GMB

GOLD MASTER & BRANCH

Connect to Real Life

White Paper Version 1.2 (English)
Updated 9/10/2018
Golden Blocko

GOLD MASTER & BRANCH

Contents

01 Abstract

Bitcoin, issued by Nakamoto Satoshi in 2008, presented a new paradigm called 'inter-personal cryptocurrency transactions without third party to intervene', although it has limited use and some technical limitations.

In 2013, Vitalik Buterin added smart contract function to the blockchain technology and created Ethereum.

This enables us to implement a new way of doing business through blockchain technology that breaks the boundaries of existing businesses. This is certainly the beginning of a new type of revolutionary business.

Even though it has been a long time since then, there has not been any related business models completed yet.

Until now, the blockchain technology and the cryptocurrency have improved to some extent but it is impossible to do the business with them in full scale due to the problems still existing.

The GMB Platform that we are trying to implement is not only 'faster than existing blockchain' and 'better than existing cryptocurrencies', but also offers blockchain technology that can be used in real life. Our goal is to make sure that users who utilize our service can use the features without actually having to know if blockchain technology is implemented or not.

GMB Platform can implement more functions and better services, but first, we would like to prove the advantages of GMB Platform by realizing it in everyday life so that people can actually use and experience the service. This is where the Dual-Cryptocurrency system (Master & Branch Coin) comes in to solve the problem. Afterwards, we will add more services and features based on the fast transaction processing speed and secured scalability of GMB Platform.

GMB Coin aims to make it possible to use it as real money by introducing the concept of Master and Branch Coin to resolve the fundamental problem of cryptocurrencies, which is that it does not function as real money.

To make this possible, GMB Coin will first be usable through TravelSpace(Dapp), a Decentralized Travel Application Service, where users can share information about travel and can enjoy better travel service. Users can also freely exchange Master and Branch Coin via GMB DEX so that they can use them as fiat money at their destination.

Through this, GMB Coin enables blockchain application technology also freely exchange and services to be implemented in real life business, rather than staying in the theoretical world.

In addition to the expansion of smart contract capabilities, the blockchain technology is no longer just a professional area, but a real-life technology that anyone can use.

02 Introduction to GMB

GMB Coin aims to implement blockchain and cryptocurrency that can be used in real life. No matter how good the technology is, no matter how good a business is, if there is no place to use it, and if it is difficult to use, it is not the cryptocurrency we pursue even though the present value of the cryptocurrency is high.

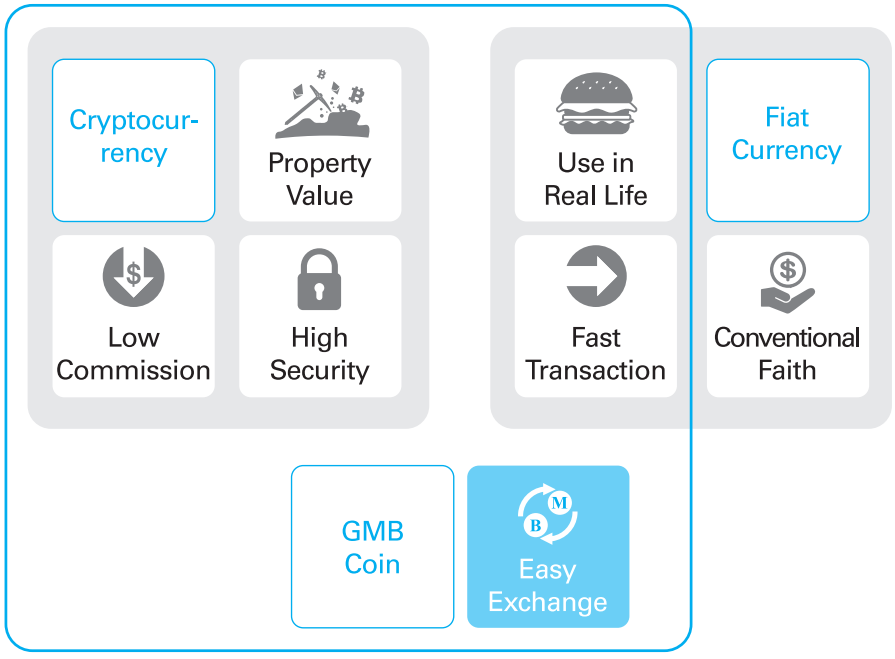
GMB Coin wants to be an easy and convenient coin that can be used anytime and anywhere. We would like to make a cryptocurrency without price volatility so that people can always make stable transactions.

In order to make GMB Coin into a reality, we need to solve 2 problems related to cryptocurrency.

The first is that it is difficult to accomplish real-time transactions.

Not only is there a problem in the user dealing with the slow transaction speed, but not many users are able to use the services, which will prevent the service from being scalable and, in the end, will not be able to create a business ecosystem with cryptocurrencies.

The second is due to the excessive fluctuations so it cannot function as real currency.



[Fig 1] GMB Coin's Aim of Realization

Currency that is used in real life is able to gain the trust of the people because it maintains a constant value at all times. It is only possible to trade and provide service based on trust.

However, if the monetary value one hour ago is different compared to the current value, then the person using the service nor the person providing the service can make a trustful transaction.

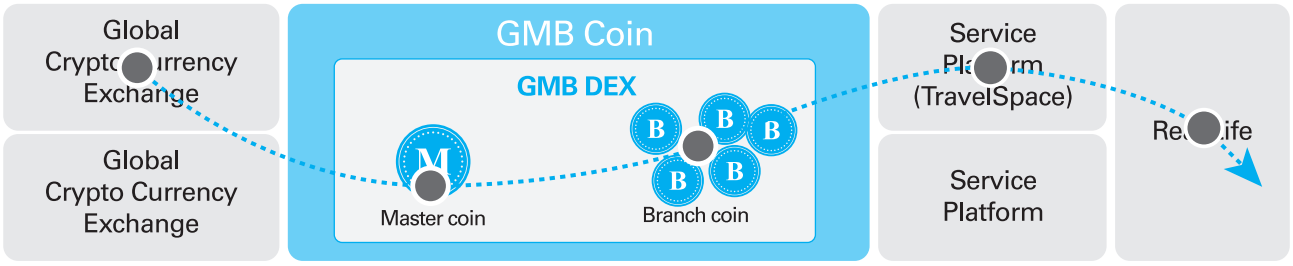
This problem for cryptocurrency has still yet to be solved and it is a critical point that it must overcome.

GMB Coin intends to solve the fundamental problem of cryptocurrency.

By optimizing the ecosystem for blockchain's physical transaction, we intend to increase the transaction processing speed to the highest possible. Also by creating both Master Coin and Branch Coin, we will try to fulfill the asset value and currency function.

While GMB Coin possesses the advantages that go beyond existing blockchain and cryptocurrency, we will try to make it so that it will be usable in real life as well.

Users of GMB Coin no longer need to know the type of blockchain technology and the type of cryptocurrency that they are using.



[Fig 2] GMB Coin's Connection Relations and Course

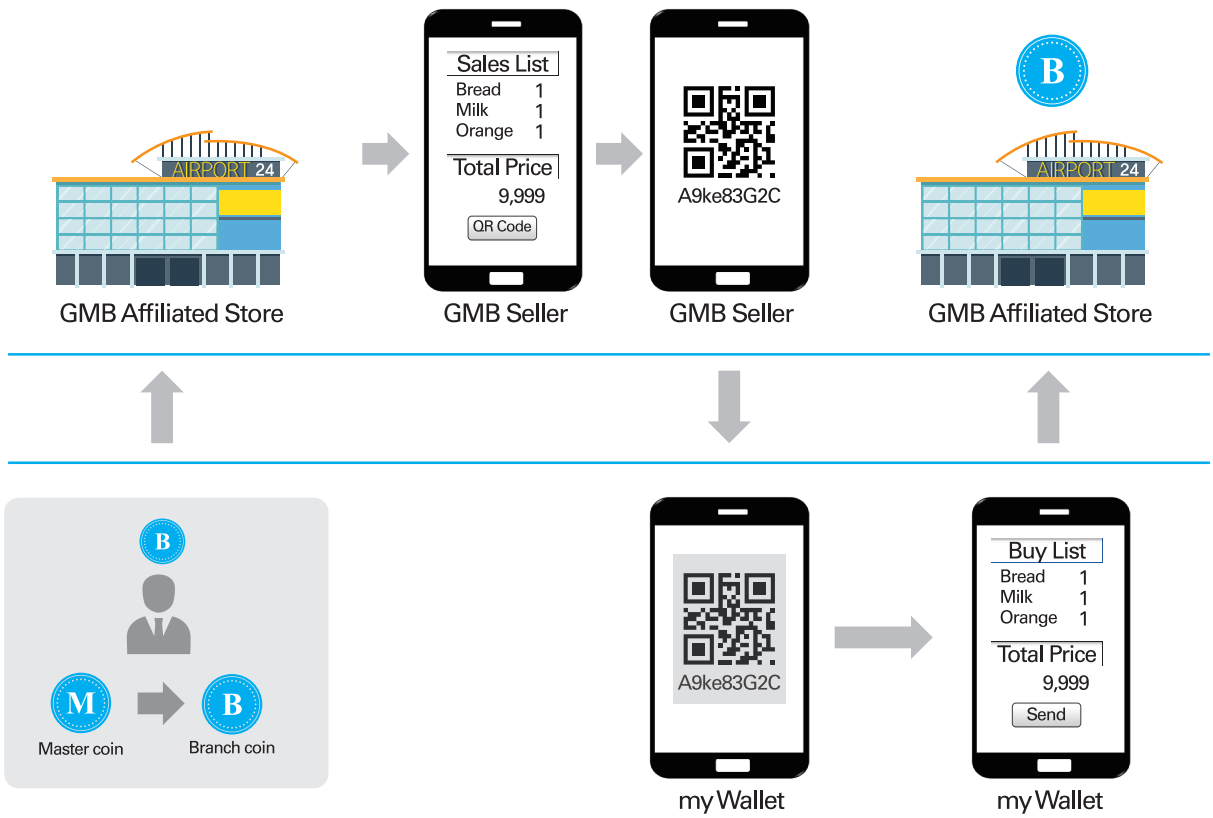
Users simply use it whenever and wherever they need it.

They must be able to verify the transactions of the service that they are using is done immediately.

This is the user environment that we want to implement through GMB Coin.

For example, users of GMB Coin no longer have to wait at the bank or exchange office in the airport to exchange their money to local fiat currencies.

You can exchange the GMB Master Coin directly to Branch Coin with just your smartphone. And with that Branch Coin, you can pay just as you would like when using a credit card or cash while traveling. After the trip, you can exchange the remaining Branch Coins into Master Coin and get ready for another trip in the near future.



[Fig 3] Example for Use of GMB Coin

This is the future of cryptocurrency that GMB wants to make.

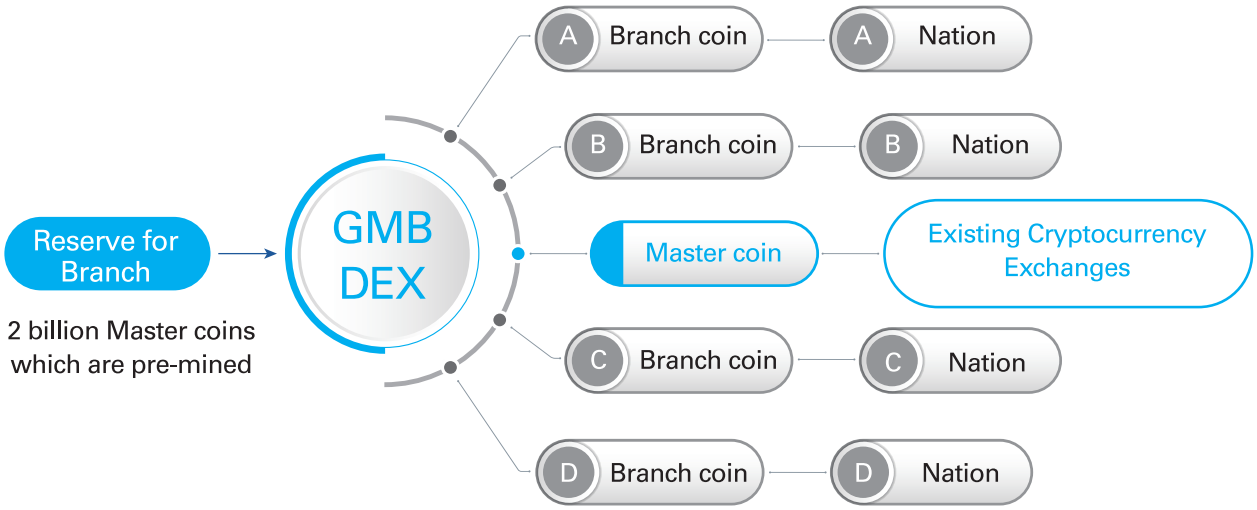
Such a service is possible thanks to the new blockchain technology of GMB. The blockchain of GMB Platform currently has a block generation rate of 5 seconds, a transaction processing speed of 1 million TPS.

The meaning behind GMB in GMB Coin stands for "Gold Master & Branch", which are two different kinds of coins. This may be the ultimate goal for Master & Branch of GMB Coin in the GMB's ecosystem.

Master Coin and Branch Coin each have unique functions. At the final stage of the GMB ecosystem, both coins will safely be usable, therefore creating the flow of currency, eventually revitalizing the GMB ecosystem. Master Coin serves as the key currency for the Branch Coins used in different countries with asset value. It can be traded on existing cryptocurrency exchanges like other cryptocurrencies.

Branch Coin is set according to the local fiat currency of a country (the exchange ratio is adjusted according to the country's currency). The monetary value of the Branch Coin is guaranteed by the Reserve for Branch of 2 billion Master Coins that are mined.

Master Coin and Branch Coin can be exchanged at GMB DEX (decentralized exchange). Here, it will be exchanged according to the cryptocurrency exchange rate at the time of exchange.



[Fig 4] Structure of GMB DEX

We intend to first provide TravelSpace, a travel community service that uses Master Coin (GMB Coin's main currency), for fast transaction speed.

The use of GMB Coin will first be available in TravelSpace(Dapp), a travel community service. TravelSpace(Dapp) is a decentralized travel application service that rewards travel content to provide more information based on travelers' actual experiences.

MASTER COIN

Master Coin is traded on the existing cryptocurrency exchange and will act as a key currency in the GMB Coin system.

BRANCH COIN

Branch Coin is interlocked with the local fiat currencies at the rate of 1:1 and is not traded on the existing cryptocurrency exchange, but both Master Coins and Branch Coins can be exchanged in GMB DEX, the GMB's own exchange. We plan to make it possible to purchase with fiat currency of the country.

