio, distribution timing/term and so on and vote to make decisions with Smart Voting.

Holders of 12SHIPS tokens distributed by the 12Ships Foundation, which hosts the ICO this time, will participate in making major decisions in the Blockchain Infrastructure, meaning that they will be in part of the growth of the 12Ships. A total of 5,000,000,000 TSHP tokens based on the ERC20 of Ethereum will be issued.

Panokseon II and CoolDog001, CoolFish001, mining machines equipped with ASIC chip for multi-algorithm mining, will be launched by 12Ships. And the HashChain will be a trusted platform for anyone to participate in when the block depth and hash power are sufficiently secured.

Our vision is that we expand the use of 12SHIPS token by implementing a blockchain platform based on 12Ships Mining Infrastructure and by developing a service that is beneficial and reliable for games and e-commerce, and ultimately, we will create a globally trusted platform based on this blockchain infrastructure.

Our core team of outstanding experts and experienced professionals in the area of business strategy and planning, hardware and ASIC development, Blockchain algorithm and software development, and heat exchanger development has been working together to actualize what is mentioned above.

We will keep you informed about various activities of our 12Ships through SNS channel or homepage. 12Ships will work hard until the day comes when the blockchain becomes active and your life becomes enriching and healthy.

2. CURRENT STATUS AND PROBLEMS OF MINING MARKET

As the blockchain technology got its spotlight primarily with the bitcoin, the blockchain related market is being created and it is growing enormously every year.



Fig. 1. blockchain related market classification. [Source: Frost & Sullivan]

The largest market of the blockchain market is the mining machine market, estimated at 3.3 trillion won in 2017 and is dominated by Chinese companies such as Bitmain and Canaan.

In addition, in the market where mining pools are built and operated, Chinese mining sites such as BTC.com and Antpool occupy over 50% of the total hash power. Bitmain, the No. 1 player in the miner and mining pool market, is reportedly to have an operating profit of over 4 trillion won in 2017.

To activate a public blockchain that is safe from counterfeiting and hacking, it is necessary to facilitate the mining activities to record and audit all transactions occurring in the blockchain. Also, voluntary involvement of a great number of miners is essential to ensure that the reliability of the blockchain is not compromised by collusion of a few.

However, from looking at the recent mining situations, it shows that there are many incidents that do not happen to process things as stated above, which is being a significant risk to the blockchain ecosystem.

First, there are the following problems with the mining machine market.

A few manufacturers supply mining machines almost exclusively, and due to its irregular supply and unexpected significant price increase, many miners have difficulty in getting mining machine.

(<https://www.youtube.com/watch?v=unQMEH-HNIQ>)

Miners prefer better performing mining machine for higher profitability. Subsequently, the currently sold versions of machines are focused only on the improvement of performance, and they inevitably consume more power as they are upgraded. Total amount of power consumption in bitcoin mining would rank 41st among nations in the world in terms of electricity consumption. Above all, large mining machines consuming high power worsen the miner's profit and it is becoming a risk for voluntary mining.

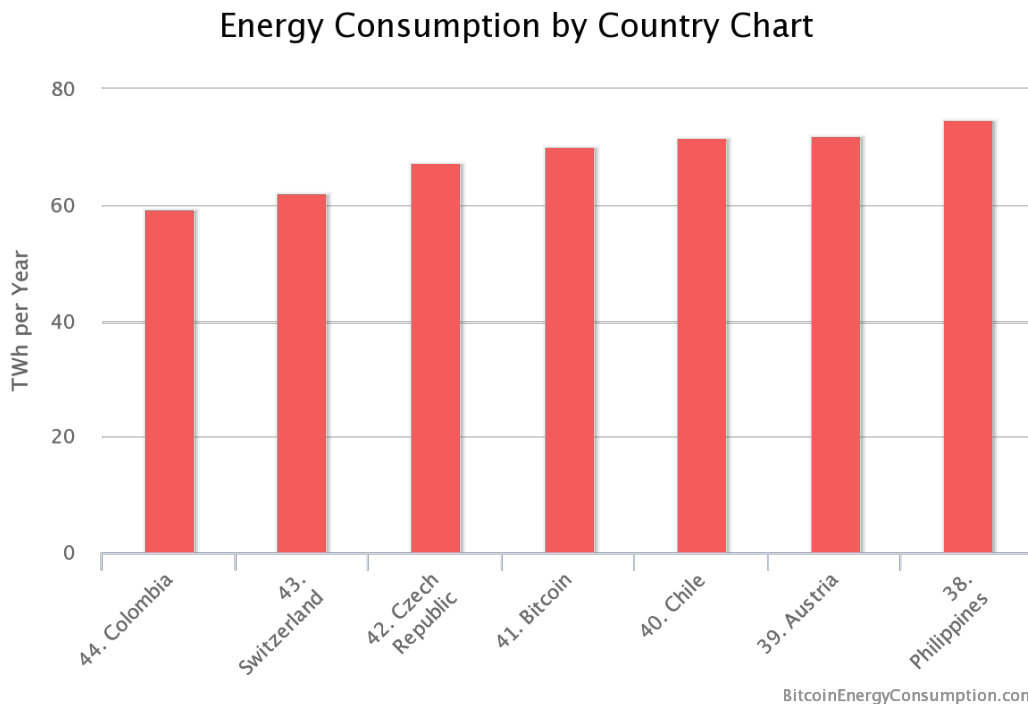


Fig. 2. Energy consumption of mining by country. [Source: bitcoinenergyconsumption.com, 2018/06/04]

Next, there are the following problems regarding the operation of mining pools and sites.

Looking at the Bitcoin's hash power distribution, the hash power of the top two global mining pools is exceeding 50%. In other words, the decisions of few mining pools have a great influence over the Bitcoin ecosystem. Although the power of these mining pools comes from the numerous miners involved, the few pool operators are making important decisions on their own regarding the operation of the mining pools; this means the hash power gathered by all miners is being misrepresented, and it is more likely that the operation of the mining pools is to represent the profit of the pool operators rather than that of the blockchain and its miners.

In addition, many mining machines are being developed without considering the environment of mines, so the environment of the mine place is very poor due to the noise, dust and heat generated by the miners. In addition, being exposed to the accumulated dust, high heat and electric current increases the risk of fire. There is an urgent need to create a safe and clean environment.

Mining pool should provide more profitable options for miners. Not only focus on Top 3 POW assets, but also offer access to potential Altcoins.

