

Soups as crypto collectibles

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Abstract

Conway's game of life soup search census is providing well documented statistics about probabilities of CGOL SLs (still lifes) to appear in random soup. Thus each SL can be treated as crypto collectible with known effort to produce (i.e. backed up with PoW). We provide a smart contract web search utility, a transaction supporting website and general framework to monetize search algorithms with known distribution results, in form of crypto collectibles. The resulted SLs are traded in an open market. Probabilities and status in upload list are presented as part of the information (together with miner details). Experts can rate the contribution of the finding to the field (and thus influence their price).

1 Overview

The application has several stages.

1. The mining stage with lifeapi.js.
2. Viewing of the interesting results and choose to upload to ethereum (classic).
3. The smart contract validation of your result and attachment to your wallet.
4. The personal web page with all your assets and their status.
5. The public web page with all existing collectibles and their prices (probability and index in the contract, as well as experts opinions on the soup).

2 Mining

Each participant/miner is assigned a wallet. The wallet is provably attached to the search results (the search is Nth mutation on your wallet's hash while N is uploaded as part of the result).

A simple web app (in webassembly) is provided for you to allow searching in your browser. The search is inside 32x32 lifeapi.js grid and only SLs containing soups (i.e. hashes) can be uploaded.

3 Viewing local results

Once mining is done you can view the interesting results and decide which one you wish to upload to the smart contract.

When one uploads the found result he can expect transaction fees attached to him as a miner of the result. Each transaction done with the collectible is charged with fees to the miner. To incentivize the miners we allow them to define charging fees from any transaction done to SLs uploaded by them (but we recommend to stick to standard transaction fees). As part of the upload one should post his public wallet and N as well as found SL and its (x, y, w, h), stabilization gen (and period) and initial hash.

4 Smart Contract

The smart contract is managing all the uploaded data into it. You can upload any pattern you wish to the contract (as long as you provide all the correct inputs), it only validates that SL is appearing after K iterations according to the input. The contract does not validate that your wallet is attached correctly to the hash (yet anyone can validate this information locally especially the buyer - site's validating this out of the box but not the smart contract).

If validation is passed the uploaded transaction is attached to some hash, and added to the list of hashes of existing patterns. An event is emitted with all the data from the upload and hash generating the SL, and the SL itself are attached to the miner's wallet and stored in the contract. The hash of the upload is attached to the miner as first owner. The contract provides tools to set price and automatically transfer owner when the correct value is offered by the buyer. As well as privately transfer the collectible to a specified buyer. The contract also allows a different model where the buyer can offer price by closing some amount of value, and if the owner agrees - transfer is done automatically.

5 Your collectibles status page

You can view everything is going on with the collectibles you mined in separated page. In the same page you can see all SLs you own.

6 Collectibles public site

A site with all collectibles is shown. You can set price and sell your crypto collectible, you can also purchase or offer price to buy any collectible in the list. The buyer will need to verify the collectible is legit - as the contract will

not invest gas into iterating the wallet K times (can reach billions sometimes). Obviously filters will be added to view the latest, for sale, by price range etc.