03 Problems and Solutions of Existing Cryptocurrencies

Existing cryptocurrencies cannot be used as real money as their values fluctuate too much. It is difficult to use them in real time due to the problem of transaction speed, so they are mainly used in the limited environment online.

SOLUTION TO TRANSACTION ISSUES

Existing cryptocurrencies such as Bitcoin and Ethereum have a high TPS (transaction processing rate per second), which causes an overload problem when the number of users increases.

GMB has solved the most fundamental transaction problem of existing cryptocurrency by fundamentally improving the physical processing environment. The initial block generation time is 5 seconds and the transaction processing speed is 1 million TPS at present.

SOLUTION TO PRICE FLUCTUATION

The price volatility of cryptocurrency is a function of cryptocurrency to grant value and it is the main reason why the cryptocurrency cannot be used as real money.

GMB Coin is trying to solve the problem by developing Master Coin, which is traded as the value of GMB Coin in existing cryptocurrency exchange, and Branch Coin, which is a fixed-price type cryptocurrency that is used in each country.

SOLUTION TO CRYPTOCURRENCY USE ENVIRONMENTS

Cryptocurrency has resistance in use and development from various internal and external environments.

We aim to reduce the resistance to cryptocurrency and build a good usage environment system that contributes to the development of cryptocurrency through linking with social contribution activities, linking with each country's local currency, supporting for developing countries, and establishing a convenient and safe cryptocurrency use in real life to raise awareness of cryptocurrency by utilizing Branch Coin.

04 GMB Blockchain Technology

GMB Platform aims to build a wide range of user-friendly services by enabling blockchain technology to be widely used in various fields by dramatically improving the issues of transaction speed and service scalability, which have defined the limitations of blockchain technology.

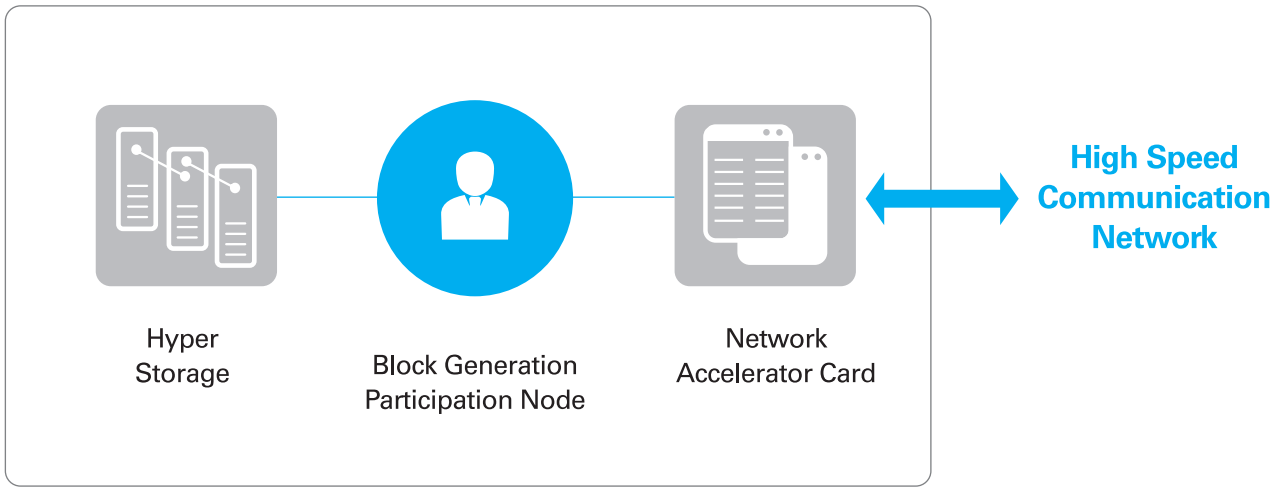
GMB Platform presents a new type of hardware model that block generation participating nodes should have. Through the connections of those systems, it implements an improved user environment, which is incomparable with that of existing blockchain systems that had limitations in speed.

GMB Platform improves block generation speed by inducing fast agreement process by connection of optimized hardware devices, thereby providing users with convenience of usability for services by ensuring the highest possible transaction processing speed and sufficient scalability for services.

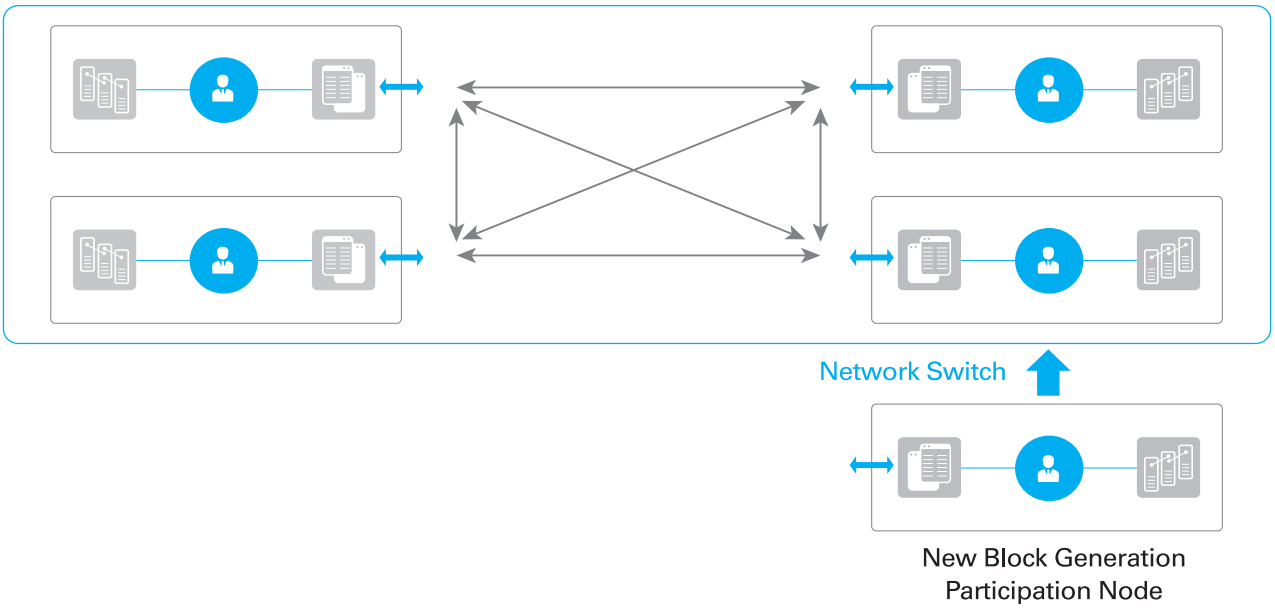
BLOCK GENERATION NODES

Block generation nodes, which are the core node of GMB Platform, are the nodes that collect transactions generated in GMB Network and generate it as a block. They should have the following hardware conditions.

Block generation nodes minimize the delay of processing time due to the storage speed by enabling high-speed communication among nodes, and guaranteeing the storage capacity of



[Fig 5] Hardware Configuration of Block Generation Nodes



[Fig 6] Block Generation Node Association

the collected transactions as fast as the transaction processing speed.

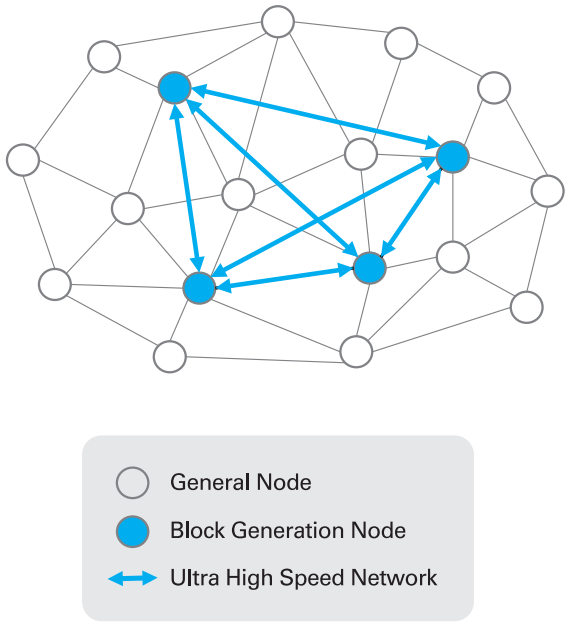
Hardware configuration should satisfy the following three conditions.

1. Network Accelerator Card
   Network Card that performs Decoding/ Encoding so that block generation nodes can make high speed communication

2. Hyper Storage
   Storage where the collected transactions are saved

3. High Speed Communication Network
   High speed communication network that connects block generation nodes

The block generation nodes are connected to the high-speed network, so that data can be exchanged with one another in real time. These connected block generation nodes form a block generation association based on the fast network speed. New blocks are created by this association.



[Fig 7] GMB Platform Network Configuration Diagram

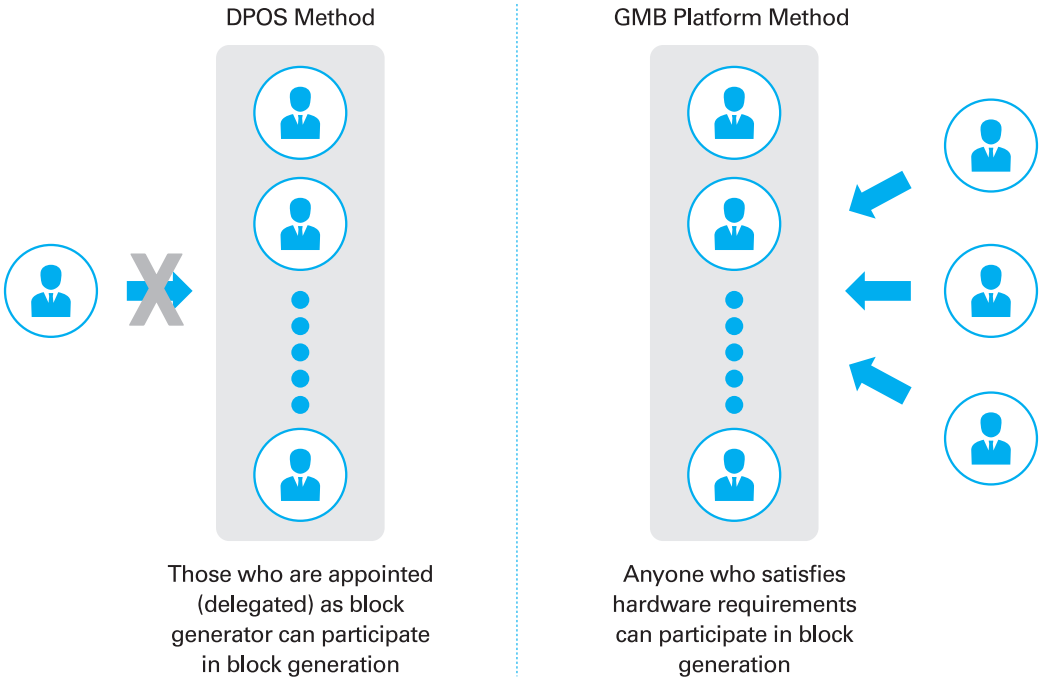
Anyone who meets the specified hardware conditions can become a block generation node and participate in the block generation. The participation of each node is controlled through the network switch.

GMB Platform has adopted a new concept blockchain technology by combining optimal hardware equipment with existing software based blockchain to fundamentally improve the processing speed.

Through this, GMB Platform aims to realize the fastest transaction speed among the current blockchain technologies. (GMB Platform targets transaction processing speed of 1 million TPS, which is faster than POS processing speed of Ethereum and DPOS processing speed of EOS.

In the case of DPOS blockchain, only a certain number of specified (delegated) block generation nodes can participate in the block generation, so there is concern about centralization. However, in the case of GMB Platform, anyone who meets the specified hardware conditions can become a block generation node and participate in the block generation. Thus, GMB Platform ensures greater reliability and security through participation of more nodes.

GMB Platform intends to move forward to the future blockchain technology by implementing all of 3S, which are the fundamental implementation goals of current blockchains.



[Fig 8] Comparison between DPOS Method and GMB Platform Method

1. Security
   In addition to the security of anti-tampering that existing blockchains have, GMB Coin is equipped with immediate user response that cannot be implemented in other blockchains. With this function the user himself completes the transaction, which assures the reliability and security of the transaction.

2. Speed
   Achieves the highest level of transaction throughput beyond the processing speed of existing blockchain technologies.

3. Scalability
   Existing blockchains have the problem of scalability that cannot add any more services at a certain point due to the increased transaction throughput compared to the initial service starting time. It secures the scalability by ultrafast transaction speed.

CONSENSUS

GMB Platform intends to achieve the highest level of transaction throughput beyond the limitations of existing blockchain systems based on optimal hardware performance and the latest network technology.

GMB Platform requires hardware proof, which was not required in the existing consensus algorithms for faster transaction speed and uses Proof of Power Specification & Stake (POPS), which is a hardware-based stake matching algorithm.

In the GMB Platform algorithm, the nodes, which prove optimal hardware performance, generate blocks. The nodes are called block generation nodes.

The block generation node plays an important role to generate blocks, so it has the authority accordingly. However, if the wrong block is generated, the block generation node should be responsible for it. Therefore, the block generation node shall secure a stake equal to or greater than a certain threshold.

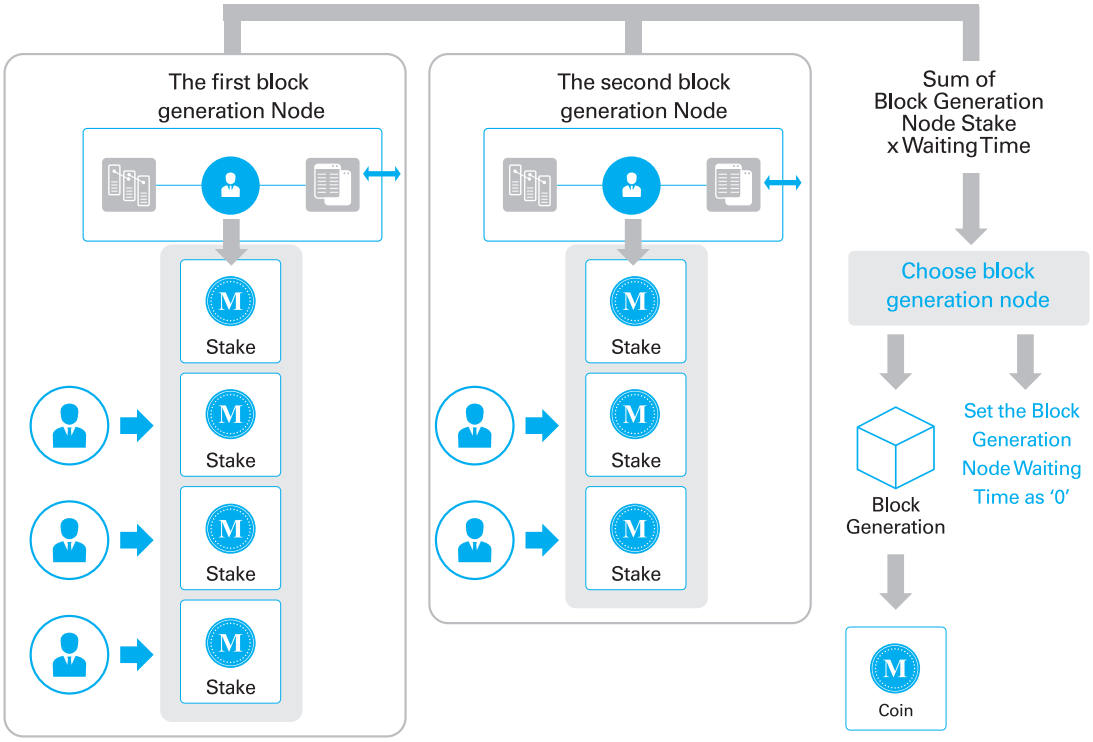
These secured stakes are used not only to determine the order of block generation authority, but also to apply penalty for the wrong block generation.

