

Frugal Pantry

Abstract The authors introduce Frugal Pantry, a platform for decentralized B2B exchange of produce and overstock food products. Frugal Pantry enables the formation of marketing contracts between peers. Contracts are agreements between a supplier and their client, defining what data will be sold and at what price. Contracts are stored in a blockchain, making them publicly auditable. Pantry tokens will be used to store metadata and trace items in the network. Pantry tokens can be viewed as a cookie of Ada, as the token will be implemented on the Cardano network.

1 Introduction

Food scarcity is a tragic unnecessary plight in modern society. We believe it can be resolved by attacking the issue through multiple angles, from improving logistics and supply-chains, improving analytics, educating farmers and creating easier paths of communication with agricultural and food science extensions. An open source block-chain based solution will dramatically improve supply-chain and logistics, providing real-time data to the public with opportunities that were unknown before. Food instability has a harmful effect to societal well-being of everyone and our platform intends to help alleviate that problem.

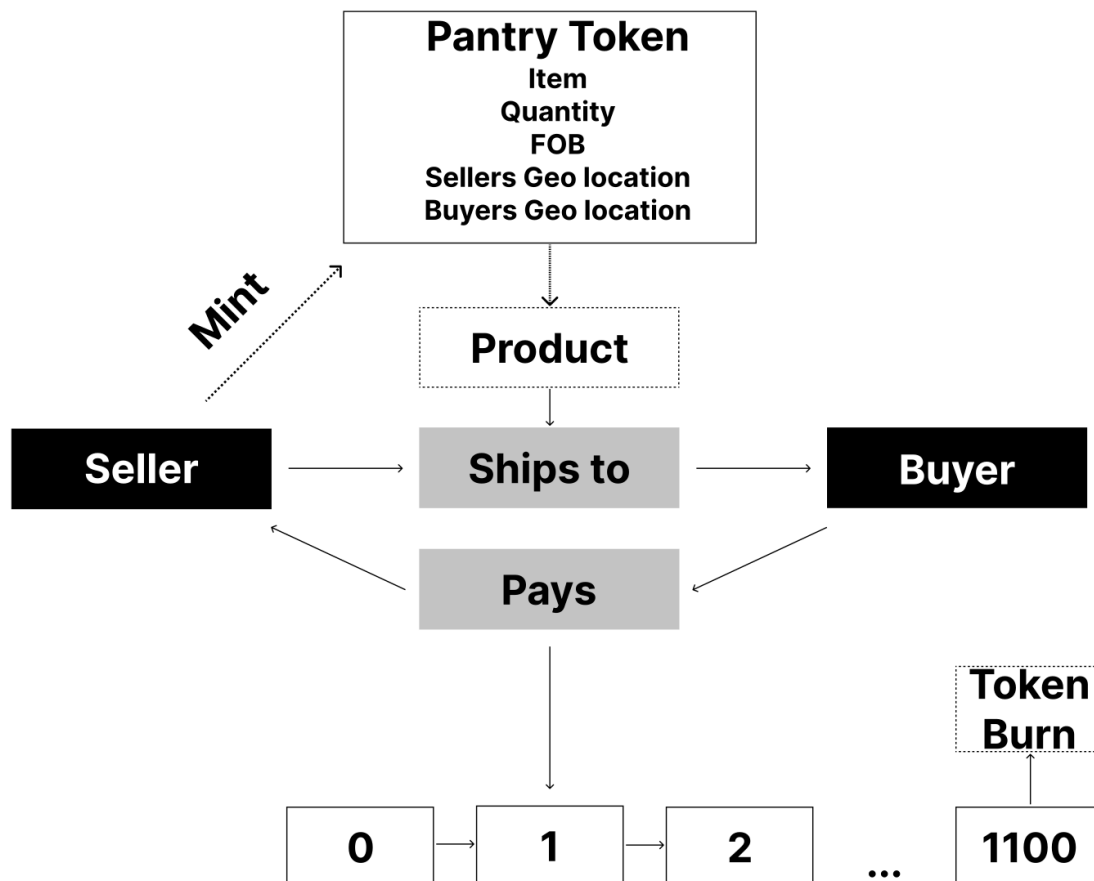
Frugal Pantry is a decentralized B2B food service platform that intends to compete with existing food service solutions. Instead of buying all of their products directly from a wholesaler, Business on Frugal Pantry can buy, sell, or donate food product from each other. Frugal Pantry itself stores only the contracts formed between parties, defining the terms of their arrangement. By forming a contract, a seller agrees to deliver goods by arranged date. The contract metadata will be stored on the Pantry token and will live on the Cardano network for 1100 Epochs (~15 years) at which point the token will be burned. Importantly, this means that businesses do not need to personally store their contracts for tax purposes; they can simply download their contract data in aggregate, with the knowledge that the information provided is accurate and immutable.