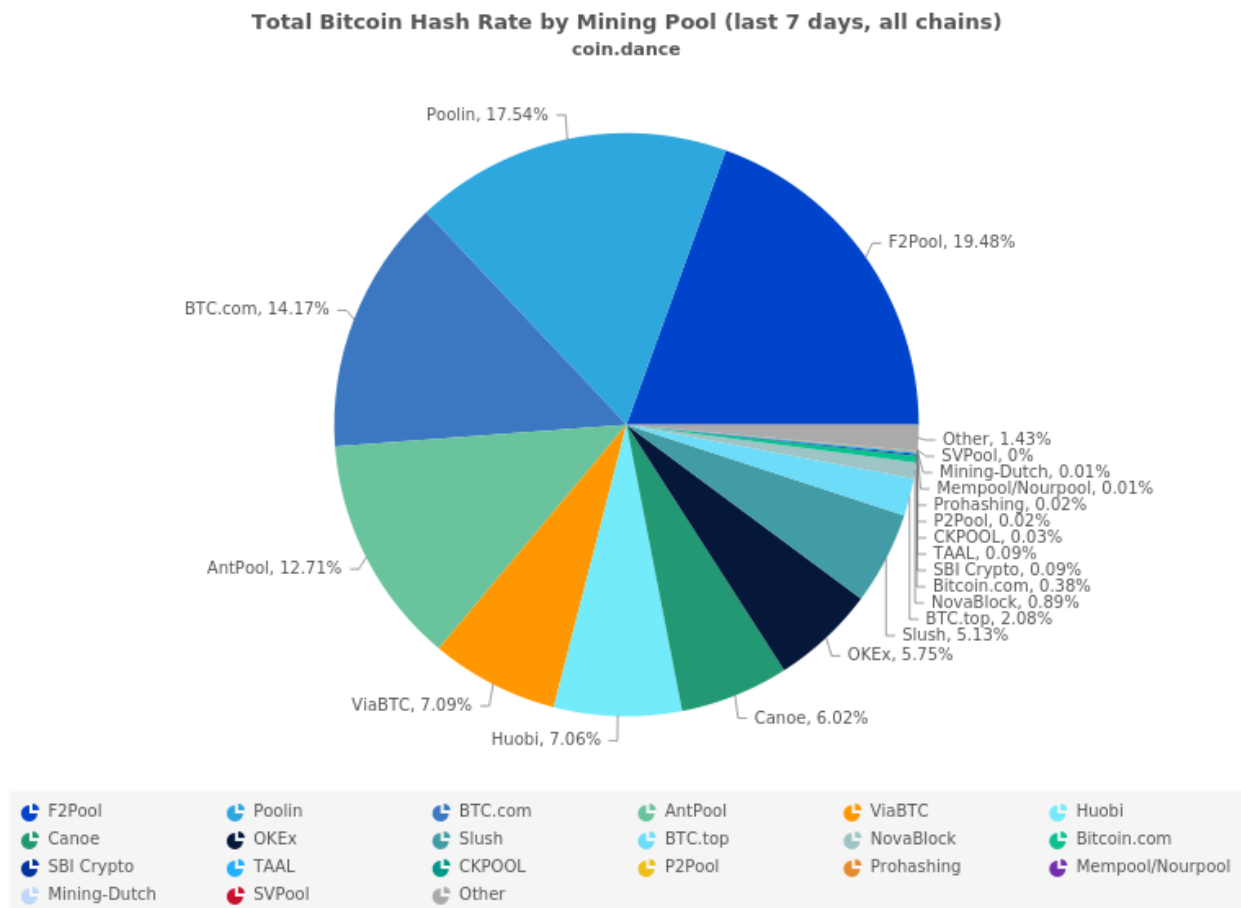


Fig. 3. The distribution chart of Bitcoin mining hash power. [Source: coin.dance, 2020/04/14]



Fig. 4. A picture of the mining place with a poor environment full of heat, dust, and noise. [Source: New York Times]

Finally, in order for a Blockchain infrastructure to grow well, there must be a lot of Blockchain services that are easy for users to use.

30+ Real Examples Of Blockchain Technology In Practice



Bernard Marr, CONTRIBUTOR
FULL BIO

Opinions expressed by Forbes Contributors are their own.

While Bitcoin and cryptocurrency may have been the first widely known uses of blockchain technology, today, it's far from the only one. In fact, [blockchain](#) is revolutionizing most every industry. Here are just a few of the practical examples of blockchain technology.



Fig. 5. Forbes Blockchain Actual Case Report. [Source: <https://www.forbes.com/sites/bernardmarr>, 2018/05/14/]

3. SOLUTIONS

In order to solve the problems raised above, 12Ships operates a series of profitable Mining Infrastructures in a transparent and democratic manner using Panokseon II, CoolDog001 and CoolFish001, three high-performance miners, and support multiple algorithms.

In addition, we will expand the use of 12SHIPS tokens through HashChain, which records production/sales history in a Blockchain.

3.1.High performance & low power ASIC chip, support multi-algorithm mining

In Korea, there are many companies specializing in semiconductor design with world-class semiconductor foundries and high technology. 12Ships is developing ASIC chip by cooperating with Vancores, the semiconductor company which has expertise and experience in the cryptocurrency computing ASIC and GPU and the foundry division of Samsung Electronics, TSMC and Global Foundry, which have the world's leading process technology.

CoolDog001

This ASIC chip mounted on the CoolDog001 is 22 nm, developed under cooperation with Vancores. The semiconductor process is produced by Global Foundry. CoolDog001 is the first mining machine in CoolDog series, this series focused on Altcoin mining, including X16R, Lyra2rev2 and more. CoolDog001 supports functions like real-time switching for different algorithms, combination of multiple algorithms and parallel mining, which brings more profitable opportunities. With GF22 production process and low voltage technology, it has high performance and low power dissipation.

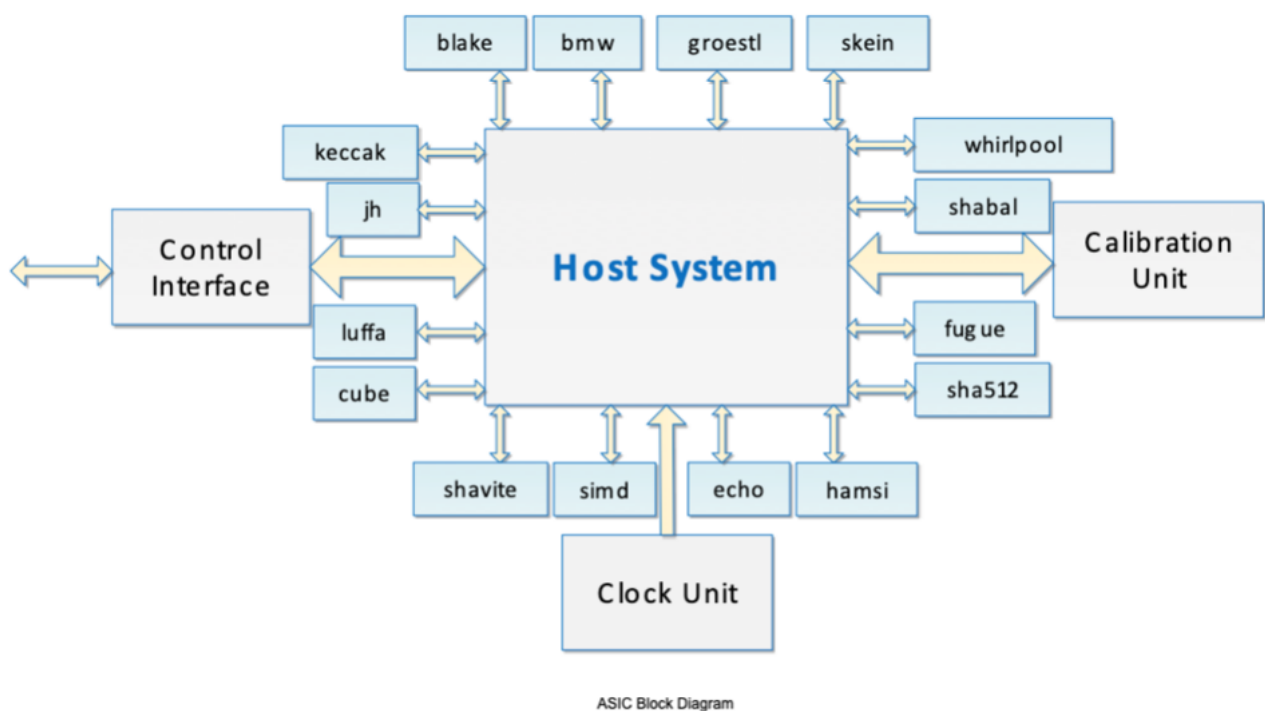


Fig. 6. Block Diagram & Algorithm.