Such consensus algorithm that requires hardware specifications allows the nodes with optimal hardware specifications to participate in block generation. Thus, it may cause centralization or wealth concentration. Because of this problem, POPS allows ordinary nodes to participate in the block generation process by using their own stakes.

General nodes can select one of the block generation nodes that can generate a block and join their own stakes to increase the block generation right of the selected block generation node so that the corresponding node has more block generation opportunities.

In the POPS, the block generation authority is determined as follows. Here, the hardware certification part is excluded, which all the block generation nodes have in common and the block generation authority is determined by the sum of the stakes of each block generation node.

Block generation authority = ((Stakes of the block generation node) + (Sum of the stakes of the participating general nodes) * (Block Generation Waiting Time)



[Fig 9] POPS Stake Proof and Block Generation

The block generation authority is determined by the sum of the stakes of the block generation node and the time waiting for the block generation.

Once the block generation node participates in the block generation, its block generation waiting time has been set as '0' and moves to the end of the waiting queue.

As the waiting time increases, the block generation authority increases according to the total of the stakes. If the block creation authority finally becomes the highest in the queue, it generates a block again. Therefore, the higher the sum of stakes a block generation node has, more frequently it can generate a block.

Compensation for block generation can be divided into hardware compensation, stake compensation, and system operating fund. Since the block generating entity is the block generation node with the optimal hardware equipment, the compensation for hardware is made first. And then, each node gets compensation according to its stakes and the remainder of the compensation will be used as operating fund.

System operation fund is used for the maintenance of the blockchain system, and for the vitalization of the GMB ecosystem such as GMB Platform business execution and contents compensation.

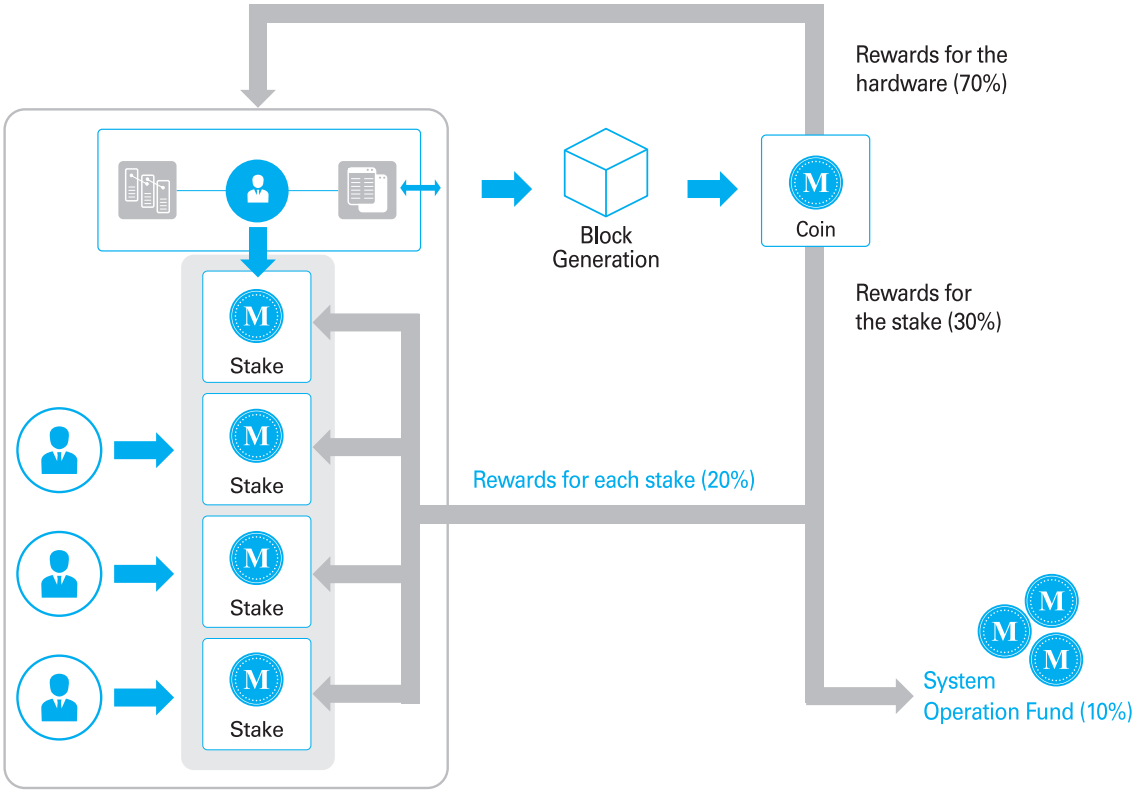
The stake participation system of general nodes enables general nodes, which cannot directly participate in the block generation to participate in the process indirectly by contributing to increase the block generation authority of the block generation node that it selects.

When a general node selects a block generation node to participate in the block generation process, you may think that participating in a block generating node with large stakes will increase the chance of block generation and you will have better opportunity to get rewards. However, since the amount of compensation received at a time is constant, the rate of compensation is reduced if the node already has large stakes. Finally, the compensation rate due to stake participation will be balanced.

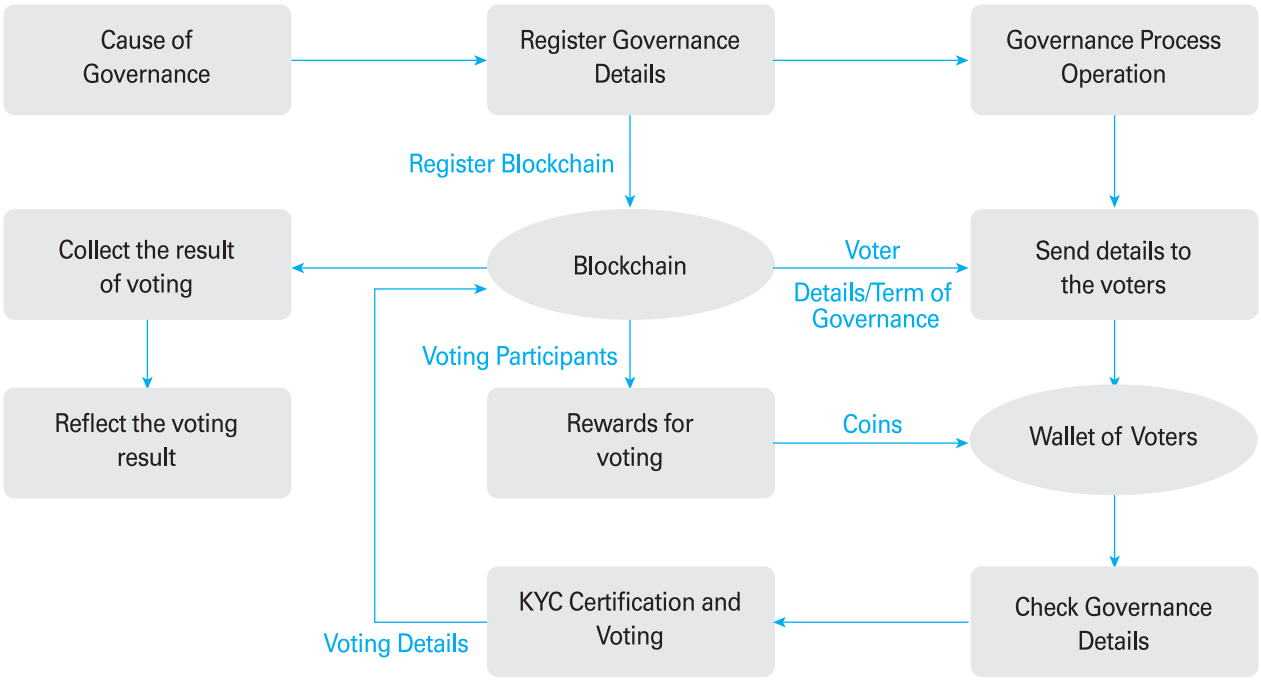
GOVERNANCE

In the case of a decentralized blockchain system, it is very difficult to change or update the system after the system is opened. If this goes wrong, blockchain separation by hard fork can happen just as in Bitcoin and Ethereum.

This separation occurs when there is no consensus among the members of the blockchain. GMB Platform will operate with a more transparent and democratic blockchain system by determining the future of GMB Platform and by incorporating opinions of blockchain participants through governance and reflecting such opinion to the system.



[Fig 10] Rewards for the Block Generation



[Fig 11] Overview of Governance

The policy or opinion on the blockchain occurs during the operation of the system. The system operation team informs the blockchain participants and collects their opinions through the governance.

Members of GMB Platform can also tell their opinions on the blockchain system. If there are more than two-thirds of the block generating nodes in an agendum, the agendum will be notified to all members through the governance and the agendum is determined by the opinions of the members through voting.

The governance history and voting results are recorded in the blockchain, and the disclosure of the voting results (who voted where) is determined according to the voting contents.

Since governance is based on fairness, it is necessary to equally assign the voting opportunity to all nodes. If the same person takes control of multiple nodes, it can be a duplicate vote. As a supplementary measure, only KYC certified voters can vote and only the certified votes are recognized as valid. Through this method, it is possible to check not only the transparency and fairness of the ballot, but also the soundness of the GMB Platform participants (illegal funds or money laundering).

Since participation in governance is an important task in determining the future of GMB Platform, the participants in the governance will be rewarded to encourage their participation. In particular, in the case of governance by KYC certification, higher rewards will be given comparing to general voting cases. In order to do this, compensation for the governance is separately defined and paid in addition to compensation based on the existing block generation.

OBJECTIVE SMART CONTRACT

The concept of 'Smart Contract' is a very important factor in increasing the usability and scalability of blockchain systems.

However, it was not the first time in blockchain or cryptocurrency that this smart contract concept was used. Smart contract was first proposed by Nick Szabo in 1994, which was long before the birth of Bitcoin.

Additionally, many people think that the first blockchain that uses smart contract is Ethereum, but smart contract has already been used in Bitcoin.

However, smart contract in Bitcoin had limited functions only because it was made by a simple script. When Ethereum made it possible to use Turing complete language to write smart contract, the functionality of the smart contract was greatly expanded and it became widely known to the public.

A smart contract is a computer program with a form of contract.

Therefore, computer programming is required to create such a contract.

Naturally, to create a complex smart contract or Dapp service through the smart contract, programming by a professional is necessary.

However, it is questionable if a simple contract, a predictable smart contract, or a popular smart contract would require a smart contract created by a professional programmer.

Up to now, the field of smart contract was the area of the professionals.

In other words, the general public without programming knowledge could not create a smart contract.

It was an irony that the general public cannot write a smart contract although the smart contract was known to the public through Ethereum's Turing complete language.

Therefore, we would like to provide a smart contract that the general public can easily create.

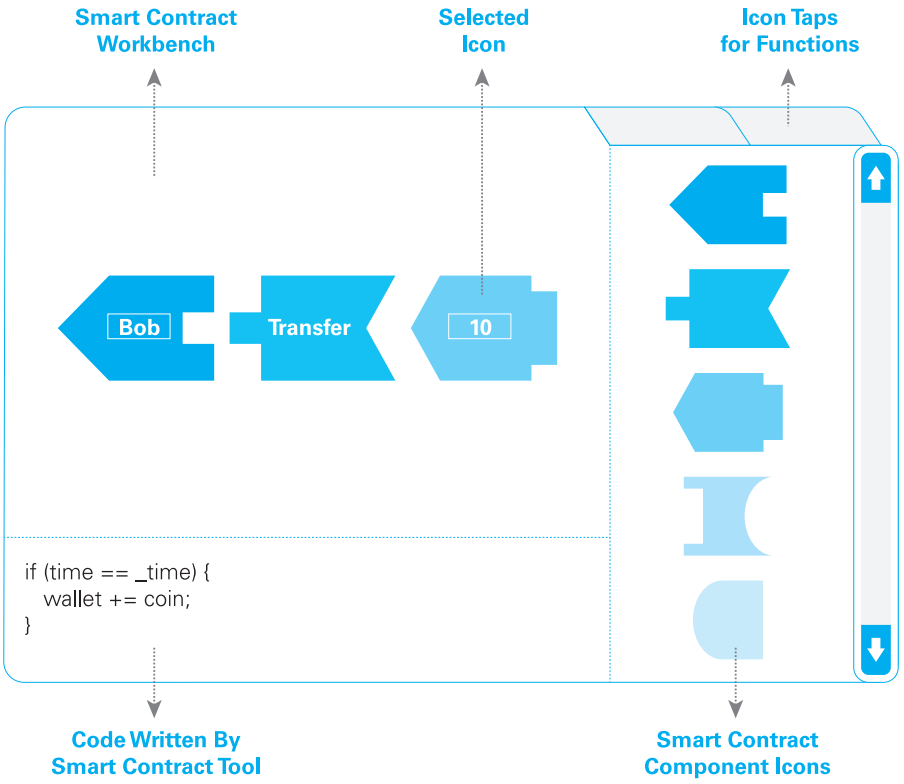
We will construct the Smart Contract System allowing the user, even without any programming knowledge at all, to complete a smart contract if they follow the fixed manual.

It is the same concept as you building a website with a web page construction program even though you have no knowledge of how to use Javascript, a web page writing language.

We decided to make a Smart Contract Programming Tool for the smart contract that anyone can easily write, the smart contract that can be used by the public, and the smart contract that can be performed without programming errors.

Through this tool, smart contract will come to real life from the area of professionals and can be used by ordinary people.

In the Smart Contract Programming Tool, necessary objects composing the contract are shown as icons.



