



Digital scarcity game on Binance Smart Chain and dragons.

Abstract

Axiemon is a crypto collectible game whereby users can own a dragon, trade their dragons, interbreed them and battle other dragons, collect rewards and achievements along the way. All of these are done on the blockchain in an open, trusted and decentralized manner.

Our aim is to build up the first truly decentralized digital scarcity game, where developers do not have any control over the game once it is deployed. The community will have the right to verify all the transactions and actions without the involvement of a trusted third party.



Introduction to Axiemon

Axiemon is a crypto collectible, person vs person game whereby users collect and breed unique dragons, engage in battles along the way.

With our initial version of the decentralized application (dapp), users will have the possibility to own and manage dragons or a thunder of dragons. In addition to breeding and battling, users can buy and sell dragons, collect rewards, compete with other players for in-game achievements and make deals on the game's marketplace.

Every dragon has its unique set of genes determining all features and traits of the dragon.

Each dragon is controlled and belongs to a particular address on the Binance Smart Chain network. They are securely stored and cannot be modified, replicated, or destroyed by any third party.





Therefore, player will have to pick up a type of dragon to control then decide a battle strategy, skills to train with experience gained in last battles and how to get better offsprings with further improved basic skills (attack, defense, stamina, speed, and intelligence).

A selection of different types of dragons. Each row represents two varieties of the fire, ice, earth, air, and cyber type.

The player's goal might be presented by two paths: a dragon training master or a dragon breeding master. The dragon training master will be an expert in leveling up dragons so he/she can get the strongest dragon and earn in-game rewards as a result of winning battles. The dragon breeding master will know how to interbreed dragons in order to get highly unique and valuable dragons that might be sold on the game's marketplace. Additionally, there might be some other unforeseen game paths beneficial to players which will be discovered by them.



The game starts with the purchase of a dragon egg or a dragon from another player or during the initial distribution of genesis eggs. In the case of an egg, users may know the 7 egg's parents but not what kind of dragon will be found from the egg as this is decided during the egg incubation in accordance with the rules set by Axiemon's genetics.

After receiving a certain amount of experience and upgrading to the next level, a dragon will be able to either improve its skills or breed. At that point, users will have to decide whether to upgrade a dragon's skillsets or get it bred in order to acquire a new dragon.

Offsprings will rarely outperform their parents right from the hatchery. However, their initial skills (at level 0) would generally be higher than the initial skills of the parents. Therefore, with some training and a few levels upgraded, the dragon will eventually outperform its parents.



As in the real world, occasionally there might be a mutation causing some traits of a new dragon to be much weaker or much stronger than those of its parents. Mutations affect individual genes, so any traits can receive a boost or a skill reset during breeding, but no one will be able to predict which gene will be affected and when.

The higher level going up, the more experience required. Therefore, it will become increasingly difficult to get any dragon's descendants thus help to limit the total population of dragons and avoiding exponential growth. As such, the system is designed to encourage users to be active, and allow them to choose the winning strategy of their own choice.

There are five different dragon types (air, water, earth, fire, and cyber).

Each dragon has the ability to participate in battles. There will be two types of battles: regular battles and gladiator battles. Regular battles are described below, where they are referred to simply as battles, while gladiator ones will be outlined at the end of this section.



The fact is that battles are held on-chain they are represented, not by conjoined combat of two dragons but rather by an attack of one active dragon on another passive dragon.

To let the dragon engage in a battle, users have to provide their dragon enough Health Points (HP) then the application offers a choice of dragons of similar Dragon Strength (DS) with which it can battle. Once the user picks up an opponent, the transaction with the battle is sent to the blockchain. As soon as the transaction is mined and included in the block, a user can see an animated battle together with battle results 1.

The attacking dragon always has an advantage as it can adjust its battle tactics according to its opponent's skills. Defending dragons use the default battle tactics defined previously by the owner. All battle results are dependent on the overall skills of the battling dragons, as well as the battle tactics used during the battle.