Item	Description			
Technology	GF22FDX			
Power Dissipation	5W			
	Algorithm	Asset	Hashrate (Single Chip)	Hashrate (Complete Machine, 108 Chips)
Hashrate	X17	XVG	60M	6.48G
	Qubit	DGB	60M	6.48G
	Lyra2REv2	MONA	30M	3.24G

Fig. 7. Details of chip performance. More algorithm will be added to the chip and revealed to the public gradually.

The Chip design of CoolDog001 was finished in middle of 2019, complete machine has been put into production in August 2019 and started selling in October.

CoolFish001

CoolFish series will be focus in SHA256 mining, which support BTC/BCH/BSV. Coolfish001 will be the first mining machine in this series. We estimate the 5nm chip design will be finished in end of 2020. Chip production will be cooperated with TSMC.

CoolFish001 will be based on the technology foundation of CoolDog001 and optimize more details with Vancores. It will bring better ROI.

Panokseon II

This ASIC chip mounted on the Panokseon II is a state-of-the-art bitcoin/bitcoin cash (for SHA-256 hash function calculation) chip. It is produced in the 11nm semiconductor process with Samsung Electronics foundry's Low Power Plus technology. 11nm Low Power Plus technology can produce ASICs up to 10% smaller in size and 15% higher performance when using power consumption similar to ASICs fabricated in 14nm processes.

Within one ASIC chip, 25,600 cores specialized for SHA-256 encryption operation are built in, providing higher hash power than existing ASICs. The hash power of one ASIC chip is over 105 GH/s, which is 42% faster than other competing ASICs. Estimated energy consumption is 0.073 W/GH, which consumes 12% less energy than the highest performance miners currently available.

3.2.Immersion cooling type miner—Take Panokseon II as example

An ASIC chip that performs a hash operation at a tremendously high rate will generate a lot of heat, and if this heat is not effectively cooled, the ASIC will become inoperable. The Panokseon II, which will be used by 12Ships, uses an immersion cooling method that can cool the ASIC chip most effectively. By using the immersion cooling method in which a hash board is immersed in a non-conductive liquid and cooled, the heat generated from the ASIC chip can be cooled most effectively and the hash performance can be maximized. Noise and dust generated from the existing air-cooling system are not originated, so it can be improved to a clean and pleasant mining site environment.

Immersion cooling, which is 100 times more efficient than the air-cooling method in which the cooling fan cools the air, will be a very important factor for cooling the next-generation ultra-high density hash boards. It can increase the hash power to the maximum limit without worrying about the inoperability of the ASIC chip due to high temperature, saving up to a maximum of 50% of the space required for cooling as well as reducing the energy consumed by cooling by 40%.

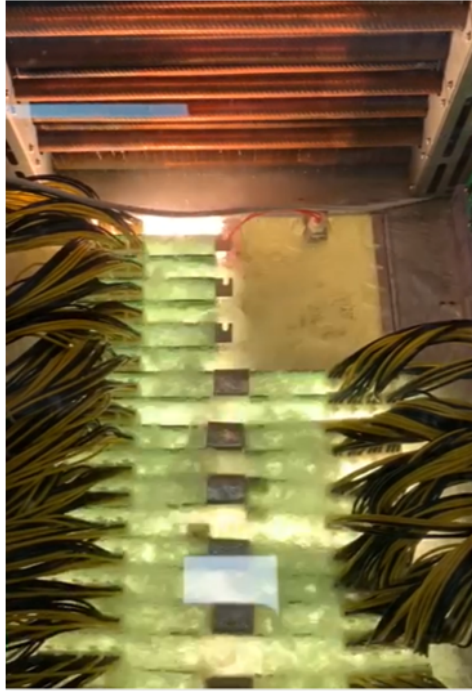


Fig. 8. Self-developed immersion cooling system.

The greatest benefit of immersion cooling is the increased hash power of the ASIC chip through over-clocking. Through applying over-clocking of 30%, Panokseon II will have a powerful hash power of 355 TH/s using 2,600 ASICs and 29.3 kW of power.

Table. 1. Target Specification of Panokseon II.

Item	Target Specification
Hash Power	355 TH/s *
Power Consumption	29.3 kW + 5%
Power Efficiency	0.083 J/GH + 5% (With proper PSU at 25 °C room temp.)
Input Power	133 A/AC 220V
Number of ASIC chips	2,600
Cooling Method	3M Single-phase immersion cooling

* Estimated rate with 30% over-clocking applied

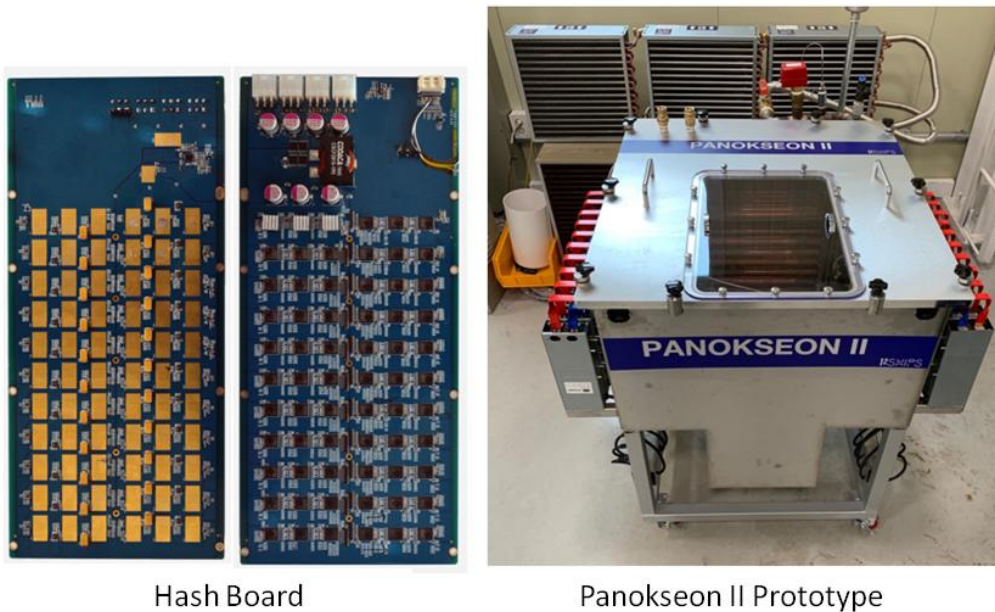


Fig. 9. Hash board and Panokseon II module.

3.3. Thermal energy recycling using mobile container module

The mobility of the miner is very important for mining in the optimal mining environment. So, you can easily move Panokseon II by installing it in a 20ft container. Ten to twenty Panokseon IIs are installed in a 20ft container, and one container can provide more than 3.55 PHs of hash power.

In addition, we are developing a modular design of heat exchanger facilities, electric facilities and communication facilities in addition to Panokseon II in 20ft containers to facilitate maintenance.