2 General Structure

The Pantry Tokens primary departure from Ada lies in its storage of data. As the blockchain grows exponentially, storage data will likely become a bottle neck. Our approach is to keep metadata available for a reasonable amount of time and then ultimately purged to maintain the integrity of the underlying blockchain. This approach will allow the transaction to live on the chain indefinitely without clogging the system of future disk space.

3 Transactions

A transaction contains the following fields: Buyer, Seller, Shipping Info (geo location), Pantry Token. Once a buyer and seller agree on a price and quantity of an item at Pantry token is minted and meta data is inserted, this includes information regarding the item itself, location of both parties, and FOB agreement. Not included in the token are: Discounts and Allowances, Insurance, Import Duties, Freight, Storage. The minted token is paired to a QR code and will be affiliated with the product in transit. Consignment is reached when the token enters the wallet of the public key of the buyer at which point the contract is complete. The token itself will remain on the blockchain for 1100 epochs at which point it will burn.



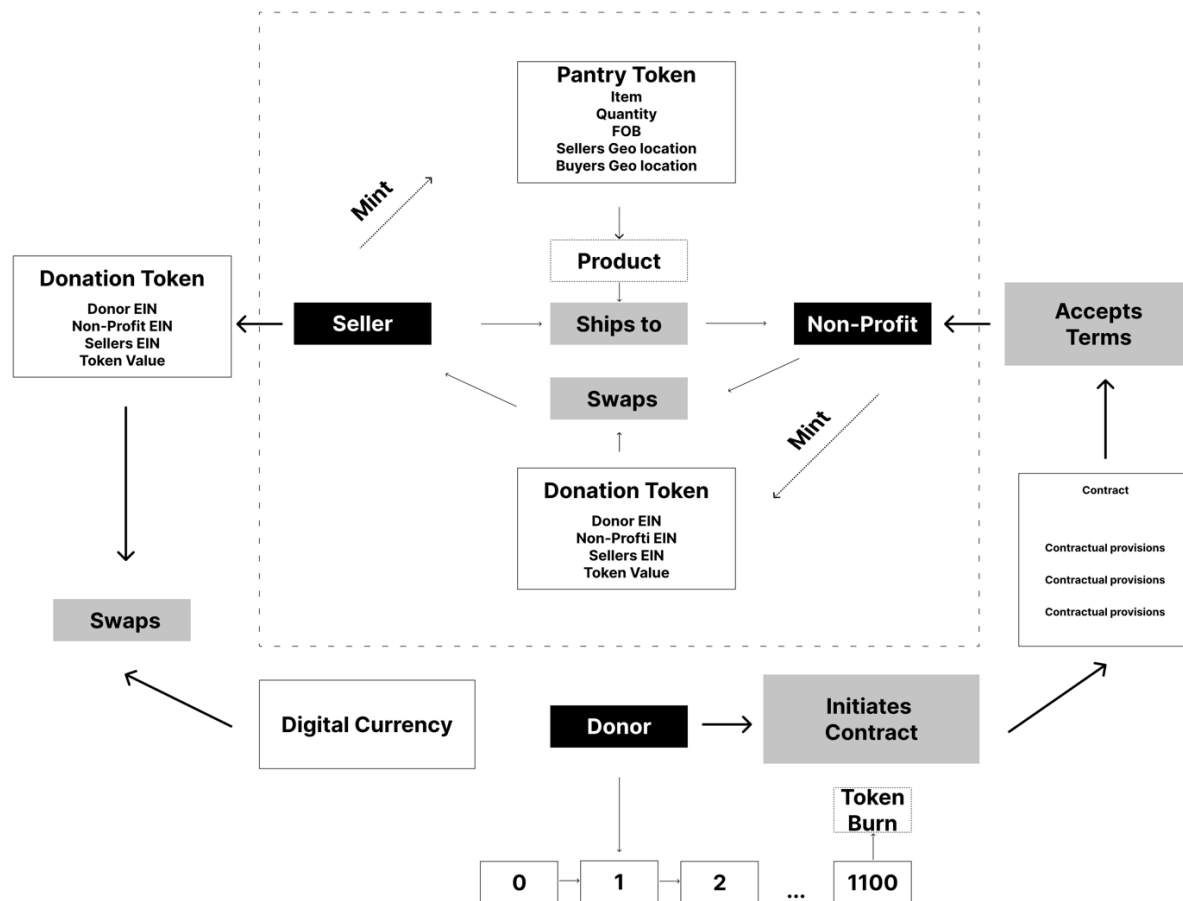
4 Minting

Minting of a new Pantry token involves three inputs: Cost of Product, Cardano Transaction Fee, Maintenance Fee. Cost of Product is seller dependent. Cardano Transaction Fees fluctuate depending on the state of the network. Maintenance fees are set by the operator of the protocol, this will be one source of income for Frugal Pantry as it will help pay for the cost of operations.

5 Donations

5.1 Fundraising has been under a spotlight over the past few years due to mismanagement of funds in some high profile charities. [1] In total about 33% of funds are retained by fundraisers to conduct their charitable campaigns. [2] Frugal Pantry intends to increase participation by allowing companies to direct where they money is allocated.

5.2 A Smart Donation contains the following fields: Non-Profit, Seller, Donor, Donor Token, Pantry Token. A smart donation starts when a Donor initiates a contract, that contract will contain certain previsions. In this case, previsions pertaining to dietary restricts will be the use case (Ex. A vegetarian can limit his funds to only pay for vegetables.). Once the contract is open, it will be available on the exchange for an NGO to use. If an NGO decides to accept the funds a Donation Token will be minted, the token metadata will include the Employer Identification Number of all parts as well as the