The battle tactics can be defined by two sliders:

- The attack slider selects a value from a range between melee (short-distance attack) and ranged (long-distance attack)
- The action slider selects a value from a range between defense and attack



Every move during a battle is determined by a weighted random number with the value of the weight determined by the positioning of the sliders (for example if the Action Slider is in the position of 20% defense and 80% attack - the dragon will make on average 20%

defense moves and 80% attack moves). The dragons with faster speeds always make the first move.

Based on the battle tactics, settings and results of the random number generator (RNG), dragons are able to:

- Change position
- Attack
- Stand on the defensive
- Use special attack or special defense

Once the faster dragon has made the first move, the opponent has its turn. This continues until the HP for one of the dragons is depleted or the battle exceeds the move limit. If the move limit is exceeded or available gas is depleted, the dragon with a higher percentage of HP compared to the initial level of HP wins. If the dragons have an equal amount of HP left, the dragon which made the first move will be a winner.



The defeated dragon does not receive any points or bonuses. It only receives a flag protecting it from further attacks, which is valid for one day only.

The higher the intelligence level is, the greater the chances of a dragon exploiting its special attack or special defense skills during the battle will be.

Special attack or special defense is the ability to use the special powers available for each type of dragon. It improves attack or defense during a move. These special moves use Mana.

The results of a battle will be displayed in a rich visual animation, which can be replayed and shared with friends.

A battle winner receives Experience Points (XP). When the required quantity of XP is earned, the dragon gets a level up and receives some DNA Points (DP), which can be used for breeding or converted into the body part level-ups and thereby improvements of skills.



Here, we will briefly overview gladiator battles, which are technically the same battles as regular battles, but they give players the possibility to place a bet on one of the dragons. They do not let players earn XP or AXM from the Treasury. The simplified process of the gladiator battle can be presented as follows:

- A player decides to offer a dragon on the gladiator battle.
- Other players can offer their dragons for the battle together with their bets.
- The player who initiated the battle confirms one of the offers once the time is up for offers.
- Once opponents are set, other players (not necessarily those who participate in this battle) will be able to place bets.
- Once the timer set during the battle initiation has expired, any player can finalize the battle.

Game Design Constraints

As decentralized technologies are in their early period of development, the game was designed with several limitations in mind.

This is achieved by offering a limited quantity of genesis eggs and constraining the breeding speed which will limit the supply of new dragons and thus keep the overall game bandwidth within the Binance Chain network capacity.

Additionally, we want to mention that the proposed RNG is in reality a pseudorandom number generator (PRNG) and true randomness is currently unachievable on the blockchain. Therefore, for high-value transactions, we offer a solution that minimizes the chances of exploiting the game's algorithms.



Obtaining Randomness



There are two main approaches used for random number generation. The first relies on some physical phenomenon that is expected to be random. The second relies on a computational algorithm. The latter uses some initial value to generate a random number. However, a generated random number can be reproduced if the initial value (or source of it) and the RNG algorithm are known to the attacker. Hence, this approach, known as pseudorandom, is not truly random.

For some industries (e.g. online gambling), obtaining randomness, or to be more precise pseudorandomness, is a complex issue as the random numbers which influence a game's outcome should be equally unpredictable for all parties.

Within the current online apps, there are multiple ways to obtain randomness, either independently or by relying on third parties. However, users of such apps rarely have the possibility to validate the process of obtaining these random numbers

Blockchain Genetics



A major limitation of current non-blockchain games is the process of new character creation. Current solutions allow the user to choose some characteristics of a character or supply a default character with a preconfigured range of abilities. Additionally, all current solutions are centralized by design, so the player does not control or have the ability to verify the process of game character creation, the number of created characters or their set of skills.

As such, the game's creators can, at any moment, release newly created characters with an improved skill set or unique appearance, thus destroying all economic incentives of current players who invested time and money into their characters.

This is particularly important for cases where all created characters are collectibles. We propose a system whereby any third party (even the creators) has no control over new character creation after the release of the system.