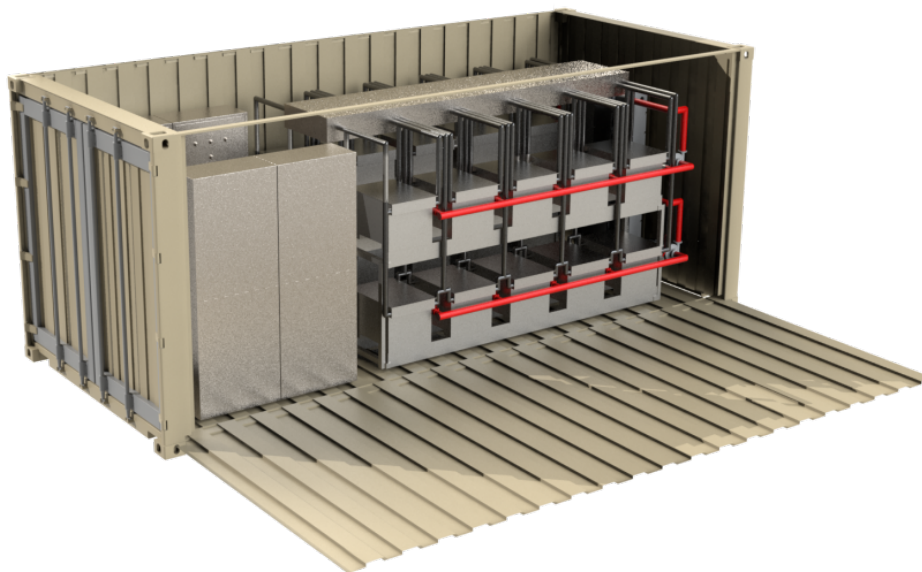


Fig. 10. Image of 20ft container system.

Fig. 11, a large-scale mining farm operating 1,600 units of the Panokseon II, a immersion cooling type miner, can provide a hash power of 568 PH/s at a power of 46.9 MW.

② Recycling of industrial waterway

Most of the industrial facilities that require hot water use coal, oil, and city gas as energy sources for operating the boiler. In this process, a lot of energy is consumed, and the hot water produced in Panokseon II can be supplied directly to the industrial facilities to save energy costs for boiler operation. Especially, the quantity and temperature of hot water can be flexibly used in conjunction with existing boiler facilities and it can save energy in existing industrial facilities.

③ Recycling of domestic waterways

Most domestic hot water is operated as individual heating or central / district heating and it is produced through boilers. Similar to the above-mentioned water for industrial use, the hot water generated from the Panokseon II can be converted into domestic hot water for energy saving.

④ Recycling of agricultural and fishery waterway

Continuous and stable hot water supply is essential for sustainable agriculture in hydroponic cultivation in the form of a greenhouse, or for aquaculture in the colder winter months. To secure hot water, most of the existing facilities use energy sources such as coal, oil, gas or partially use new renewable energies like solar, geothermal, and wind power. The hot water generated from the Panokseon II will have the effect of replacing or saving the energy sources mentioned above.

12Ships intend to recycle 50 °C of heat energy recovered from Panokseon II as a heat source of vacuum dryer. We are going to make clean and healthy lava sea salt and mineral water with lava sea water which contains a lot of minerals by installing in Lava Seawater Complex of Jeju Island.

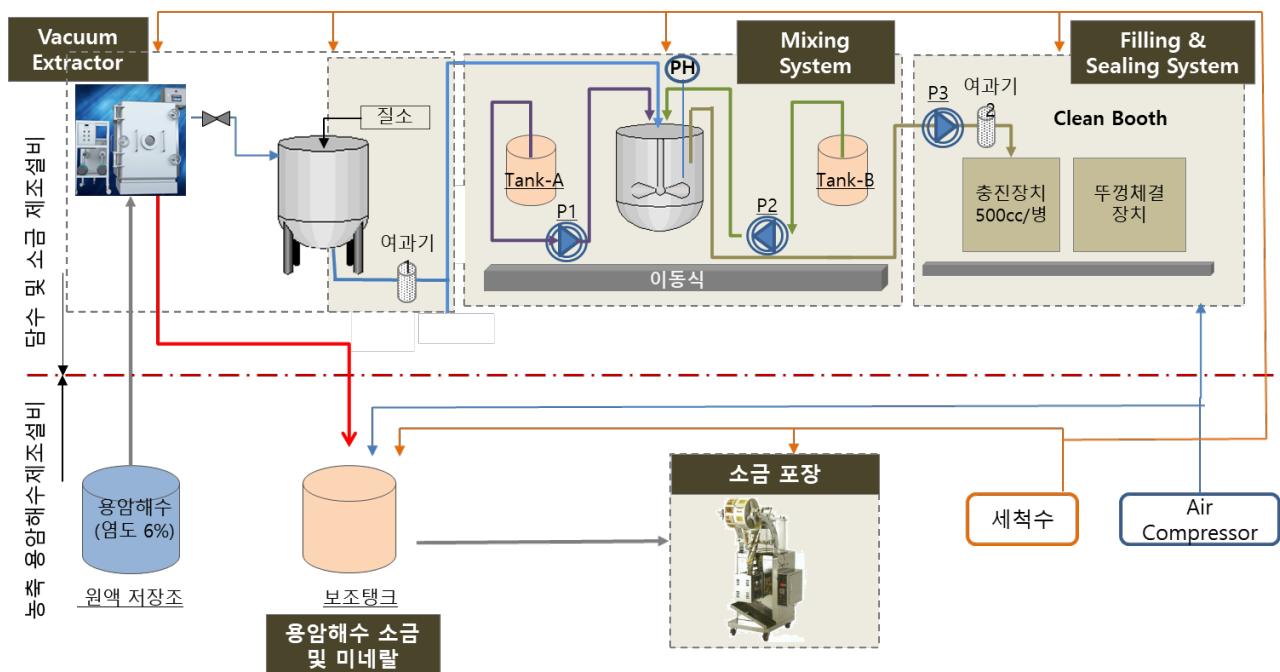


Fig. 12. Concept of Lava Seawater Vacuum Dryer.



Fig. 13. Vacuum dryer installed in Lava Seawater Complex.

3.4.Smart mining pool management

Holders of 12Ships token will receive in proportion to the amount of the tokens of cryptocurrency they have which is mined in Mining Infrastructure operated by the 12Ships. 12Ships aims at presenting a breakthrough alternative for transparent and democratic operations by arranging the Ethereum-based software device for the three Smart Operations in not only miners required for mining, but also the core policy that controls and operates it.

This mining pool will develop and offer more profitable digital asset options including Altcoin Mining in the future. Miners will have chance to use hashrate to earn better ROI.

The 12Ships ensures that Mining is always operated in optimal conditions through its hardware design technology and operational know-how. In addition, the 12Ships offers its own flexible and expandable solution that allows the operating conditions of miners and the distribution method of mined cryptocurrency to be operated differently according to token holders' preference for profit-seeking. This solution includes Smart Monitoring, which checks the status of miners and the mining in real-time, and provides the information necessary for optimal decision making, Smart Contract, which ensures that the contract is executed by recording the revenue distribution method of the mining pool on the blockchain, and lastly, Smart Voting, which is a system that openly and democratically determines the operation of the mining pool for mining targets, reinvestment, etc.

Smart Monitoring

Smart Monitoring makes it possible to check the operation status of miners, hash power, power consumption, mining status in mining pools, distributed revenue, etc. in real time. Smart Monitoring consists of a sensor part installed in the miner, a data center part that collects and processes the data from the sensor, and a dashboard that allows users to confirm the data.