[Fig 12] Objective Smart Contract Tool

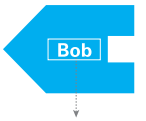
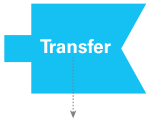
If you drag and drop these icons into the Smart Contract workbench, the program will be automatically completed.

We call this Objective Smart Contract.

In the Objective Smart Contract, the configuration icons needed to create smart contracts are done by selecting the necessary blocks and then connecting them.

If the icons are not connected, that means these icons cannot functionally be programmed together. Through this function, it can help prevent the user from making a wrong smart contract by mistake.

The icons of the Objective Smart Contract can be divided into Input Icons and Function Icons. Input icons are input variables, which fix the running value or running conditional values of the smart contract. Function icons play the role of modules for the function in which the smart contract is performed.

Content	Input Icon	Function Icon
Type	 Input Value (Variable)	 Function of Icon
Function	Sender	Performing Transfer

Now, let's see how an Objective Smart Contract can be created through these examples.

First, you need to define the contents of the smart contract that you want to perform.

"Bob will transfer 10 coins to Alice at 2018-12-31, 23:59:59"

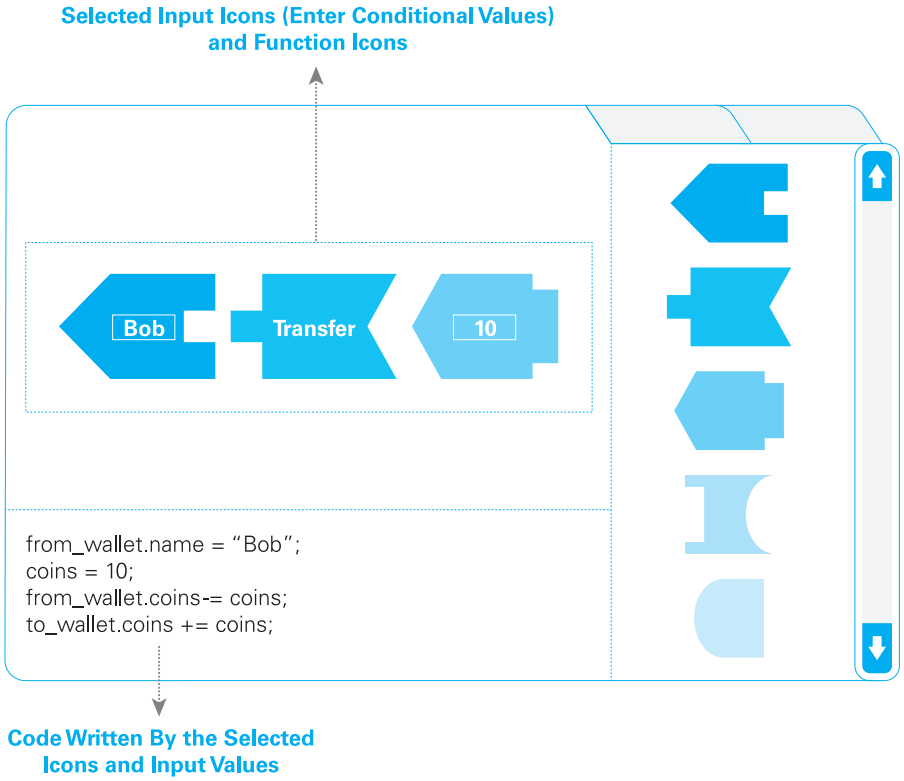
The aforementioned statement shows 'Bob' transfers 10 coins to 'Alice'. In banking, it is similar to that of an automatic transfer performed on a certain date.

To summarize the contents;

Function : Coin Transfer
Sender : Bob
Receiver : Alice
Amount to be Transferred : 10 coins
Sending Time : 2018-12-31, 23:59:59

Then select the icons matching with the summarized contents. Relocate them to the smart contract workbench and then combine them. Enter the values in the Input Icon to fix the conditional values.

In this process, a smart contract code is automatically completed.



[Fig 13] Use of Objective Smart Contract

When applying all the contents of the previously mentioned smart contract, the following objective smart contract is made.

(Note. The example is created to help the understanding of the viewers and when it is actually implemented as an Objective Smart Contract, it may appear different. In other examples, some of them can be changed or deleted at the actual implementation.)


```
// Save Input Values
from_wallet.name = "Bob";  // Actual Wallet Address
to_wallet.name = "Alice";   // Actual Wallet Address
coins = 10;
_time = "2018-12-31 23:59:59";

// Configure Comparison Values
timeFormat = new SimpleDateFormat(
                    "yyyy-MM-dd HH:mm:ss");
time = timeFormat.parse(_time);
today = new Date();

// Configure Smart Contract
if (time == today) {
    from_wallet.coins-= coins;
    to_wallet.coins += coins;
}
```

[Fig 14] Example of Obective Smart Contract

The probability of the completed smart contract including any error codes is very low, as it was created by the connection of icons. However, it is necessary to test if the smart contract performs the function that you intend to perform.

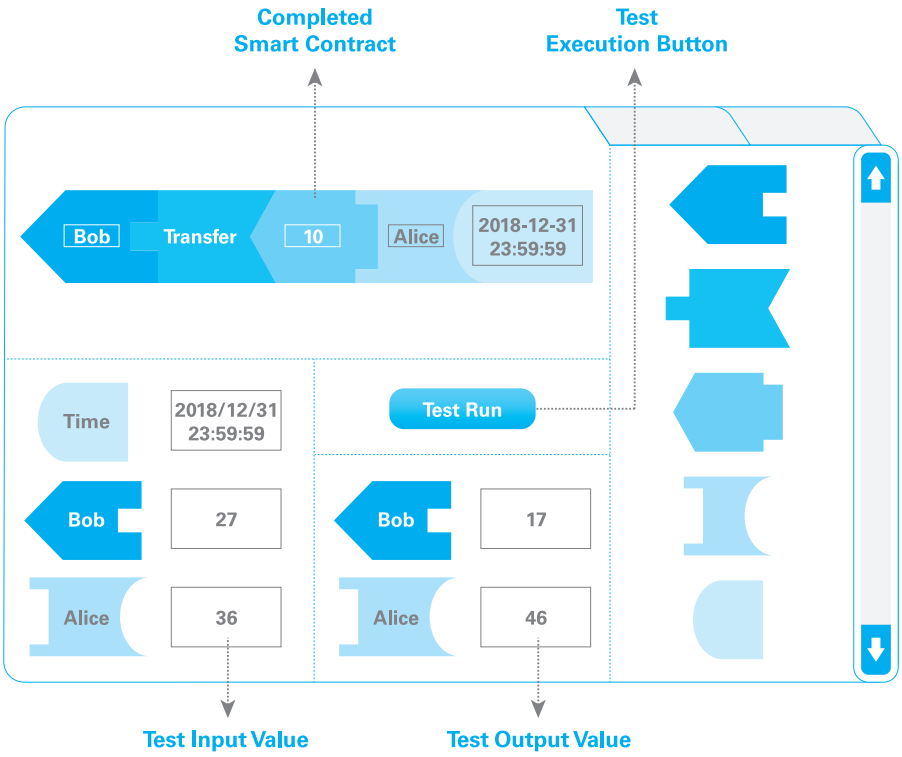
For this, we will provide a test tool in this Objective Smart Contract.

It is a tool to check whether the desired result value comes out by putting an arbitrary input value into the created smart contract and executing it in advance.

After loading the pre-created Objective Smart Contract, enter the value for the test and then press the 'Run' button. You can verify if the smart contract is running according to the pre-fixed conditions and if it returns the output result accordingly.

In the previously mentioned smart contract, the test condition input values are 'number of coins' that 'Bob' and 'Alice' have and 'time' when the smart contract runs.

(In this smart contract test, the other conditions cannot be entered as test conditions.)



[Fig 15] Obective Smart Contract Test Tool

You can check the test result by checking the 'coin value' of 'Bob' and 'Alice' after performing the test.

(In the test, if you enter a different time value other than '2018-12-31 23:59:59' in the smart contract performance time, it is normal to not have any changes to the 'coin value' of 'Bob' and 'Alice'.)

The Objective Smart Contract mentioned here is a unidirectional smart contract.
However, many smart contracts need to process more than two branches.

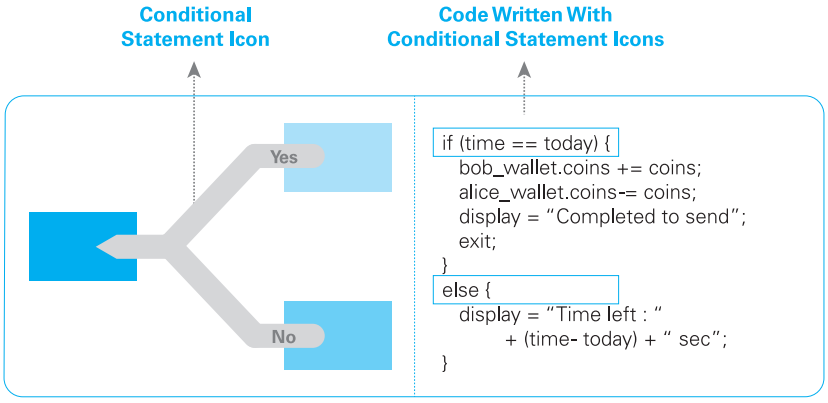
In the previous example, there was an order to perform at the given fixed time but there were no other orders to be followed for any other time.

To solve this problem, we will support branch processing in the Objective Smart Contract.

For this, we included the conditional statement icon for the branch processing function in the Objective Smart Contract.
This allows many different smart contracts to be performed according to the conditional values.

By connecting the condition statement icons, you are able to write different orders that should be performed in different conditions. When the reference condition is satisfied, one or the other smart contract is performed.

If you create a smart contract that is divided according to the execution time among the examples given above, you can write it in the following form.



[Fig 16] Example of Conditional Statement

The smart contract shown above is created using the conditional statement icon. With this smart contract, the coin will be sent at the fixed time. Otherwise, it will display the remaining time until the transfer is completed.

When implementing a smart contract, there will be a situation where there are more than two conditions for branching.

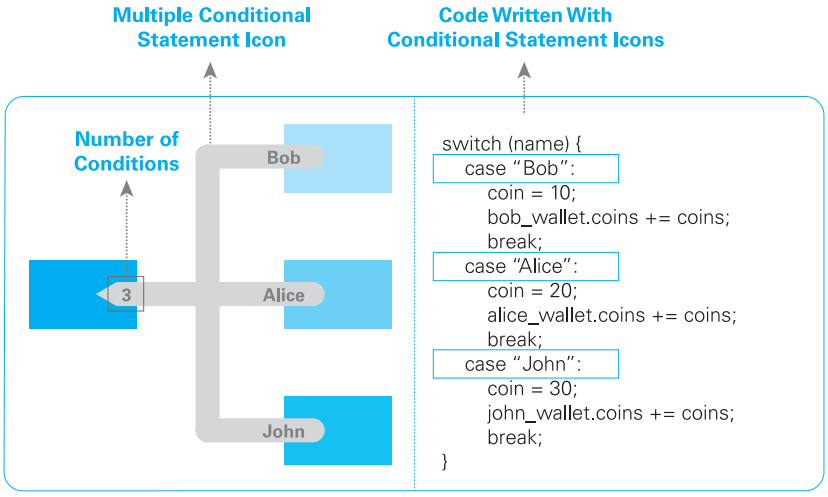
In many cases, they need to be performed by branching into two or more conditions.

Therefore, it needs to be able to include the necessary amount of conditions.

If employees get their salaries in coins, the smart contract should be able to perform many branches because the salaries of the employees are different from one another.

Therefore, the Objective Smart Contract supports the multiple conditional statement icons.

In the case of multiple conditional statements icons, it processes the conditions according to 'Yes' or 'No' but also makes the smart contract matching the branching condition perform.



[Fig 17] Example of Multiple Conditional Statement

Additionally, it allows you to adjust the number of conditions so that you can create the smart contract for the arbitrary number of conditions.

Objective Smart Contract is a tool, which allows general users to create a smart contract.

However, there can be users who think that it is difficult to use.

Furthermore, it may be bothersome to make a new smart contract when they always have the same jobs.

It is very inefficient to make separate smart contracts if many people use the same contract for the same purpose.

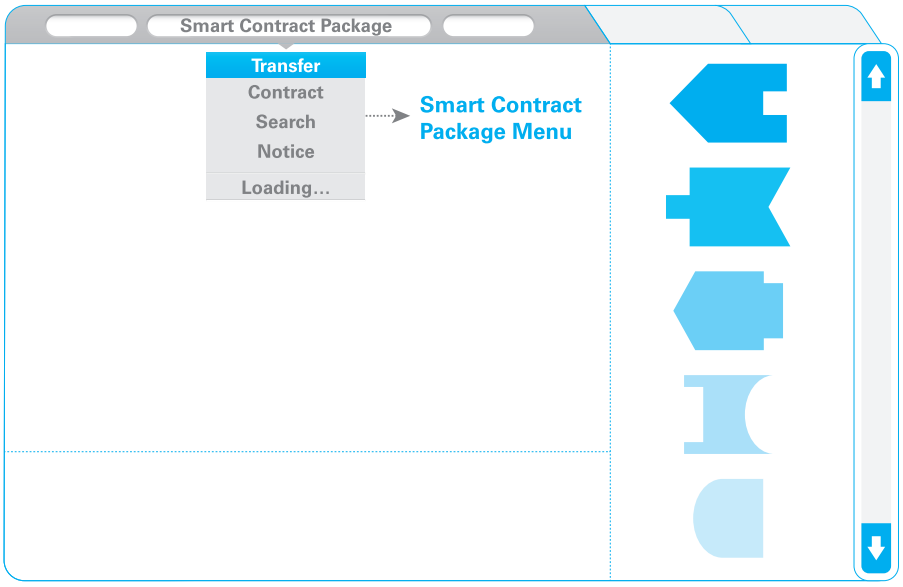
Objective Smart Contract provides a Smart Contract Package that is simple to use in such cases.

The smart contract package is to enable users to use the smart contract by selecting a smart contract provided in the package tool and entering the conditions without selecting and combining icons to write a smart contract.

