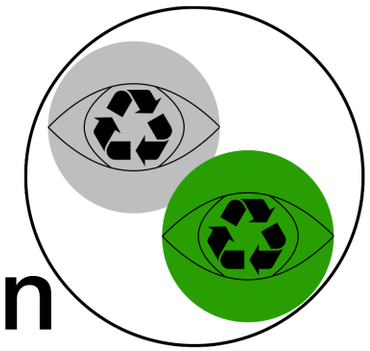
ReusibiliToken



Reduction of Plastic Waste

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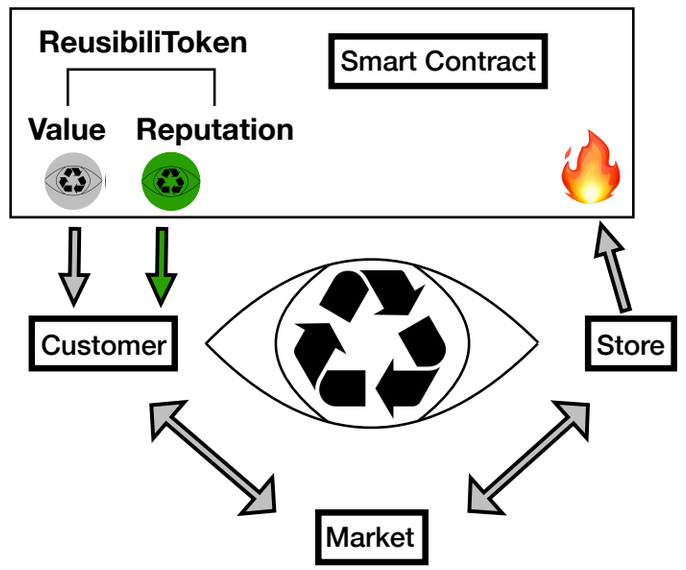
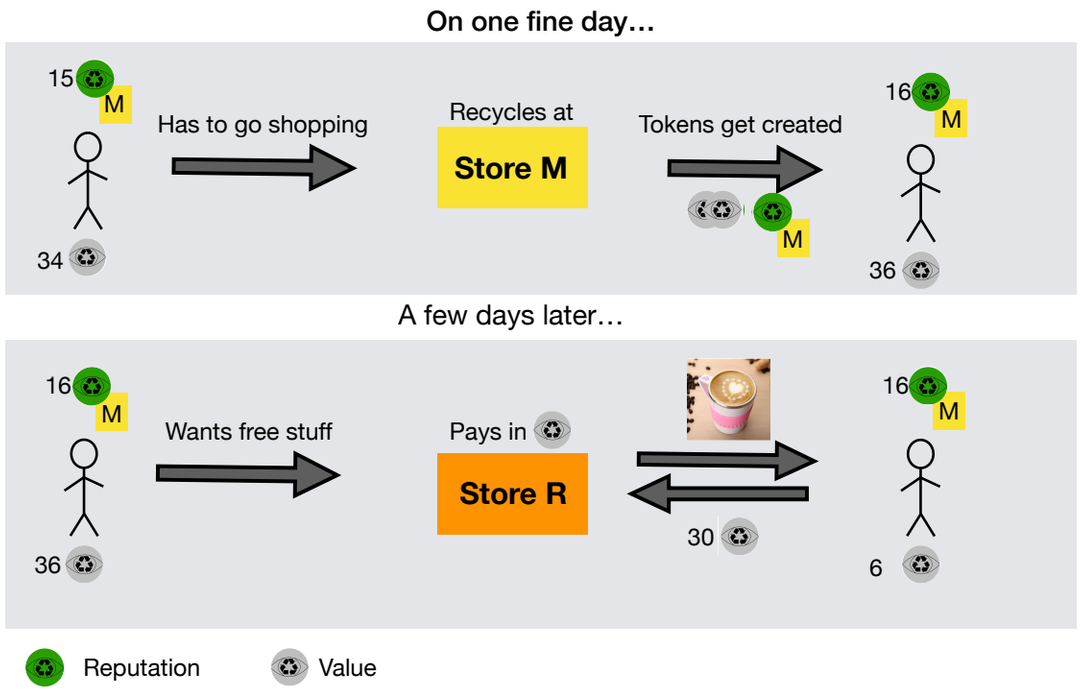
Societal problem: We produce way too much waste from food product packages.
Justification: Incentivise people to use their own cups and plates at coffee shops and restaurants instead of store-provided new plastics.

Concept



Concept: When a customer buys a coffee with a reusable cup, two types of token get generated.
Tokens: Value token is an ERC-20 token that can later be sold to the market or any participating store (e.g. for a coffee or other products). The other, Reputation token, is unique to each store franchise and provide benefit for shopping at the store repeatedly i.e. gaining more value tokens. However, reputation tokens are not tradable and diminish over time.
Fee: Each month, the participating stores must pay a fee in tokens to a smart contract where the tokens get destroyed. The reason is to provide motivate shops to collect tokens by providing customers coffee etc. in exchange of their Value tokens. More popular shops (total amount of reputation produced there) have to pay higher fees.