In the sensor part, measured values such as the power consumption of the miner, the temperature of the chip, the heatsink cooling fan status and source voltage/current are transmitted from the sensor attached to the equipment to the data center part in real time through the wireless network. In the

data center part, it computes the minimum/maximum values and the average value based on the raw data from the sensor part and then sends them to the dashboard. Then the dashboard shows clear graphs and signals that help monitor the data, and the CCTV footage of the mine is also accessible.

Moreover, you can confirm the ongoing process of the execution of Smart Contract including the status of mined cryptocurrency distribution through the dashboard, and a display of screen for Smart Voting to determine operational policies is also provided. (Actual Smart Monitoring implementation functions may vary depending on your platforms such as web or mobile or other requirements.)

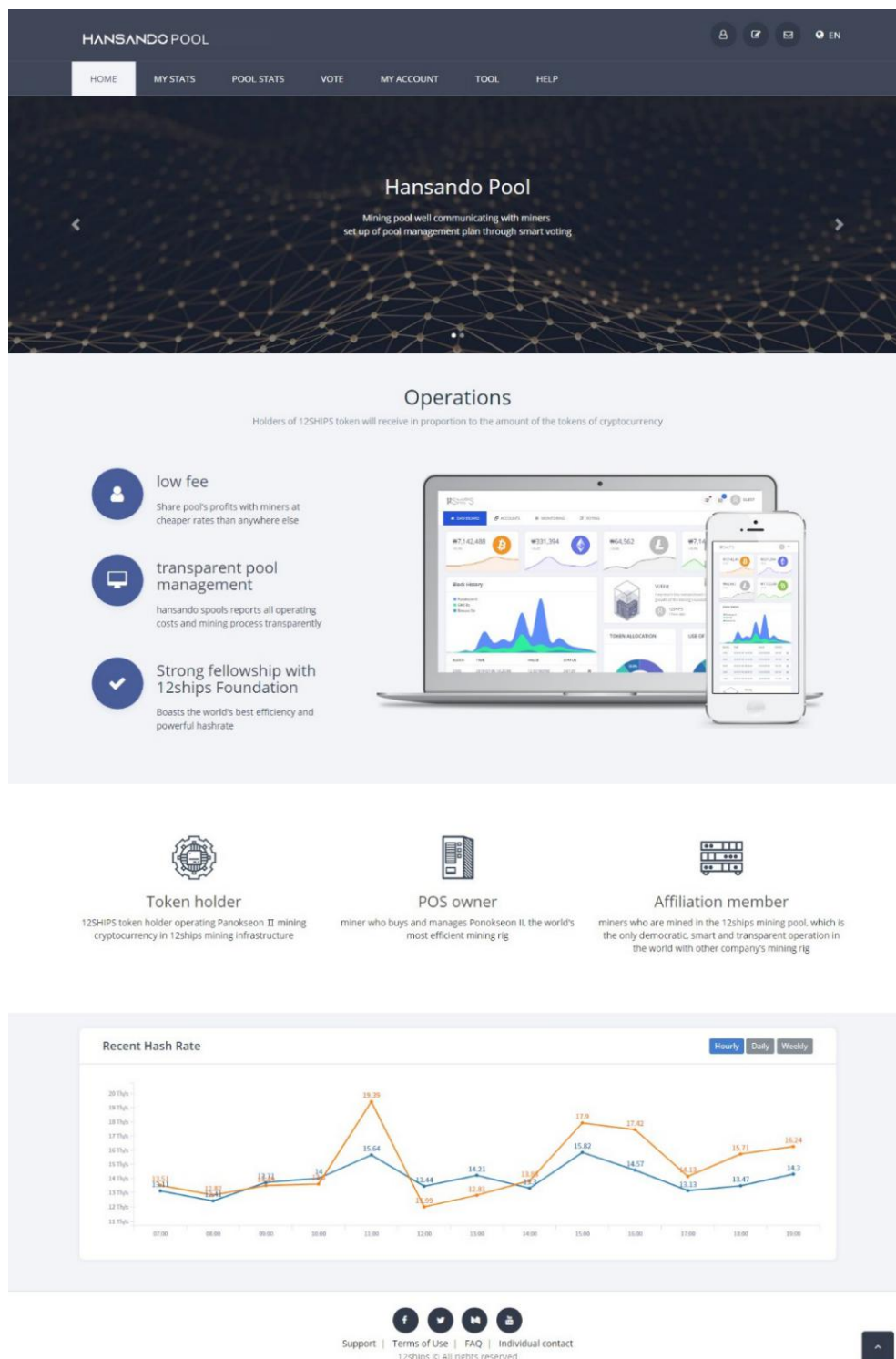


Fig. 14. Hansando Homepage.

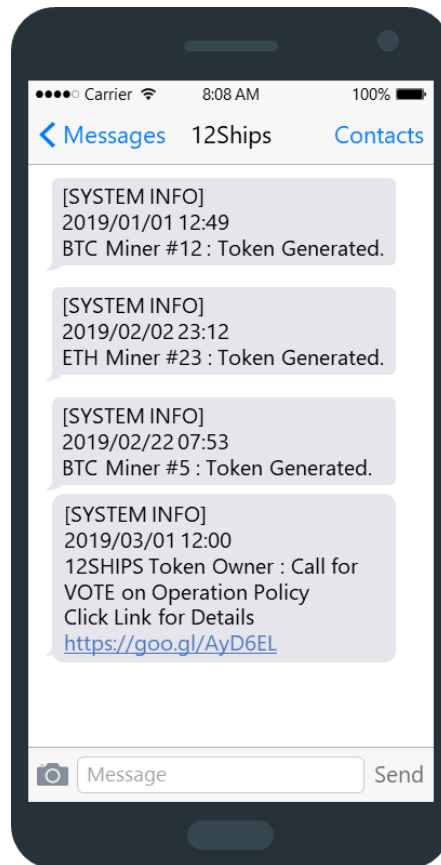


Fig. 15. An Example of Mobile Alerting.

Smart Contract

Ethereum-based Smart Contract makes it available for anyone to see the details of the mined cryptocurrency distribution method of participants and records it in blocks in the blockchain so that it can't be arbitrarily changed. In the case of the contract, one or more contracts may occur depending on the content and form of the contract between a main token issuer and a token holder, and depending on the satisfaction of the agreed terms in the recorded individual contracts, the time of contract implementation is automatically and openly defined, and its implementation details are guaranteed.

The technical features of the 12Ships token(12Ships) are as follows.

① Environment & Operation

Deploy the Bytecode (DAPP, Decentralized Application) generated after compiling sources created by Solidity and execute it on the EVM (Ethereum Virtual Machine).

② ERC20 Token

ERC stands for “Ethereum Request for Comments” and is an official protocol that suggests the improvement of Ethereum networks, and "20" indicates a specific ID number for these proposals. Now that the ERC20 Token is implemented as a protocol on the Ethereum networks. it is sent by the Ethereum address and transaction. Therefore, all ERC20 Token, including 12Ships, can share the same Ethereum address with all tokens that use the Ethereum wallet.

③ Definition Fidelity

Its implementation fulfills the definition of “a set of promises, specified in digital form, including protocols within which the parties perform on these promises.” of Nick Szabo, who first proposed the concept of Smart Contract.