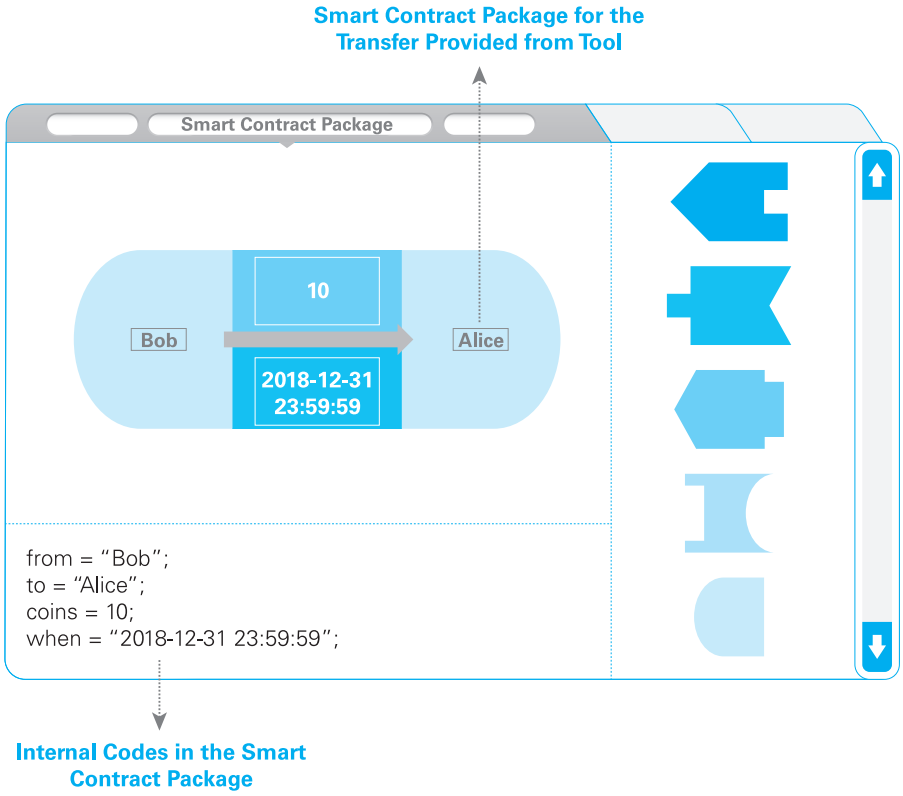
The smart contract for the transfer in the above example had simple descriptions. But even with a simple description, there were some inconvenient processes selecting icons, combining them and testing it if it would work.

In this case, users can select Transfer related package among the smart contract packages provided by the tool or use the same smart contract that they wrote and performed before.

The packages provided in the smart contract package tool are already verified and the smart contract that the user created and used was also verified in the first procedure. Therefore, there is no need to test the smart contract again. Since the smart contracts that are already verified can be performed right away without additional verification, the user can perform the smart contract more easily and quickly.



[Fig 18] Smart Contract Package Menu



[Fig 19] Example of Smart Contract Package

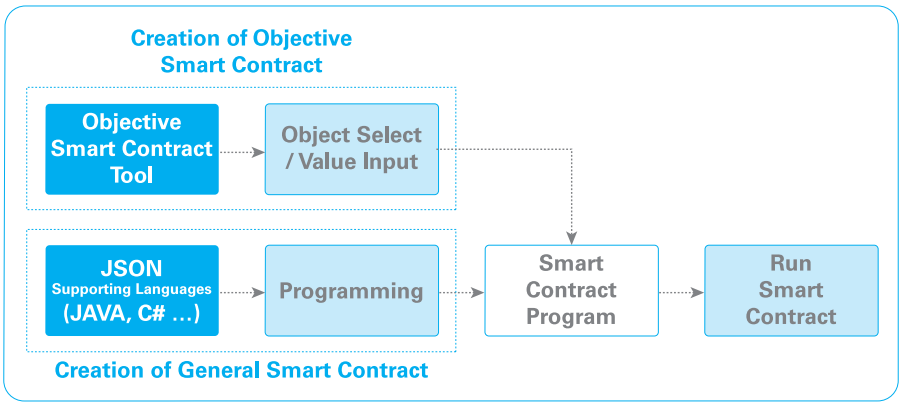
GMB Platform does not only support Objective Smart Contract.

Objective Smart Contract is designed to allow anyone to quickly and easily create and execute smart contracts without errors, but if more complex and more detailed tasks are required, we may need smart contracts written by professional programmers.

For this, GMB Platform supports smart contracts written in general programming languages.

Data used in GMB Platform shall follow the JSON format, so that the smart contracts written by the languages supporting it, such as JAVA and C#, can be performed in the GMB Platform.

In other words, easy and simple smart contracts that general users can use in everyday life can be written with Objective Smart Contracts and more complex and professional smart contracts can be performed by general smart contracts.



[Fig 20] Creation Process of Smart Contract

Through this, GMB Platform aims to enhance the GMB ecosystem by providing both the accessibility of making it easy for anyone to create smart contracts and access blockchain systems and the original functionality of the smart contract that enables more diverse functions to be performed.

05 Issuance and Distribution of GMB Coin (GMB)

COIN ISSUANCE

GMB Coin is issued (mined) as blocks are generated in GMB.

The unit of GMB Coin is indicated as GMB and the period of issuance (mining) will last for 100 years.

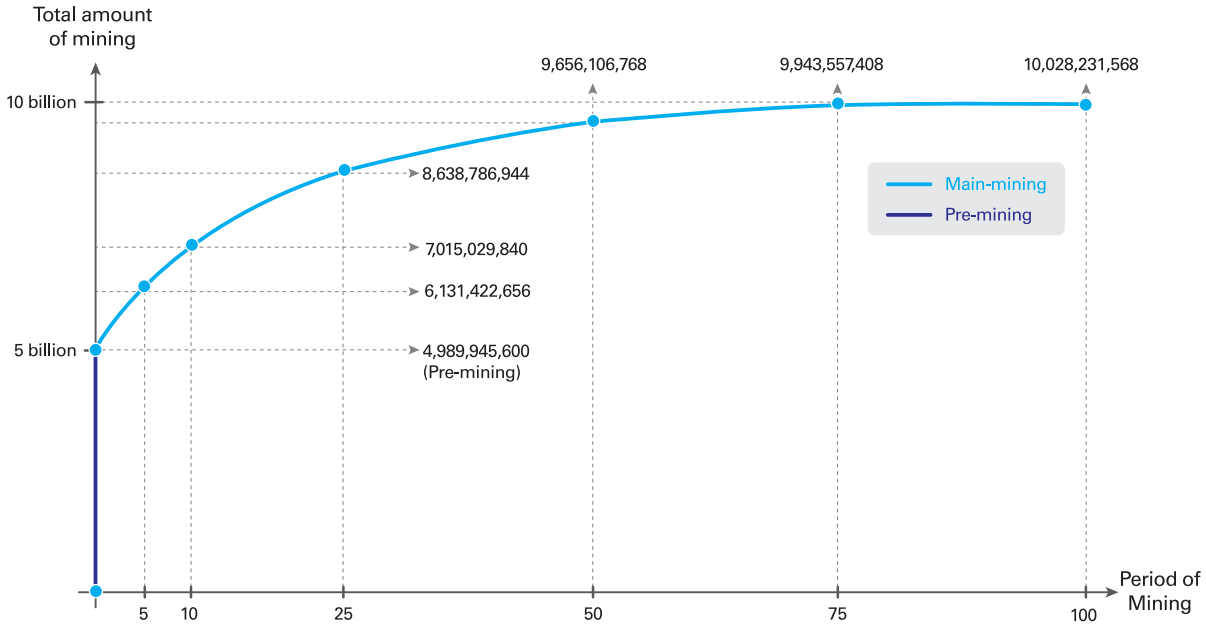
GMB Coin has a total issuance of 10 billion, of which 5 billion will be mined for the ICO process and the remaining 5 billion will be mined during the operation of GMB.

Both pre-mining for ICO and main-mining for GMB Platform operation have a half-life period of decreasing the amount per block according to the ratio.

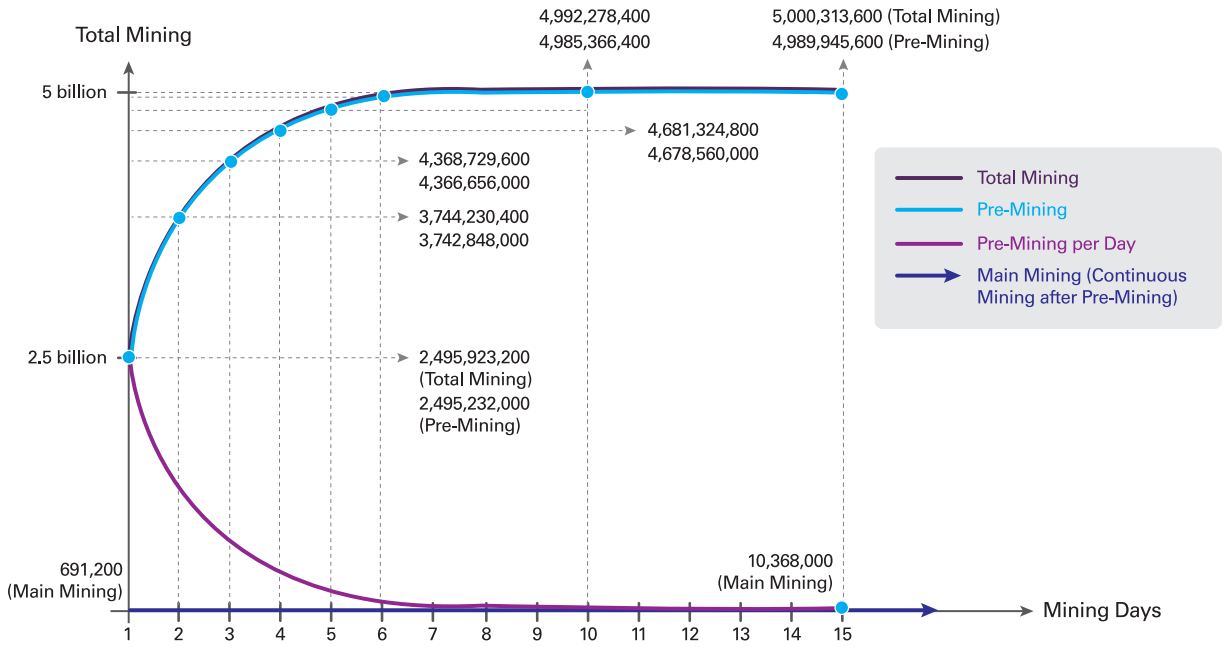
The pre-mining and main-mining are performed in parallel for a certain period of time after the first block is generated. Pre-mining will be valid only for 15 days because of the applied half-life period and only the main-mining is performed after the 15 days. The coin issuance per block in GMB is determined by calculating the coin issuance amount per second by the half-life period and then the coin issuance per second and the time at which the block was generated (time difference since previous block) are calculated to determine the final issuance amount.

For example, if the block generation time of the initial GMB is 5 seconds and the specified coin issuance per second is 8 coins, then 40 coins are issued (8 Coin / second * 5 seconds) when a block is generated. If the block generation time is 2 seconds, 16 coins will be issued according to the equation (8 Coins / second * 2 seconds).

Therefore, the amount of coins issued within the same period is always the same in the GMB Platform and even if the system is optimized and the block generation time is accelerated, the total issuance



[Fig 21] GMB Coin Total Issuance: (Pre-mining + Main-mining)



[Fig 22] Current Status of Mining During the Pre-mining Period

period and the issuance amount of the coins determined at the beginning remains the same.

ICO COIN DISTRIBUTION: PRE-MINING

The ICO coin distribution is processed with the sum of pre-mining and main-mining coins mined during the pre-mining period of 15 days. The exact amount of coin that can be obtained from mining is 4,989,945,600 Coins.

Because the pre-mining takes place in a short period of time, the amount of coin first mined is large. After that, the reduction rate for a certain period is increased so the pre-mining coin is mined only for a certain period of time.

In the case of pre-mining, the initial mined amount per second is 28,880 coins.

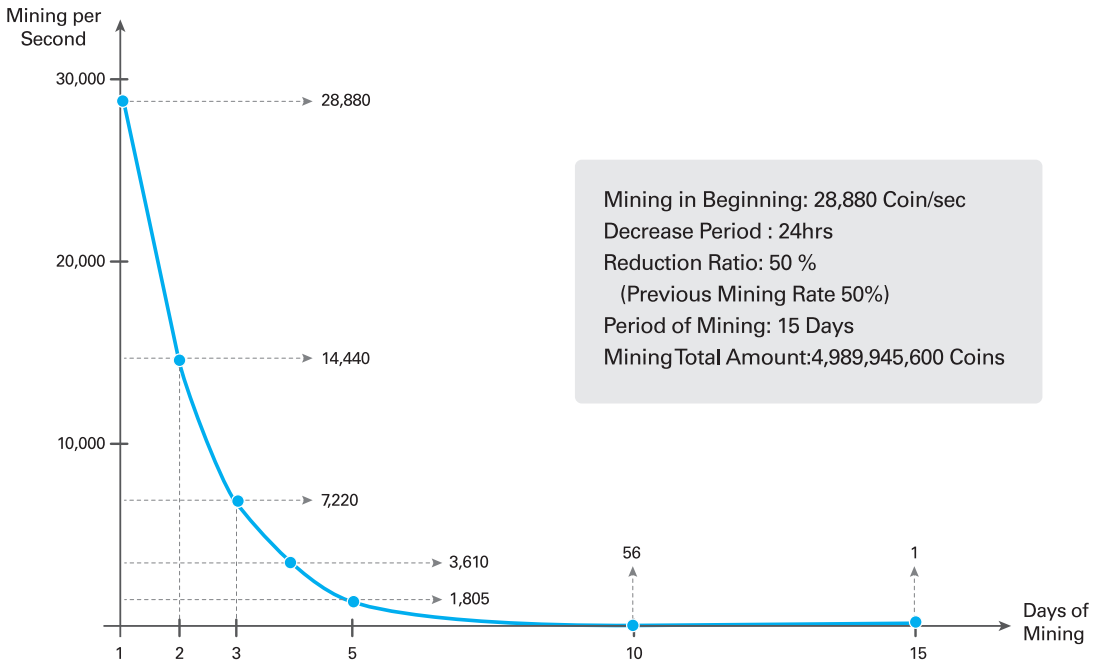
This initial mined amount is mined for 24 hours and then the mined amount is reduced by 50% (from the 24 hrs) as the decreasing rate. The pre-mining repeats this process for 15 days, after which the amount of mining converges to zero.

The daily calculation of pre-mining per second is as follows.

$$B_1 = trunc(\mathrm{P}_0 \times R_1^d) \times t$$

$$P_T = (\mathrm{P}_0 \times t \times C_1) + \sum_{d=1} (trunc(P_0 \times R_1^d) \times t \times C_1)$$

B_1	Mined Coin/Block (Pre-Mining)
P_0	Init. Coin Amoung/Sec (Pre-Mining)
P_T	Total Coin Amount (Pre-Mining)
d	Days of Mining
R_1	Decrease Rate (Previous Mining 50%) = 1/2
t	Time of Block Generation (Sec)
$trunc$	Round Down
C_1	Block Generation/Day (86400/t)



[Fig 23] Change in Total Amount of Mining During Pre-Mining

The ICO token distribution is performed with the 5 billion coins allocated to the pre-mining period. Of the five billion coins, 16%, or 800 million coins, are distributed to Founder, Team & Advisors, 8%, or 400 million coins, to the Strategy Partners, 12%, or 600 million coins to Reserve, and 40% or 2 billion coins to Reserve for Branch.