token value in local denomination. Once a seller is found a Pantry token will be Minted and their EIN will be added to the Donation Token as well. Consignment is reached when the Pantry Token enters the wallet of the public key of the NGO at which point there will be a double token swap Pantry Token for Donation Token then Donation Token to CBDC at which point the contract is complete. The tokens will remain on the blockchain for 1100 epochs at which point it will burn.



6 Privacy

We acknowledge that companies would like to remain private about sales, we also understand that some donors would like to remain private about their contributions. Therefore, we will be implementing Zk-proofs[3] to keep information discrete and allow for anonymous contributions.

7 Revenue

The Frugal Pantry exchange will be a free and opensource protocol. Although geared towards B2B, we strongly encourage the deployment on any applicable platform. The minting of tokens as well as the use of the Cardano blockchain is strictly used for public recordkeeping. We intend to accrue revenue through multiple streams: Maintenance Fee for minting tokens, Certifications by visiting businesses for a fee, selling B2C tools that are compatible with our B2B market, R&D, Consultation. Eventually we will expand into agriculture supplies and IoT.

8 Conclusion Pantry is a token on the Cardano blockchain that enables decentralized B2B sales and donations via cryptographic contracts. These contracts can be used to enforce sales agreements between two parties as well as record keeping for tax purposes. After agreeing to a contract, a seller must adhere to the contract stipulations. The seller will automatically be compensated on consignment. Minting tokens are used as a mechanism of generating revenue for the parent company, which is responsible for the release and maintenance of the protocol. The primary purpose of the market is to eradicate food instability, we believe this open source approach will provide the tools need to help in that effort.

Reference:

1 Rhode, L. Deborah., Packel, K. Amanda. (2009, Summer), *Ethics and Nonprofits*. Stanford Social Innovation Review. https://ssir.org/articles/entry/ethics_and_nonprofits

2 New York State Office Attorney General of the Charities Bureau. (2017, November), *Pennies for Charity where your money goes*. <https://www.charitiesnys.com/pdfs/pennies-for-charity-2017.pdf>

3 Ben-Sasson, Eli., Bentov, Iddo., Horesh, Yinon., Riabzev, Michael. (2018, January 9), *Scalable, transparent, and post-quantum secure computational integrity*. <https://eprint.iacr.org/2018/046>