④ Deterministic Smart Contract

Vincenzo Morabito divided Smart Contract into Deterministic SC and Non-deterministic SC, and among them, the DSC is a type without the intervention of external data in execution, and the NDSC is a type that requires an inbound or an outbound Oracle, that is an external referrer.

The main data recorded in the blockchain, which are defined in Smart Contract, are as follows. (Items may vary depending on the policies and agreements at the time of drafting.)

1. Drafting date and time: Timestamp when Smart Contract is recorded in the blockchain
2. Parties of Contract (from): 12Ships tokens use Smart Contract for the distribution contract of mining revenues, so the contents of this item are only available in the 12Ships unless there is a change in policy
3. Parties of Contract (to): This include those who own tokens at the time of drafting Smart Contract by getting assigned to the issued tokens after participating in the ICO and by acquiring through trading on the exchange.
4. Targets of Contract: A coin corresponding to the percentages distributed to the contracting parties among coins mined from Mining Infrastructure operated by the 12Ships. It can be determined by the decisions of more than half of the token holders.
5. Terms and Conditions : It is the way in which mined coins are distributed due to the token holding. Token holders choose among the ways that the 12Ships supports from representative distribution methods, PPS, PPLNS, PPLNSG, Score-based, CPPSRB, Proportional, etc.(The default value will be set to PPS.)
6. Confirmation of the Contract Execution: If your payment is confirmed and checked when all the above items are met, the status will be changed to the fulfilled contract

Smart Contract is drafted and executed through the following process. (The flow and description illustrated may differ from the actual realization).

1. Smart Contract definition and coding: Define main contents and conditions of the contract and script it with Solidity. Declare a variable, define a function for execution, and do the coding work according to the grammar.
2. Code compiling: When the Solidity source code is compiled, EVM Byte Code, a kind of machine language, is created.
3. Smart Contract Distribution: Create a Smart Contract object from the Byte Code and the ABI(Application Binary Interface) in order to distribute the generated Byte Code to the blockchain. Include the object in the block so that it can be included in the blockchain, and to do this, enter the sender, byte code, and amount of Gas expected to be used together with the parameter to create Smart Contract like one transaction.
4. Mining: When a miner mines a block containing a transaction, the address of Smart Contract will be generated. In other words, Smart Contract becomes accessible and usable.
5. Access to and use of Smart Contract: You can use the address of Smart Contract to read and write the contract-related information.
6. Execution of Smart Contract: If the execution conditions of the original Smart Contract are fulfilled, by using the contract, a new contract is created for the execution result. If the process of distributing it to the blockchain again continues, both contracting parties and

blockchain participants will be able to transparently identify the contents of the contract, the execution process and whether it is executed or not at each stage of implementation from the beginning of the contract.

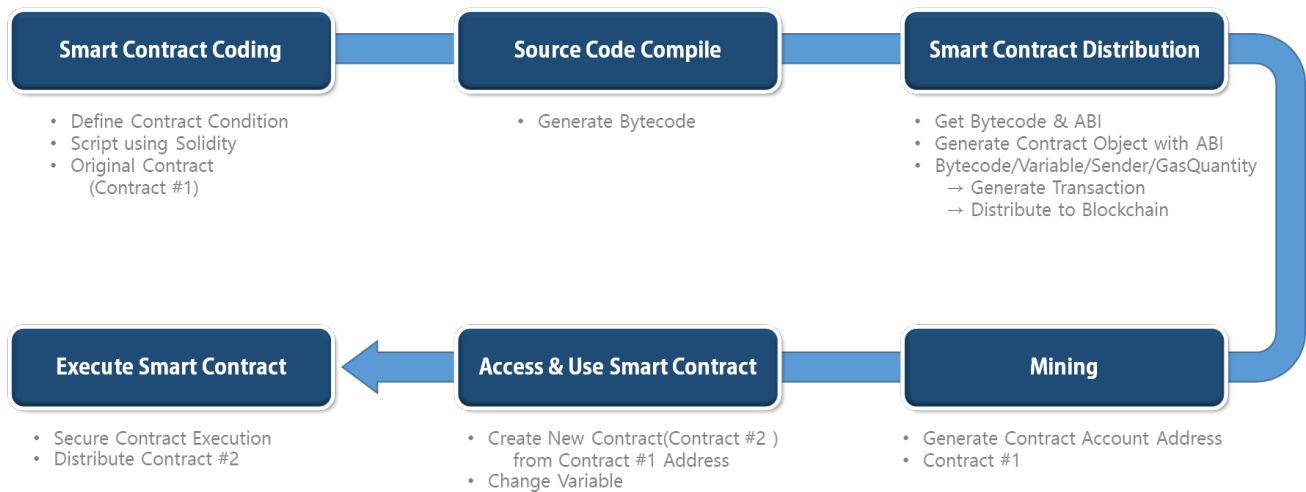


Fig. 16. Smart Contract Process.

The process of requesting and approving Smart Contract and updating it to a new state is shown below. (The flow and description illustrated may differ from the actual realization).

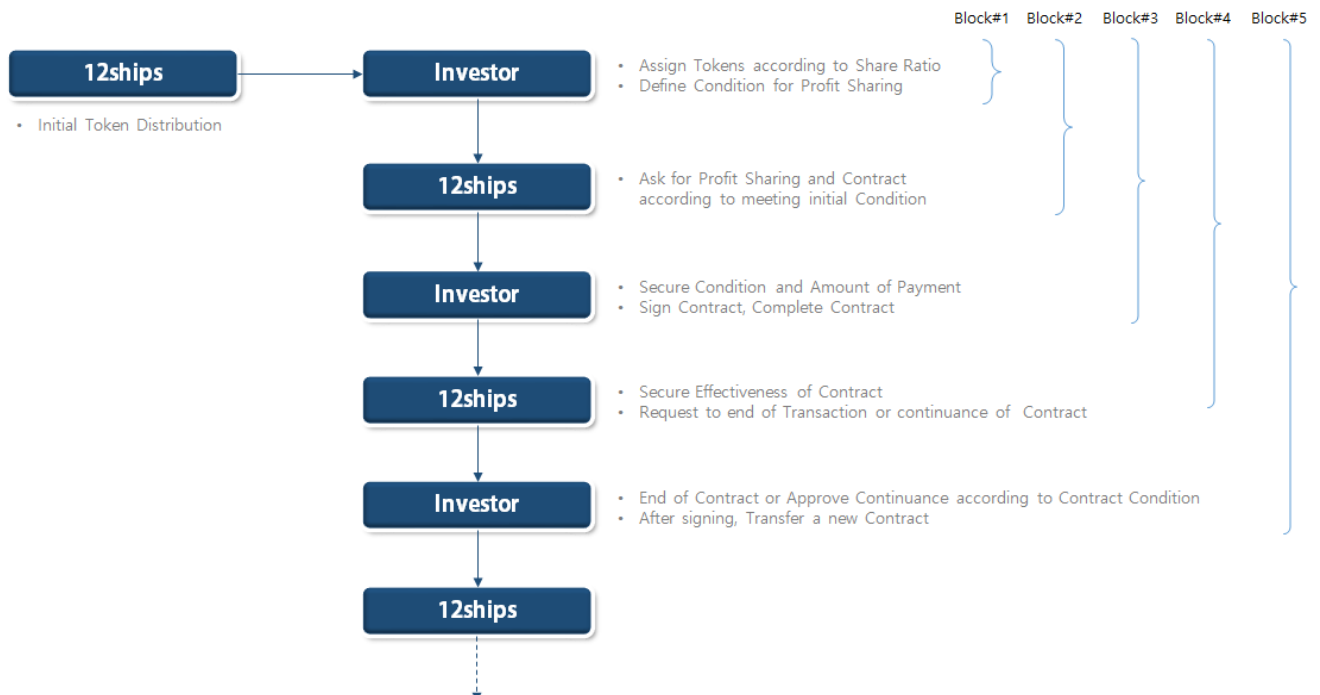


Fig. 17. The process of requesting, approving, and updating Smart Contract.