GMB MINING REWARDS: MAIN-MINING

In the GMB Platform, 5 billion coins will be mined during the operation of the system for the next 100 years.

This coin is mined as blocks are generated by POPS, the consensus algorithm of GMB Platform. The amount of mined coins is determined by the half-life period of the year.

In the case of main-mining, the initial mined amount per second is 8 Coins, decreased period is 1 year, and decreased rate is 5% (previous year's mined amount of 95%).

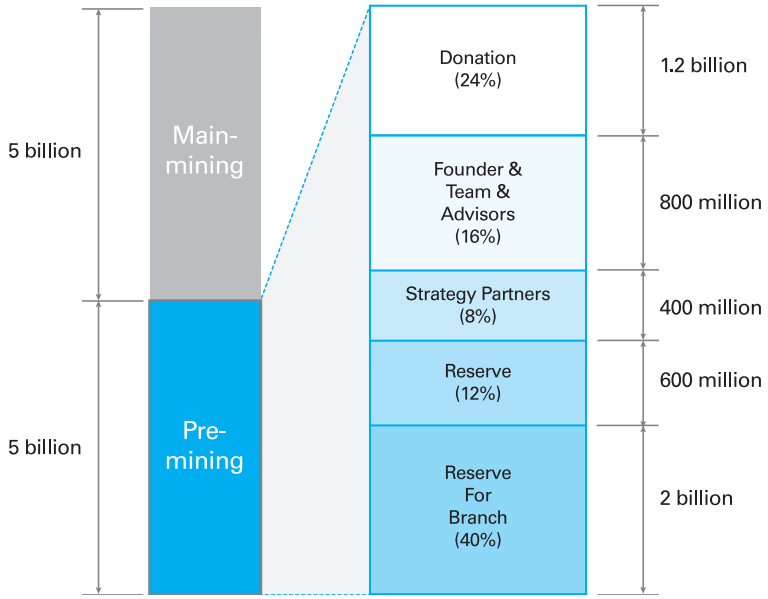
The daily calculation of main-mining per second is as follows.

$$B_2 = ceil(M_0 \times R_2^y) \times t$$

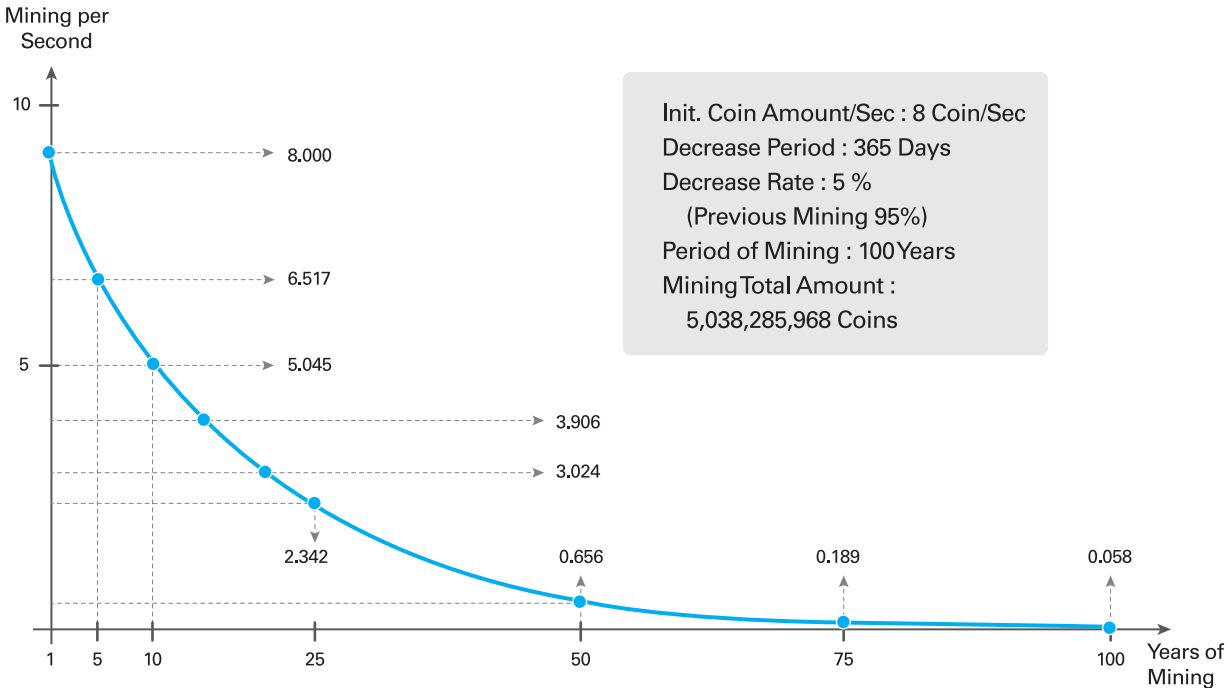
$$M_T = (M_0 \times t \times C_2) + \sum_{y=1} (ceil(M_0 \times R_2^y) \times t \times C_2)$$

B_2	Mined Coin/Block (Main Mining)
M_0	Init. Coin Amount/Sec (Main Mining)
M_T	Total Coin Amount (Main Mining)
y	Years of Mining
R_2	Decrease Rate (Previous Mining 95%) = 95/100
t	Time of Block Generation (Sec)
$ceil$	Round Up to 4 Decimal Places
C_2	Block Generation/Year (86400 x 365/t)

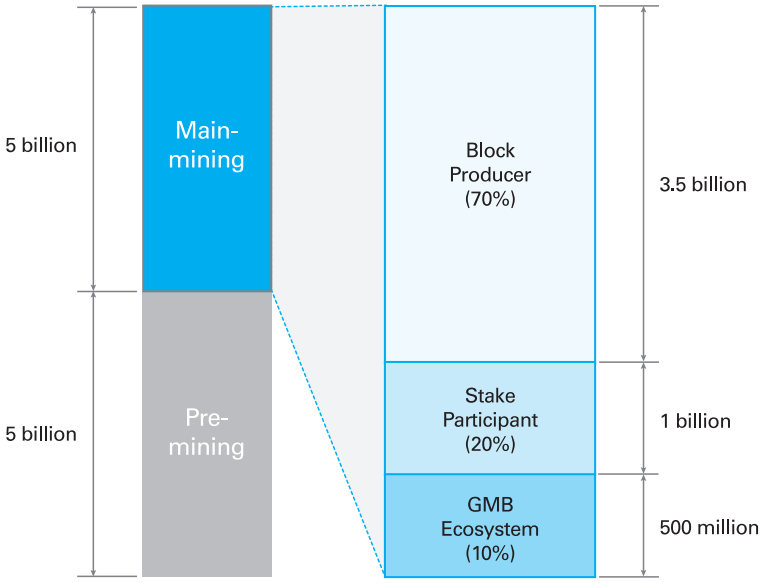
These mined coins are used as rewards for the block generator and the GMB stake participants, and the rest are reserved for the operation fund for the future of GMB.



[Fig 24] ICO Token Distribution



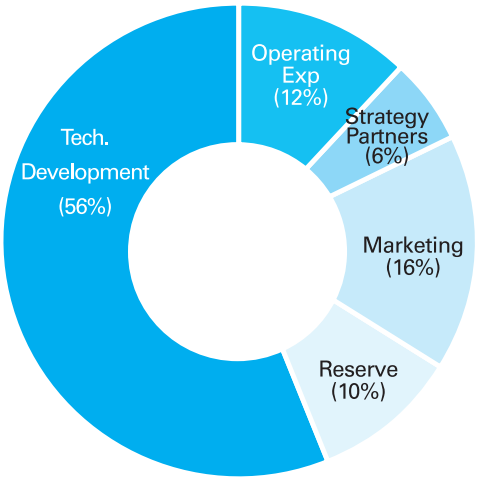
[Fig 25] Change in Total Amount of Mining During Main Mining



[Fig 26] GMB Main-mining Rewards

USAGE OF DONATIONS

Donations raised for the development of GMB will be used to further develop the technology of our blockchain and provide better equipment and recruit more staff. We will use the donations to provide benefits and a better service to our users. The donations will only go into the development of technology and the business service, and the operation of our system. We will also use it for marketing purposes in order to attract more users and keep the remaining in the reserve funds.



[Fig 27] Use of Funds

06 Dual-Cryptocurrency System (Master & Branch Coin)

The final goal of GMB Platform is to create the GMB ecosystem. The GMB ecosystem means that GMB Coin is used as common currency in real life.

This is not solved simply by technical problems. Social understanding of new cryptocurrency concepts that GMB Coin has is needed. For this purpose, we intend to establish a new concept of cryptocurrency that GMB Coin is envisioning.

In the GMB ecosystem, GMB Coin will overcome the problems of preexisting cryptocurrency and then will be used like regular currency. Furthermore, GMB Coin will solve even the inconveniences (exchange location, time, fee, etc.) of regular currency.

In order for cryptocurrency to be used like a regular currency, it depends on resolving the volatility of the radical value. Since currency is the standard of value exchange, it must have certain value. However, cryptocurrency that does not have certain value, in truth cannot be a standard of value exchange for transactions.

However, if we remove the volatility of the value like the Tether (USDT), then the saving function of the asset value for the existing cryptocurrency disappears as well. To solve this value variability, GMB Coin introduced the concept of the Dual-Cryptocurrency system (Master & Branch Coin).

Master & Branch Coin allows not only the function of value assets, but also the flow of money and the monetary system to be used in the real economy and exist together.

The newly created Branch Coin will keep constant value, unlike the existing cryptocurrencies that have value variability. For this purpose, Branch Coin is not made as only one kind, but as currency unit used by each country. It is made in proportion to the actual currency used in the individual country (depends on the size of the country's economy).

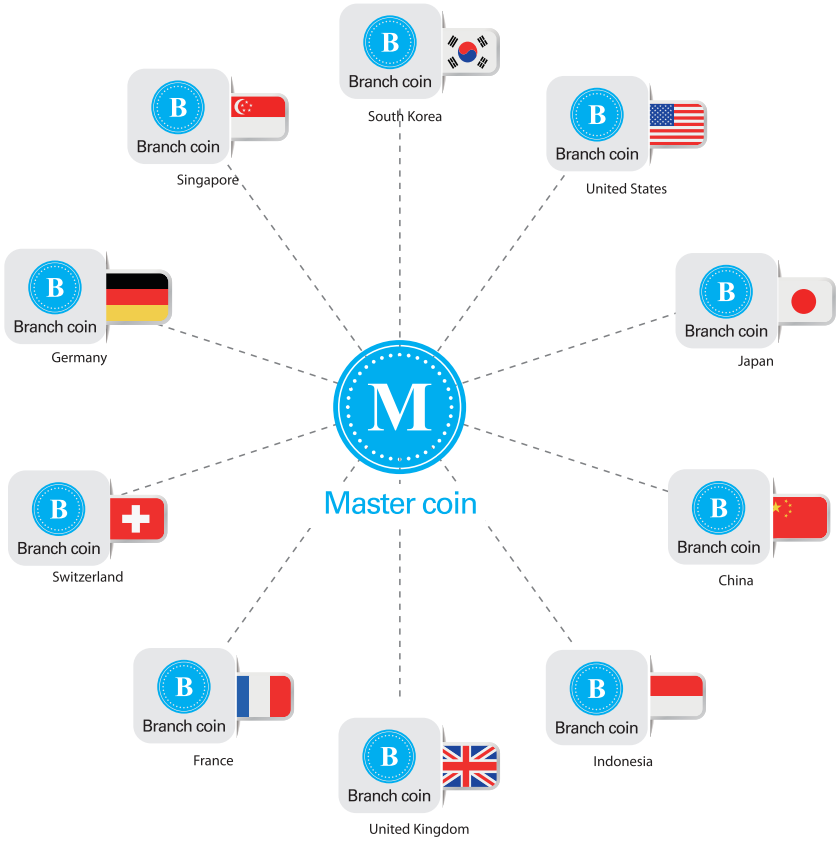
Branch Coin of any affiliated country can basically be exchanged with Master Coin through GMB DEX.

Branch Coin can be converted to another Branch Coin that has already been exchanged, as well as to Master Coin. Users can also exchange money in their own country's currency.

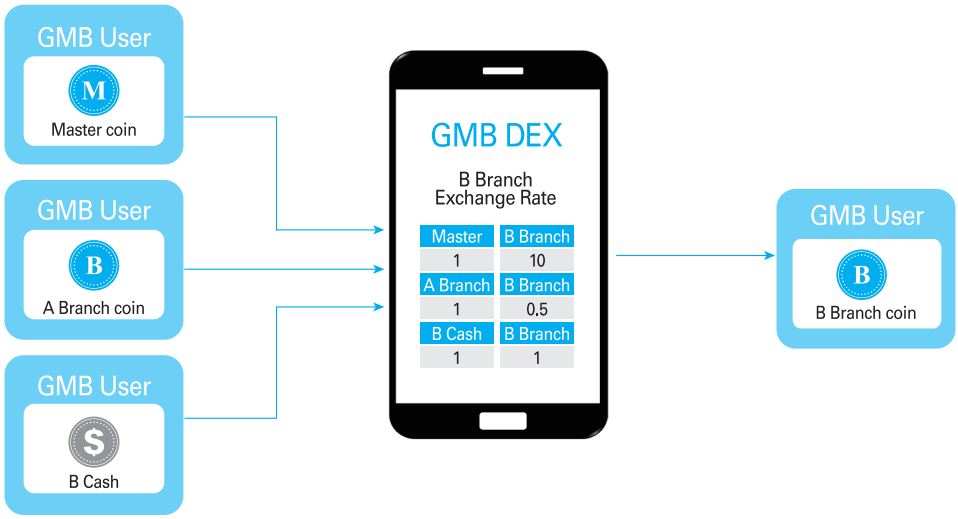
GMB DEX issues a Branch Coin based on the Master Coin and other Branch Coins and currency of the corresponding country. During this time, the exchange rate is converted by the current exchange rate managed in DEX at real time.

Branch Coin should be added step by step by factoring in the service usage record and infrastructure configuration of each country.

