Coral Whitepaper

1. What it is?(Algorithmic / Generative Art)

Generative art is a process of algorithmically generating new ideas, forms, shapes, colors or patterns.

First, you create rules that provide boundaries for the creation process.

Then a computer follows those rules to produce new works on your behalf.

1. How it works?(The genereefs NFT specially)

The algorithm goes like this: First we start with a set of connected nodes in some shape (circles or lines are good).

Then we randomly introduce new nodes between pairs of existing nodes. In every iteration the nodes will try to optimize their positions.

They want to be close, but not too close, to their two neighbors.

At the same time they want to be as far away as possible from all other nodes within a certain distance.

Note that there is no actual collision detection involved here.

There are a number of factors that will affect the behaviour o this system.

One is how frequently we introduce new nodes.

Another is the maximum distance within which nodes will avoid each other.

And the most interesting one (in my opinion) is how we choose where to insert new nodes.

We can do it uniformly or we can prioritize places where the curve bends more sharply.

Another way of getting interesting results from this system is by painting the position of the curve for each step in time.

This visual and textural results are dramatically different, but it is easy to recognize the same characteristics.

1. Explain fully on chain

Each coral has its code and we minted the code itself to the chain by changing it as base64 string which doesn't have any dependencies.

Those base64 strings can displayed as the coral in the web browser.

So the owner of the NFT can see the coral at anywhere at anytime.

For example :

Html code : <h1>Coral Sample</h1>

Base64 String : PGgxPkNvcmFsIFNhbXBsZTxoMS8+

Base64 within Iframe tag :

<iframe src="data:text/html;base64,PGgxPkNvcmFsIFNhbXBsZTxoMS8+">The “iframe” tag is not supported by your browser.

</iframe>

1. Explain Rarities

There are 9 kinds of growth types and each type has its own unique trait.

And also there are 9 kinds of growth size in each growth type.

- Unique

It takes 0.1 %(8 corals) of the entire corals.

- Ones

It takes 1%(88 corals) of the entire corals.

- Exo

It takes 3%(267 corals) of the entire corals.

- Legendary

It takes 5%(444 corals) of the entire corals.

- Ultra rare

It takes 7%(623 corals) of the entire corals.

- Rare

It takes 12.9%(1147 corals) of the entire corals.

- Special

It takes 18%(1600 corals) of the entire corals.

- Unusual

It takes 24%(2133 corals) of the entire corals.

- Normal

It takes 29%(2577 corals) of the entire corals.

The growth sizes are divided into 9 kinds from the biggest size is 1200 \* 1200 and the smallest size is 400 \* 400.

The ratio of each growth size in each growth type except Unique growth type follows.

In the Unique growth type, all corals have the size(1200 \* 1200).

Growth size 1 (1200 \* 1200) 0.1%

Growth size 2 (1100 \* 1100) 1%

Growth size 3 (1000 \* 1000) 3%

Growth size 4 (900 \* 900) 5%

Growth size 5 (800 \* 800) 7%

Growth size 6 (700 \* 700) 12.9%

Growth size 7 (600 \* 600) 18%

Growth size 8 (500 \* 500) 24%

Growth size 9 (400 \* 400) 29%

For example in the Normal growth type

Growth size 1 (1200 \* 1200) 0.1 % 2

Growth size 2 (1100 \* 1100) 1 % 26

Growth size 3 (1000 \* 1000) 3 % 77

Growth size 4 (900 \* 900) 5 % 130

Growth size 5 (800 \* 800) 7 % 180

Growth size 6 (700 \* 700) 12.9 % 332

Growth size 7 (600 \* 600) 18 % 465

Growth size 8 (500 \* 500) 24 % 618

Growth size 9 (400 \* 400) 29 % 747

Total 2577