To build such a system, all steps of the creation process should be done on the blockchain. In order to do that, two main principles must be met:

- 1) A random number has to be generated on the blockchain or at least stored on the blockchain.
- 2) Character breeding also has to be done on the blockchain via a publicly accessible smart contract.

RNG was already described in this document and here we will dig into on-chain breeding in the context of its implementation on the EVM.

Game Mechanics

Our aim is to create a cryptocollectible game, whereby those users who spend more time playing the game have the possibility to own higher valued dragons and accumulate higher amounts of AXM.

In order to do this, the game ecosystem should be balanced and should meet the following criteria:

- The growth of the dragon population should be limited by the game mechanics.
- Early game adopters should have an advantage in accumulating AXM over those players who joined the game at a later date, given that all other comparing factors are on an equal footing.
- There should not be one winning strategy that will allow someone to gain advantages over other players.



Gameplay Simulations

We study in detail three different cases. It should be noted that not all possible game features have been included in the simulations. For instance, a reward can be distributed to the top dragons on the leaderboard, and this was not incorporated as part of the cases studied below. De facto, these cases should be considered to be simplified situations, however, they can be used as a very good gauge of the possible real-life scenarios.





Body parts and basic skills

As it was discussed, there are five Basic Skills: attack, defense, stamina, speed, and intelligence. The basic skills are calculated based on the dragon's genetics and obtained experience (body parts level-ups)

- Attack – affects the degree of damage a dragon can cause in a battle.
- Defense – measures the ability of a dragon to defend itself during a battle. If the dragon engages in a battle with a dragon with less attack, defense determines the damage it can do to the weaker attacking dragon.
- Stamina – measures the maximum amount of HP and the speed of regeneration.
- Speed – defines which dragon moves first and each dragon's maximum reach.
- Intelligence – determines the maximum amount of Mana, along with speed for regeneration and the probability of a special attack or special defense being used in battles.

Graphics

While designing the game we considered several options for the visualization style of our dragons. The current status quo in the crypto collectible industry is the use of flat, simplified images which are easily merged into an image of a game character.

However, we decided to switch to 3/4 view as it gives a more realistic perspective to players and it makes the potential transition to VR or AR a bit easier.





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Roadmap

Phase 1

- ✓ Website launch
- ✓ Presale
- ✓ Launch on Pancakeswap
- ✓ Marketing push to spread awareness
- ✓ 10,000 Telegram members





Phase 2

- ✓ Influencer marketing push
- ✓ Listing on Coingecko
- ✓ Listing on Coinmarketcap
- ✓ Most traded coin on Pancake Swap
- ✓ 20,000 holders
- ✓ 20,000 Telegram members
- ✓ Update Bscscan
- ✓ Update Logo on Trustwallet
- ✓ Trend on Twitter
- ✓ Third - party audit






Phase 3

- ✓ **Initial CEX Listings**
- ✓ **50,000 holders**
- ✓ **50,000 Telegram members**
- ✓ **A large influencer marketing push**
- ✓ **Design contest**
- ✓ **Listings on multiple T1 exchanges**



Phase 4

- ✓ **100,000 holders**
 - ✓ **Expand global dev team**
 - ✓ **Expand global partnerships**
 - ✓ **Increase marketing**
 - ✓ **Launch Axiemon Marketplace**
 - ✓ **Website Redesign**
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Phase 5



- ✓ **200,000 holders**
- ✓ **Release gameplay Axiemon**
- ✓ **Play to Earn**
- ✓ **Mainstream release Axiemon on iOS/Android**
- ✓ **Breeding Game**
- ✓ **The Battleground**
- ✓ **PvP with ladder and tournaments**
- ✓ **Axiemon Championship Series**
- ✓ **1B market cap and beyond**
- ✓ **Listing on Binance, Huobi, FTX...**

Tokenomics



**4% distributed
to AXM holders**

**4% added to
the liquidity
pool**

4% marketing



THANK YOU

Loading...