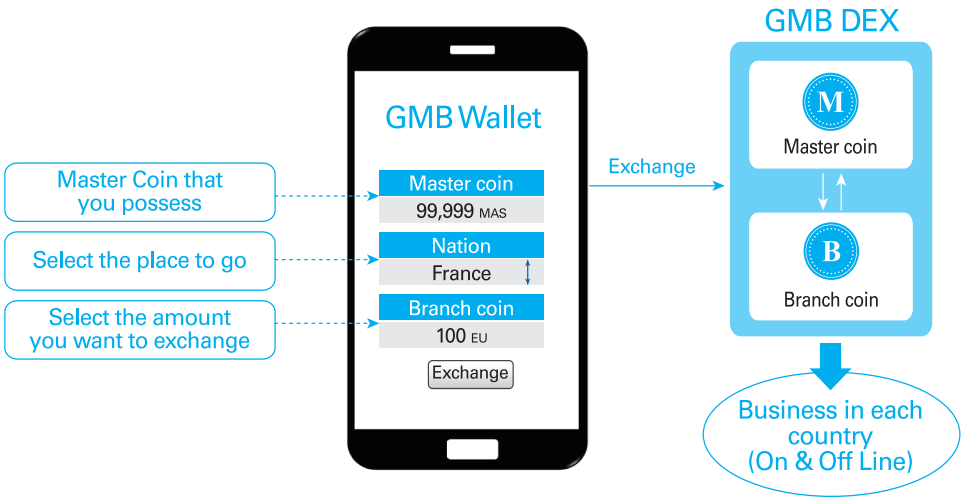
Master Coin has the same characteristics as the existing cryptocurrency and is used as the base currency of the Branch coin. It is mined by block generation through a consensus algorithm and it is distributed according to the compensation standard set in the system. Master Coin, which has the meaning of asset value's storage, is traded on the existing cryptocurrency exchange.



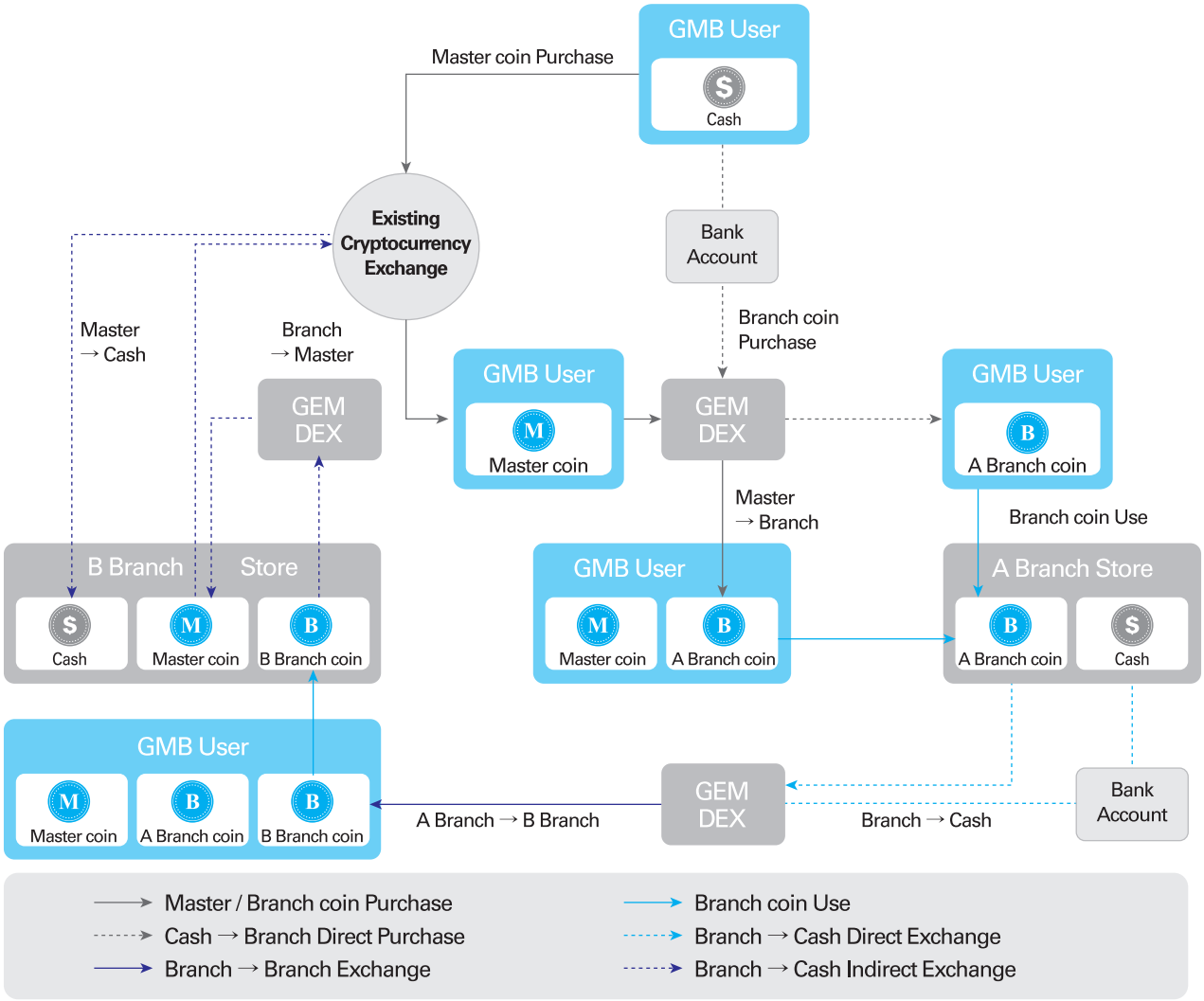
[Fig 28] Exchange from Master Coin to each Nation's Branch Coin



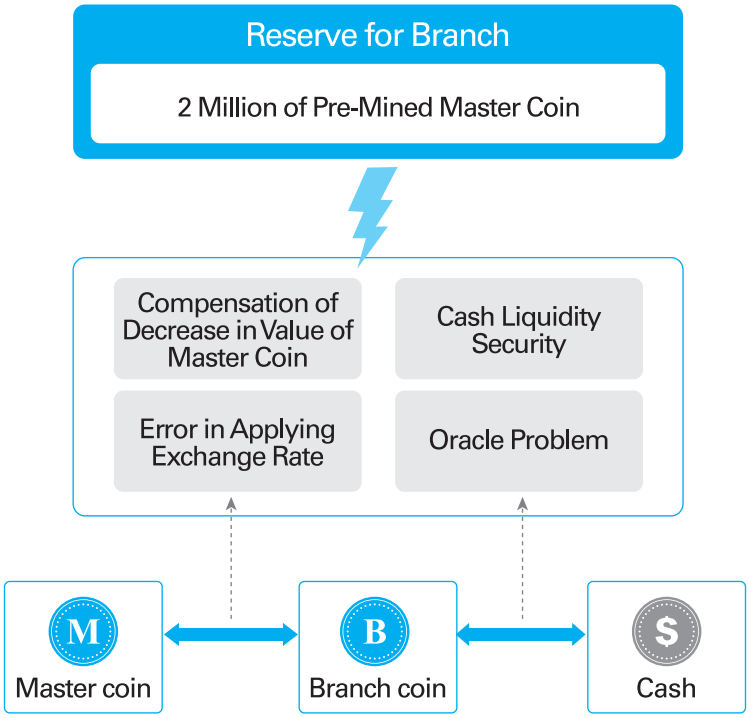
[Fig 29] Branch Coin Exchange Using GMB DEX



[Fig 30] Easy Exchange Using GMB DEX



[Fig 31] Flow Diagram for Currency in GMB's Ecosystem



[Fig 32] Problem and Solution to GMB's Ecosystem

There are two types of money flows in the GMB ecosystem: Master Coin and Branch Coin.

These two are complementary. For smooth exchange of these two currencies, we develop GMB DEX, which can be used easily, quickly, and conveniently.

Since the cryptocurrency ecosystem is made by combining online and offline, unexpected situations can occur at any time.

GMB Platform secures the Reserve for Branch with 2 billion pre-mined Master Coins to solve this problem and it maintains smooth operation of the GMB ecosystem by encashing or depositing the Reserve for Branch.

The dual-cryptocurrency system (Master & Branch Coin) that GMB Platform is trying to implement is our starting point and ultimate goal of applying cryptocurrency to real life.

07 Travel Industry

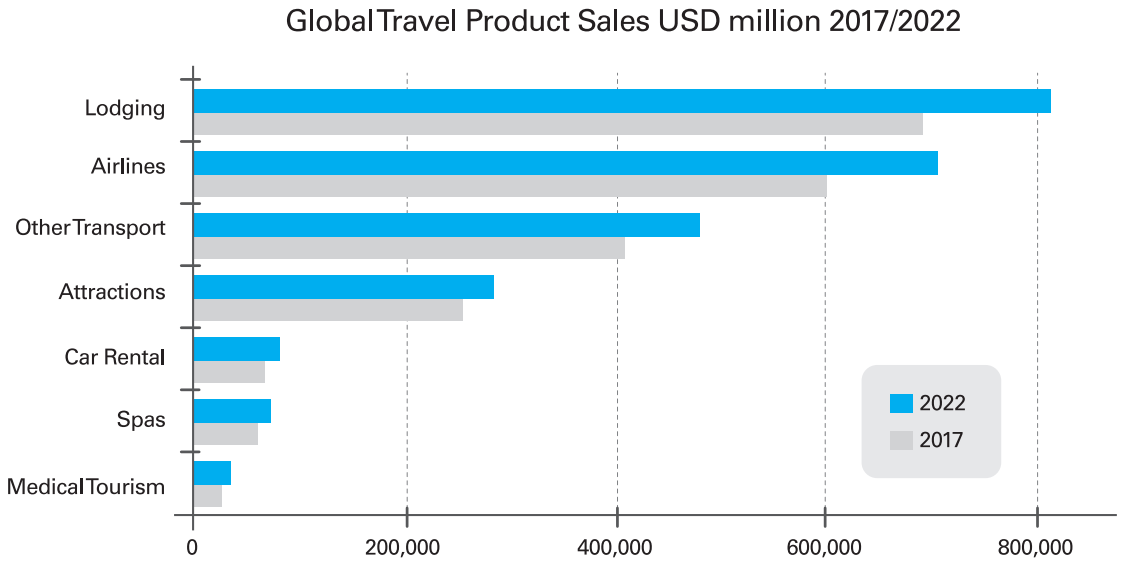
According to UNWTO, in 2017, the number of international tourists increased by 7% and reached 1,322 million in total. According to data reported by tourist destinations around the world, it is estimated that worldwide travelers (overnight visitors) increased by 7% in 2017. Since 2010, it has continuously grown more than 4%, showing the largest growth in seven years.

Europe, especially in the Mediterranean region, has grown by 8% in the international tourist division, even though it is already mature area in the tourism industry. Africa saw a rebound of 8% and solidified its record of 2016. Other areas such as Asia-Pacific regions grew by 6%, the Middle East by 5%, and the United States by 3%.

This strong growth has been steadily expanding for eight years since the economic and financial crisis of 2009, and is continuing to grow steadily thereafter. UNWTO estimates that the number of international tourists worldwide in 2018 will continue to grow by 4 to 5%.

As such, Travel Industry is showing a steady growth trend with the times and economic conditions. It is forecasted that the travel market will be expanded more with the trend to enjoy hobbies that can enhance the quality of life, the appearance of Yolo who pursues happiness, the increase in spending on cultural consumption activities, and the increased travels of the silver generation due to the retirement of Baby Boomers. Travel industry including travel agencies is expected to boost profitability by expanding their growth base with rising overseas travel demand.

With this trend, we plan to start GMB service with "Travel," which is most used by people worldwide. We will build the GMB ecosystem by creating a new practical cryptocurrency paradigm that is the most convenient and safe to use.



[Fig 33] Expansion of Travel Industry

08 Introduction to TravelSpace(Dapp)

TravelSpace(Dapp) is a Decentralized Travel Application Service that GMB Platform is realizing.

GMB Platform will provide travel information to foreign travelers through TravelSpace(Dapp), which will enable them to enjoy the trip more.

It will enable to share more travel information by encouraging people to register their travel experience by the means of compensation. In addition, we will provide unique services of GMB specialized in the field of travel.

DECENTRALIZED TRAVEL SERVICE

TravelSpace(Dapp) wants to compose an environment to have a safe and convenient trip all over the world by providing and sharing quality contents related to travel by creating a travel specialized community.

A SERVICE FOR INCOME-GENERATING TRAVEL RATHER THAN EXPENSE-GENERATING TRAVEL

We applied a change in the concept of travel from 'consuming' to 'earning'. We have constructed a system where users can register various travel records such as trips, photos, pictures, cartoons, and news and get rewards from the contents that they registered.

The content of a traveler, who has already visited a specific place, is of value in itself because it provides very useful information to others who want to travel to that area.

Therefore, these contents should be rewarded through evaluation, and through this compensation system, better and more contents can be registered. Consequently, more and better travel information can be shared through the service.

This content sharing is not just about income generating, but also is a different kind of fun such as leaving their own travel records.

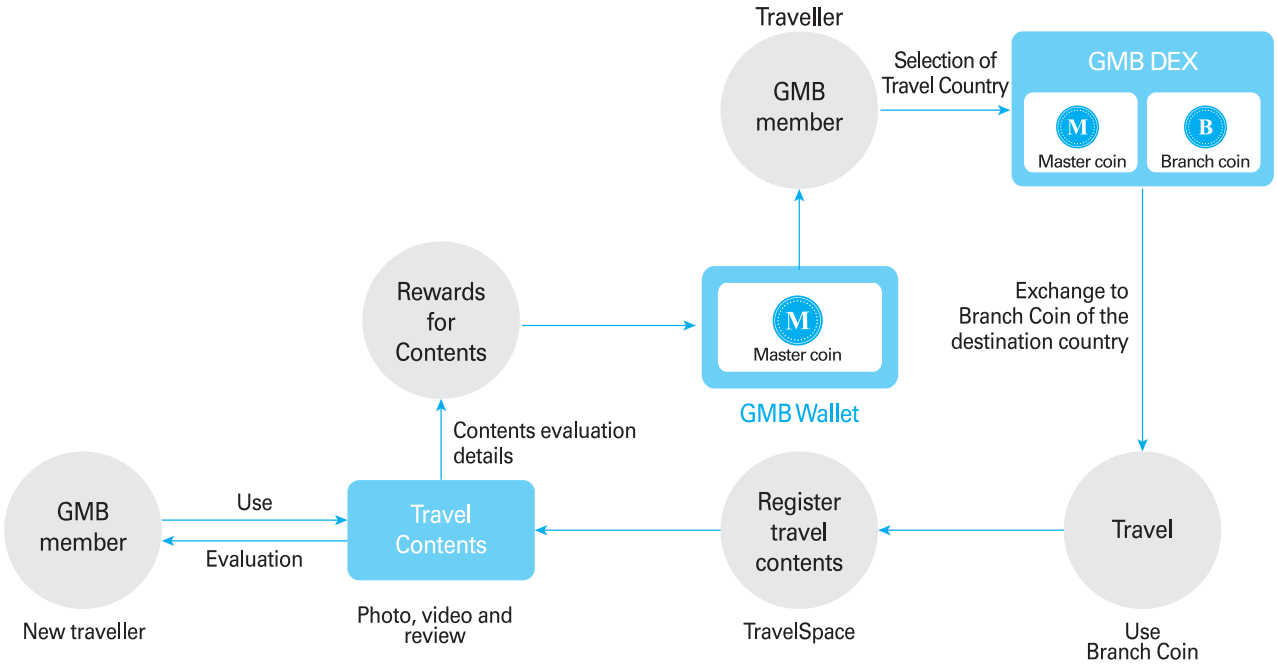
EASY AND FAST CURRENCY EXCHANGE

It is easy and quick to exchange currency without brokerage of banks or foreign currency exchange stores using the Master Coin and Branch Coin through GMB DEX. You can exchange immediately through GMB DEX, when necessary.