Economy system

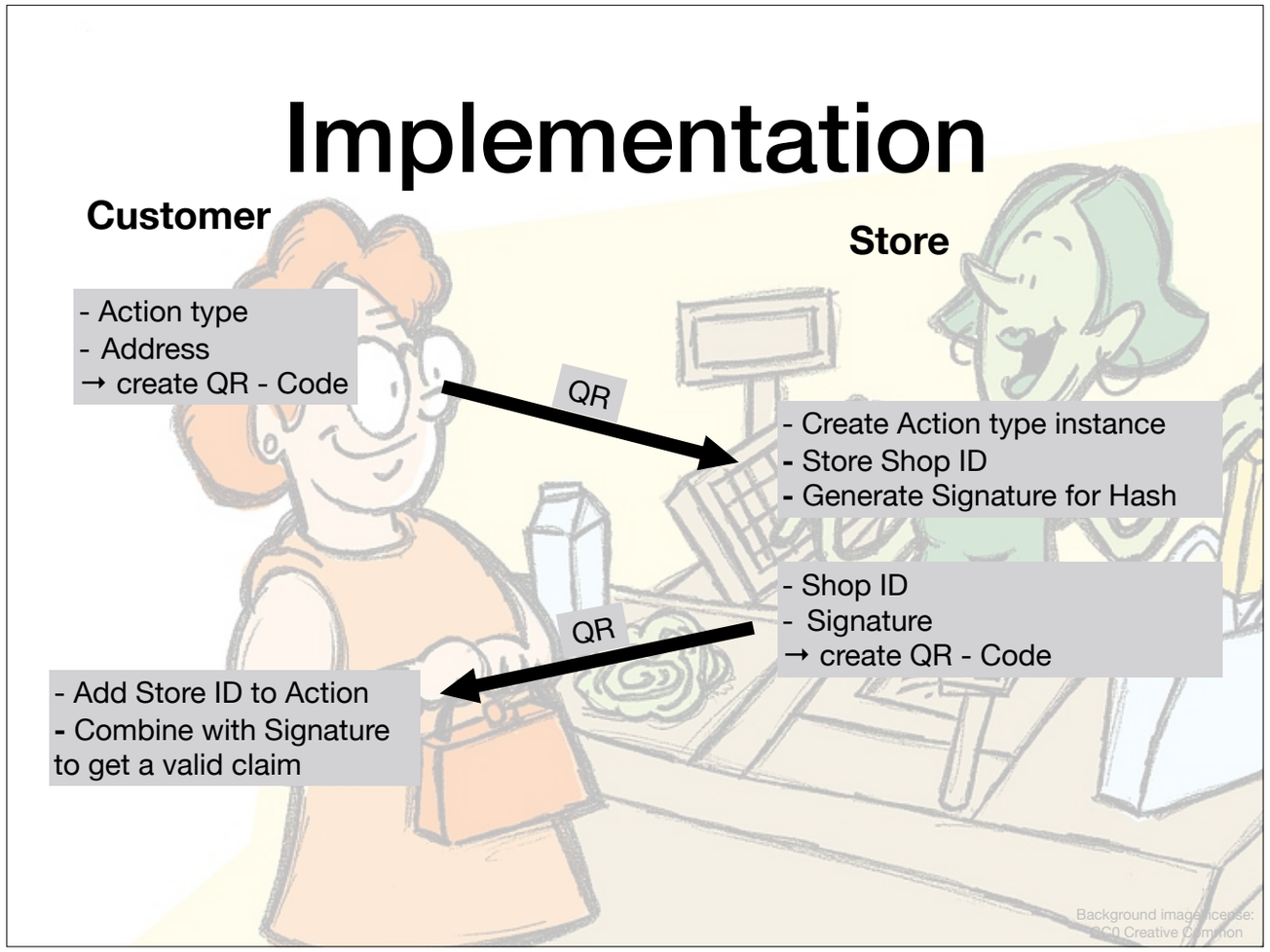


Example: A customer has 15 reputation tokens that are specific to a store M, and 34 value tokens. The customer goes to store M to buy a coffee with a reusable cup. Value tokens get generated and even more than normally because the customer had so many reputation tokens for this store. The customer now has 36 value tokens and 16 reputation tokens – and a coffee.

Sometime later, the customer goes to a different store and purchases another coffee, this time using 30 of the 36 value tokens.

Economy: We made a simulation in Python with a limited number of customers, stores etc. to see how we could set the parameters. We embedded a video link in the slide.

Implementation



We also implemented an operation to obtain the token:

Authentication:

1. Customer wants to buy coffee with a reusable cup
2. Customer shows a claim (“I want to reuse a cup”) and an account address as QR-code to the store cashier.
3. Store cashier scans the QR-code.
4. Store cashier generates another QR-code with its address and key.
5. Customer scans proved data and submits to Blockchain, claiming the tokens.
6. Blockchain checks if the key is valid, and if valid, gives tokens to Customer.