Smart Voting

When the mining begins, the preference or will of token holders need to be reflected depending on changes in coins to be mined, coin's market price, level of difficulty of mining, hash power of

mining pools, etc. In this situation, if main operators of the mining pool make decisions privately and arbitrarily, token holders will have to passively accept the results without knowing where the future gains or losses vested to.

Smart Voting is a device that makes it available to promote the transparent operation of mining pools and the ultimate profit maximization by the fact that the 12Ships has made it possible for token holders to figure out the situation themselves, participate in decision making process according to the situation, confirm the results of the decision-making and take their responsibilities. The agenda of Voting may be raised not only by the 12Ships, which is the subject of the operation but also by one or more holders who own more than a certain number of tokens, and Voting process design and submitting for consideration about issues, Voting period, criteria for judgment of results, etc. can be released as a system specification or be provided as another Smart Contract by the 12Ships

Smart Voting may be considered as a special form applied with Smart Contract, and the following details are applied to the code (The actual realization of Smart Voting may change as needed).

1. Define the object for which the vote is proposed. Such as the participants' address, quantity (amount of tokens held), expiration time, whether or not it has been executed (or whether or not to exercise the right to vote), whether or not it has passed by a vote, voting participants, voting results, etc.
2. Define a member object. It consists of data that can be used to confirm whether he/she is a token holder or not through the address of the member, the time of holding the token, etc. and set up a Modifier to allow participation on voting for token holders exclusively and submit voting.
3. Define voting rules. It needs to set up the period of the preliminary discussion for the vote, a quorum for the vote, the minimum polling rate to pass the vote, etc.
4. Define a framework for entering suggestions. In the case of 12Ships, coins, which are currently subject to mining, and reinvestment rates can be targeted.
5. Define the voting form. For example, there are voting proposal numbers to be targeted, whether it is yes or no, etc.

The items that can be subject to Smart Voting are the coin to be mined, re-investment ratio depending on the mined amount and so on.

As shown above, by realizing and executing Smart Monitoring, Smart Contract, and Smart Voting, we build a reliable mining pool by providing real-time data and immediate feedback to token holders, and we ensure that the mining revenue distribution is carried out transparently through the released contract. In addition, our core strategy is to become a democratic Mining Infrastructure by directly participating in and determining important policies of the operation of the mining pools.

At the beginning of the hash pool configuration, the entire pool is composed of Panokseon II, and each Panokseon is connected to the Pool Mining Network on the hash pool server constructed by 12Ships, and the hash pool server is connected to the external bitcoin network to perform the chaining operation.

In the future, according to the development of other coin hash machines of 12Ships and the decision of 12Ships token holders, a self-developed hash machine or an external purchase hash machine can be connected and expanded through the already established Stratum Network. Independent external equipment can also participate in 12Ships network. In order to join the hash pool through the Stratum Network, it is necessary to certify the purchase of 12Ships tokens and satisfy the

subscription requirements to be separately specified. After joining the pool, the same authority as the other 12Ships token owners will be generated

The hash pool infrastructure configuration model may be changed for optimal performance depending on the update of the bitcoin network, the technology change, or the technology development situation of 12Ships.

3.5.High performance blockchain—HashChain

12Ships Foundation is also developing our own proof-of-work (PoW) public blockchain HashChain. HashChain will provide a Blockchain as a service (BaaS) system, which is a complete Blockchain service that collects and records the information recorded in the block into a producer / seller unit

As cloud and Internet technologies evolve, services such as Infrastructure, Platform, and Software that were previously constructed independently in a virtual environment and used in the form of services are generally referred to as IaaS, PaaS, and SaaS, respectively.

When applying blockchain technology that features the concepts of security, sharing, and dispersion to new areas, we are going to make a business structure in which anyone can use a well-built blockchain model as a service instead of building directly blockchain node and an underlying environment. Moreover, we plan to let the HashChain grown as a stable brand and independent service online eventually.

Because of the comprehensive mining network that 12Ships has already established, it is able to support the security of HashChain at the time of launch. There are a lot of small scale PoW blockchains suffer from the potential threat of a 51% attack. 51% attack means that in a blockchain network, where miners could control over 51% of the hashing power, they would be able to interrupt the block generation process and change the information that previous block recorded. When 51% attack happens, the blockchain could be compromised and that money could be double spent. Therefore, the more hashing power there is, the more secure is the public blockchain. According to analysis on the top PoW blockchain, the cost of a one-hour attack on BTC would cost over \$500,000, while for Bitcoin Gold is less than \$1,000. For HashChain, 12Ships Foundation would support the mining process at the beginning such that there would be enough hashing power on the blockchain. It could also attract external miners and application developers to build on the system together.

Apart from the layer 1 blockchain, 12Ships Foundation is also actively working with other projects in the Web 3.0 ecosystem to improve on the scalability and privacy issues on the blockchain. HashChain will support Ethereum Virtual Machine (EVM) such that all the applications built for the Ethereum ecosystem could also be compatible with 12Ships.

HashChain based decentralized applications (dApps) refers to a distributed application that is connected and used by all participants in an equal structure (Peer to Peer, P2P) without a centralized administrator, whereas existing software or online services are constructed in the server-client model and described as being centralized. And we will create a base blockchain structure and develop the tools in forms of dApps to record and to retrieve the transactions in that blockchain by the users of the HashChain. The dApp tools can be divided into dApps that record production/sales history in blocks and those that can be easily viewed by consumers. Each dApp can be provided as a stand-alone application for direct user experience, or in the form of an API that provides data authentication, recording and recall functions to other web/app services, allowing anyone to freely create/deploy a dApp that takes advantage of the benefits of the HashChain.

4. ROADMAP

- In May 2019: CoolDog001 Chip Launching
- Early June 2019: Completed the development of Panokseon II
- In June 2019: Hansando Launching
- In October 2019: CoolDog001 Launching
- In December 2019: BaaS service based on HashChain Launching
- In End of 2020: CoolFish001 Chip Launching
- In Middle of 2021: CoolFish001 Launching

5. Token

5.1.Token Economy

The 12SHIPS token is an ERC20 standard-based Ethereum token.

12SHIPS tokens contribute to a democratic Blockchain ecosystem and provide the following functions to specify access to services and products:

- TSHIP could be used for HashChain services. Similar to the gas fee model of other public blockchains, in order to perform transactions on HashChain, users would need to pay gas fee to the miners of the network. The mining algorithm for HashChain would be similar to that of Ethereum as well such that existing ASIC miners could participate in the ecosystem as well.
- It is used as one of the payment methods of various Blockchain services
- It is used for smart voting on various decision making for Hansando pool such as the selection of target cryptocurrency, and the reinvestment rate.

Rewarded cryptocurrency through Hansando's pool operations are used to enhance the value of 12SHIPS tokens as follows

- 90% is reinvested to increase hash power. The 30% reinvest rate is the initial setting value and can be changed according to future Smart Voting
- 10% is expected to be used as a mining pool operating cost. The exact cost is expected to be released after the operation of Hansando pool.