Branch Coin of the destination country can be used immediately just like their fiat currency. Additionally, you don't need to worry about the loss of credit card or the risk of using cash during travel.

ACCOMMODATION SHARING SYSTEM

It provides an accommodation system that allows the traveler to use the residence space of local people. Using the residence space of the locals in the trip has advantages in the cost perspective as well as in experience in local culture directly. However, uncomfortable and dangerous accommodations in a trip is a sensitive issue that may ruin a pleasant experience of travel.



[Fig 34] Sharing Travel Information through Travel Space

TravelSpace(Dapp) provides a comfortable and secure space for travelers through the accommodation sharing system.

1. Sharing verified information through review of the people who have really experienced the place
2. Securing safety and privacy through KYC service connected to GMB blockchain
3. Providing the service at the lowest cost
4. Restrict low quality information or incorrect information by giving penalties

LOCATION BASED SYSTEM APPLIED GMB MAP

You can build your own package based on various information on the specific place that GMB users have updated.

It allows us to share not only well-known tourist attractions in the area, but also some of the best-known hidden attractions and to pioneer the GMB MAP.

This pioneered place will be made known to more people through the rewards system so that travelers can have a richer travel experience.

SIMPLE AND CONVENIENT

TravelSpace(Dapp) is designed to be simpler and convenient to use because its primary purpose is to give more fun and excitement to travelers.

TravelSpace(Dapp) is a guide and friend with which you are taking the trip together and furthermore it shall be the travel itself.

09 Roadmap

2017. 3Q

- Planning of High Speed Distributed Processing Cryptocurrency
- Data Structure Research for High Speed Distributed Processing

2017. 4Q

- Hardware Specification Research for High Speed Distributed Processing

2018. 1Q

- Establishment of High Availability Consensus Algorithm Technology
- Establishment of Distributed Storage Synchronization Technology

2018. 2Q

- GMB (Master Coin) Private Sale

2018. 3Q

- Business Cooperation with 18 Domestic and Overseas Travel Agencies Into GMB Platform Service
- Establishment of TravelSpace(Dapp) Business Policy
- GMB (Master Coin) Pre-Sale
- Development of Wallet, Toolchain

2018. 4Q

- Development of of TravelSpace(Dapp) UI/UX
- GMB (Master Coin) Crowd Sale
- Test Net Release
- Main Net 1st Release: Start of Block Generation
- Listing of GMB (Master Coin) on Exchange

2019. 1Q

- Block Explorer, Open Wallet
- Main Net 2nd Release (Coin Swap), Branch Coin/GMB DEX Development
- Main Platform Launch
- TravelSpace(Dapp) 0.5 Beta Release
- TravelSpace(Dapp) API Release
- Public Reveal of Main Net Open Source
- TravelSpace(Dapp) 1.0 Release

2019. 2Q

- Establishment of Additional Business Development Policy
- TravelSpace(Dapp) 1.5 Release

2019. 3Q

- TravelSpace(Dapp) 2.0 Release

2019. 4Q

- Establishment of Platform Development Plan
- TravelSpace(Dapp) 3.0 Release

10 GMB Team

Jefferson Kim
Co-Founder/CEO

Samuel Karamanis
Co-Founder/CCO

Jong Han Lee
Co-Founder

Seong Kee Kim
CTO

Kay Cheong
CSO

Danny Jeong
COO

Indi Yoon
Strategic Planning Director

Byeong Doo Jeong
Blockchain Development

Jong Man Yang
Blockchain Development

Jeong Min Lee
Blockchain Development

Lucy Mun
Financial Officer

John Lee
Marketing &
Communications

Gina Lee
Global Management

Jefferson Huang
Global Management

Eduardo Buritica
Global Management

Seo Kyung Jang
Web Designer

Hye Ri Ko
Web Development

Seong Jae Heo
Service Development

Hye Ji Lee
Web Publish

Advisors

Patrick Park

Gerrard Ji

Simon Lee

Kyung-Soon Choi

James Jeong

Jupil Joung

11 GMB Mission

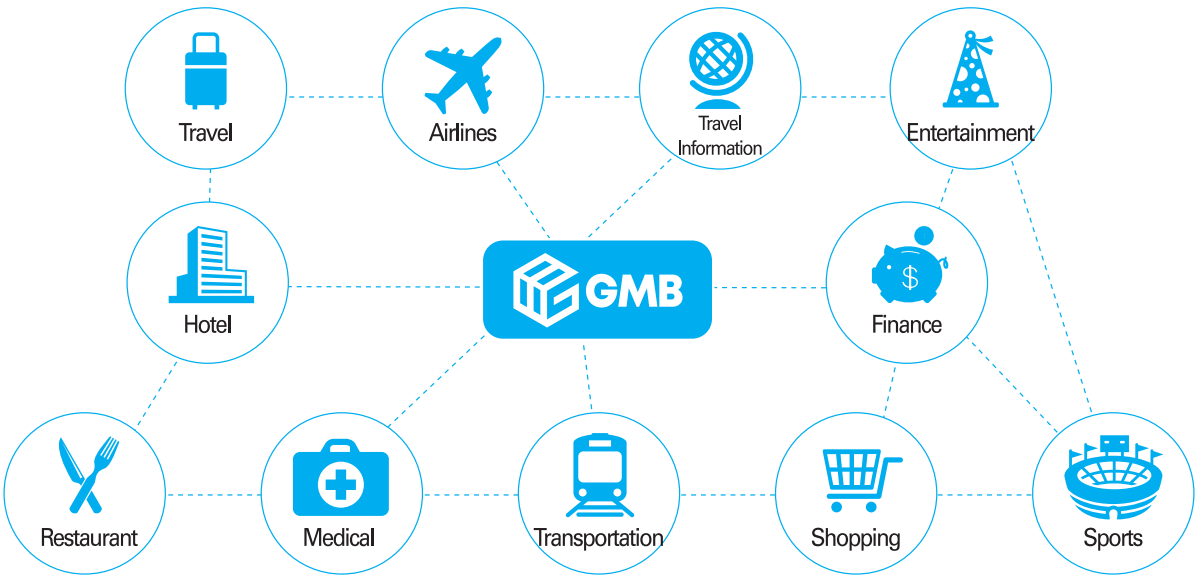
Our first mission is to provide the global travelers and the business partners all over the world using GMB with a venue of new sharing culture that provides a place for travel, business, and life so that various people from all over the world can enjoy various conveniences.

In addition, we would like to expand it to the space where business partners can listen to the voice of customers and create new business opportunities by creating a business community where travel and related service companies communicate directly with users through GMB.

As the era of blockchain is nearing, GMB Coin would like to realize cryptocurrency that can be used with existing fiat currencies, making it practical and convenient to use anywhere in the world.

The first step of GMB is the aforementioned travel. It is one of the services that most of the people in the world want to use and can use. We will create a service, which is easy to use and friendly to people. We will expand this business to various fields such as finance, transportation, shopping, medical care and entertainment, and build an ecosystem of GMB.

To achieve this, we will develop the current GMB blockchain technology to realize the best transaction processing speed. Based on this, we aim to broaden the scope of the whole industry by further expanding the service utilization and business application scalability.



[Fig 35] Sharing Travel Information through Travel Space

12 Others (LEGAL Issues, Etc.)

Some countries do not have any laws related to Cryptocurrency, some have minimal regulation, and others prohibit all related businesses. On the other hand, some countries have organized and institutionalized laws related to Cryptocurrency.

Therefore, many companies engaged in business related to Cryptocurrency have entered into a country that is relatively well-organized or can operate freely, establishing a foundation or corporation, and doing business circuitously.

GMB is being implemented in accordance with the related laws from the planning of development to the supply of coins from ICO, the use of funds received, the commercialization of the developed Cryptocurrency and the business model. In addition, after the distribution of Cryptocurrency by ICO all procedures will be progressed by law.

GMB is based on the principle that only illegal elements and insufficient legal problems are excluded and only the feasible technologies and business models are developed and sourced. Therefore, ICO, which is a distribution method of developed coin, basically blocks elements that cause illegal problems by using methods such as excluding countries that prohibit ICO's, and establishes and enforces legal stability through KYC (Know Your Customer) authentication.

The various legal policies to be taken into consideration by the Golden Blocko are to be reviewed, prepared and implemented in order to ensure that they comply fully with the desirable regulatory policies such as satisfying the criteria of eligible companies for ICO to be implied in each country and providing accurate investment information to be implemented by governments in the future.

The technologies and business models described in the white paper continue to develop and are not final, and white papers are written only for the purpose of providing summary business information. Therefore, we clearly state that the content of the white paper cannot guarantee the terms of the transaction, and recommend that you review them carefully, collect more information, and then make a decision carefully.

In addition, we strongly recommend that you should review the Escape Clause below carefully. The following clause informs you about the content of the GMB Coin that may affect legal disputes.

Escape Clause from Liability

1. GMB White Paper (hereinafter referred to as "the Document") is provided for informational purposes only. We strongly urge you to be advised from Jurists and Financial Experts.

2. Nothing in the Document should be construed as a sale and purchase to the GMB Coin, or interpreted as a proposal or consultation of an investment. The Document does not regulate GMB Coin sale and purchase however GMB Coin donations shall comply with the Terms & Conditions.

3. Although the assumptions, phrases or conclusions in the Document contain statements about future expectations, it should be kept in mind that such information may cause uncertainties and risks, as it may produce results that are contrary to the anticipated results.

4. The Document may be updated or amended, and if amended, the latest version of the Document supersedes the previous version. The Company shall have no obligation to notify you of any amended facts or contents. The latest version of the Document in English can be checked at https:/ gmbplatform.io.

5. The Document is made in Korean and in other languages. If there is inconsistency between the Korea and other language versions, the Korean version prevails to the extent of the inconsistency.

6. The Document is not an Agreement to bind the Golden Blocko which issues GMB Coins. Directors, Officers, Employees and Partners of the Golden Blocko are not responsible or liable for any legal problems arising out of the accuracy or reliability of any information contained in the Document, and special, incidental, consequential or other damages arising in any way related to the Document to the extent permitted by applicable law in the jurisdiction. The scope of indemnification is whatsoever including but not limited to the examples set forth below.
   Loss, Income or Loss of Profits and Data. Anyone wishing to purchase a GMB Coin should refer to the information in this document, but you should be advised from an independent professional before making a decision.

7. Whether or not the issuance of the GMB Coin is illegal, or whether it meets the requirements for registration, authorization or prohibition, a person who holds a nationality or resides in certain countries that prohibits ICOs shall not have the legal right to participate in the GMB ICO.

Reference

[1] http://media.unwto.org/press-release/2018-01-15/2017-international-tourism-results-highest-seven-years
[2] http://file.mk.co.kr/imss/write/20170615103825__00.pdf
[3] https://www.wired.com/story/guide-blockchain/
[4] https://bitcoin.org/bitcoin.pdf
[5] https://github.com/ethereum/wiki/wiki/White-Paper
[6] https://lopp.net/pdf/Bitcoin_Developer_Reference.pdf
[7] https://files.stlouisfed.org/files/htdocs/publications/review/2018/01/10/a-short-introduction-to-the-world-of-cryptocurrencies.pdf
[8] https://ethereum.github.io/yellowpaper/paper.pdf
[9] https://auth0.com/blog/an-introduction-to-ethereum-and-smart-contracts-part-2/
[10] https://setprotocol.com/pdf/set_protocol_whitepaper.pdf
[11] https://github.com/EOSIO/Documentation/blob/master/TechnicalWhitePaper.md
[12] http://iang.org/papers/EOS_An_Introduction.pdf
[13] http://eprints.ugd.edu.mk/18707/1/Cryptocurrencies.pdf
[14] https://www.bis.org/publ/qtrpdf/r_qt1709f.pdf
[15] https://datarius.io/uploads/29410528a3c6d6a2717adcc9dc10192c.pdf
[16] https://streamity.org/uploads/docs/en/Whitepaper_Streamity_en.pdf
[17] http://forum.gipsyteam.ru/index.php?act=attach&type=post&id=566108
[18] http://documents.worldbank.org/curated/en/177911513714062215/pdf/122140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes.pdf
[19] https://qtum.org/wp-content/uploads/2017/01/Qtum-technical-white-paper-draft-version.pdf
[20] https://papyrus.global/media/files/whitepaper_en.pdf
[21] https://neonexchange.org/pdfs/whitepaper_v1.1.pdf
[22] https://0xproject.com/pdfs/0x_white_paper.pdf
[23] https://cachin.com/cc/papers/cfs.pdf
[24] https://cdn.omise.co/omg/crowdsaledoc.pdf
[25] http://www.evenfound.org/assets/files/EVEN_WhitePaper_EN.pdf
[26] http://www.amadeus.com/documents/future-traveller-tribes-2030/travel-report-future-traveller-tribes-2030.pdf
[27] https://www.aarp.org/content/dam/aarp/research/surveys_statistics/life-leisure/2017-travel-trends.pdf
[28] https://abta.com/assets/uploads/general/ABTA_Travel_Trends_Report_2018.pdf
[29] http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.906.2409&rep=rep1&type=pdf
[30] https://www.anvr.nl/DownloadItem/TravelTomorrow_Report.pdf
[31] https://www.egencia.com/daily/home/docs/future-of-travel-exec-summary-business-final.pdf
[32] https://www.tripadvisor.com/
[33] https://www.tripadvisor.com/pdfs/OnlineTravelReviewReport.pdf
[34] http://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/4_Visitor_Insights/Assessment_of_Tourist__Use_for_travel_guides-Smartphone-Apps.pdf?ext=.pdf