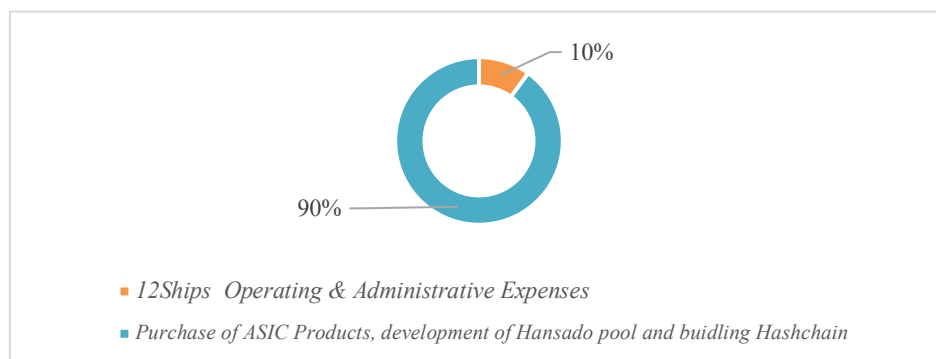
The total token issue amount is 5,000,000,000 TSHP.

Development progress, additional information and SNS channels to communicate with us can be found at <http://www.12ships.com>.

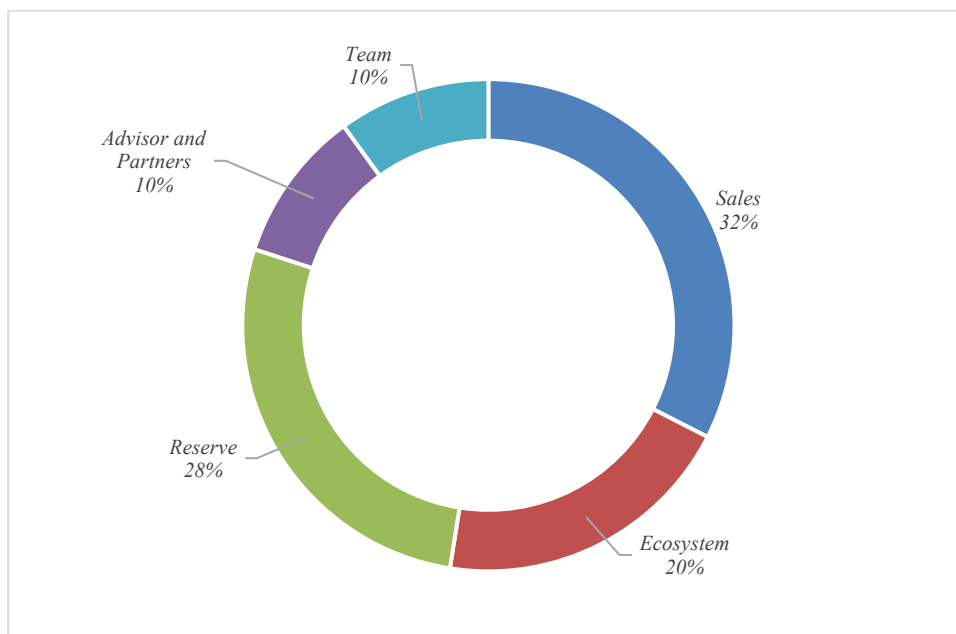
5.2.Use of raised funds

A large share of Funds raised during ICO, 90% will be used to set up the mining infrastructure by fabricating the mining machines such as Panokseon II, building Hansando mining pool, and building its own Blockchain HashChain etc.

10% of the Funds will be used for administrative expenses, including the operation of 12Ships.



5.3. Token Allocation



6. TEAM & ADVISORS

-Team

Qianjie Zhao

Director, 12Ships Foundation

CEO, Vancores

Advisor, FBG Group

Entered the blockchain industry in 2014 as BTCChina's Marketing Director. Later in 2014, Qianjie took the leading role in BTC China's mining pool when it was first launched and soon became one of the largest bitcoin mining pools in the world with a peak of over 13.5% of the world's total hash. In early 2019, QJ joined FBG Group as advisor and at the same time jointly founded Vancores which started the R&D of a multi-algorithm ASIC immediately.

Peng Zhao

CTO, 12Ships

CTO, Vancores

With 15 years of research and development experience in IC. Peng led R&D of blockchain chips, multimedia IPTV SOC chips, CMMB communication chips, digital TV security chips, 4G LTE communication chips. Prior to Vancores, Peng worked in Shanghai Huaya Microelectronics, Beijing Chuangyi video Beijing Digital Taihe and Dongxin communication, etc.

Duncan Chen

Chief Hardware Architect, 12Ships

Hardware Design & Integration Director, Vancores.

Prior to Vancores, Duncan has served in two of the world's top 500 companies, with more than 16 years experiences in consumer electronics and industry automation hardware design and management.

Chase Wang

Chief Software Architect, 12Ships

Software System Architect, Vancores.

Prior to Vancores, Chase was the tech. director of BTCC Pool, which was also known as BTCChina Pool. Chase is extensively experienced in blockchain and crypto-currency mining. Expert in architecture design and multiple development languages.

Sandy Liang

CMO, 12Ships

Head of Marketing, Standard Tokenization Protocol

Sandy Liang gets into Blockchain industry from 2016. As Operations Director of BITKAN (Invested by Bitmain) from 2016-2018, she participated in developing the first cryptocurrency OTC

platform and Blockchain community platform with 400+ KOLs. Sandy also organized the production and branding of first Bitcoin documentation in Chinese. In 2019, she was the core Marketing team member of Ontology, one of the best public chain projects.

-Advisors

Victor Zou

MBA of Tsinghua University, Bachelor and PHD candidate of Renmin University of China.

Director, FBG Capital

Vice President, Haitong International Securities Group (2015-2018)

Victor has more than 10 years of experience in the financial industry. After entering in Blockchain industry, he Invested in a number of projects, and successfully supported some of them into the market value of the top 100. Created the business model of comprehensive service in secondary market, which created significant value for FBG and the project party.

Dr. WANG Xingjun

Professor at Tsinghua University, with the support of the Nanjing Software Park Management Office of China (Nanjing) Software Valley and invested by a well-known blockchain investment institution.

Special allowance expert on the State Council, and a well-known expert on the field of digital TV and information security.

7. LEGAL DISCLAIMER

12Ships (includes Foundation and the Company, Shareholders, Employees and Affiliates) have written this white paper for reference purposes only to provide 12Ships' plans and specific information to those who have a lot of interest and affection in our project. This white paper is provided as of the time of writing and does not guarantee that any information contained in the white paper, including conclusions, is accurate to the future.

Our team does not represent and warrant the accuracy of any information in connection with this white paper, and the team is not liable for it. Examples include: (1) whether the white paper is written based on legitimate rights and does not infringe the rights of third parties (2) the white paper's commercial value or its utility (3) the white paper's appropriateness for the attainment of your particular purpose (4) possibility of fallacy of contents with the white paper. Such things are not guaranteed. The responsibility waiver is not limited to the examples stated above.

Even if you use this white paper (including references) to make your own decisions, the consequences of that are entirely of your own. In other words, please note that the team does not reimburse, indemnify, or assume liability for any damages, losses, debts or other consequences occurred using this white paper.