Uprightly

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Decentralized Reputation Management Protocol

An approach to reputation tracking in a pseudonymous, decentralized marketplace.

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Summary

Trust is a key component in all successful markets.

Markets are built on trust. For markets to work efficiently, participants must be able to demonstrate their trustworthiness as well as discover the trustworthiness of counterparties. To date, there does not exist a reputation tracking system that is reliable, independent, and decentralized.

***Uprightly* solves the problem of trust using blockchain technology and economic incentives.** It is not tied to any particular marketplace and a user's reputation follows them everywhere. The system is independent of any other components such as a payment gateway or a particular cryptocurrency. *Uprightly* can be used on any platform for any transaction or contract (cryptocurrency-based or otherwise)! The system allows for users to submit reviews of others as well as allows users to easily find information about how other users act in the marketplace. It is our belief that *Uprightly* will encourage cooperation amongst participants due to its incentive structure. It also protects against manipulation and disincentivizes common problems with reputation systems. It does not require any third-party moderation and is, in fact, designed to be censorship-resistant and decentralized.

Team

Our team consists of several experienced software engineers with backgrounds in economics, law, and distributed systems.

Daniel DeGreef: Founder and Smart Contract Engineer

https://www.linkedin.com/in/dandegreef/

Daniel has 14 years of experience in software engineering and has worked for many organizations on projects big and small. He has led teams on development of ecommerce websites and distributed systems. Daniel has started multiple successful businesses in the past involved in ecommerce, data analysis, and marketing. He has an educational background in business management, mathematics and economics. He has been interested in the cryptocurrency movement since 2012.

Matthew Fender: Lead API Engineer

https://www.linkedin.com/in/mattfender/

Matthew is a lawyer turned software engineer. He has experience leading software organizations and establishing business relationships. He has developed multiple successful API's and applications for a wide variety of businesses. His educational background is in law and technology.

David Bondy: Lead UI Engineer

https://www.linkedin.com/in/david-bondy-25b2097/

David has exceptional experience as a designer, photographer and software engineer. He has a penchant for beautiful front-end work and works on UI's that reach millions of users. His background is in computer science and design.

Advisors

Nicholas Dirienzo	Tiffany Kennedy	Nicholas Guastalli
Mathematics & Economics	Partnerships & Business Development	White Paper Development

Problem

There are many issues facing efficient markets today. Some are pervasive in all markets while some are unique to decentralized markets:

Reputation Centralization

Many reputation services (Ebay, Amazon, Yelp, District0x, Monetha, Colony, etc.) require buy-in to their entire ecosystem in order to make use of the reputation tracking systems. They are useful within their own walled garden, but cannot be used outside of these systems. **A participant cannot transfer their reputation from one platform to another.** This causes a lot of inefficiency in the form of lost knowledge, marketing resources, and poor user-experience.

Trust in a Decentralized World

A big selling point of blockchain technology is that it is 'trust-less.' That idea, however, can only be taken so far. Most market transactions involve things that can not be solved automatically by a smart contract. There will always be a need for trust in some aspect of the transaction. For example, even the simple purchase of a kitchen utensil requires trust that it was manufactured properly, shipped safely, and that the merchant stands behind any warranties offered.

Fraud

Many businesses simply surrender to the notion that fraud is a major cost of doing business. In an environment in which reliable information about participants is impossible to find or expensive to acquire, people must take excessive risk in doing business with each other. Too often there is scarce reliable information about a participant and the consumer or business is left with two options; blindly trust someone, or forgo the transaction. Both of these options are costly and inefficient.

Information Asymmetry

When participants have a different level of information about the marketplace, the market is inefficient. This often takes the form of a consumer, who is sometimes unable to judge a merchant due to lack of information, and a merchant, who has an informational advantage in holding back damaging details about themselves. In the worst case, a participant is maliciously misleading or fraudulent, but the victim has no way of knowing until it is too late. Others may know through prior experience that this particular predator is malicious but they have no way of disseminating this

information to would-be victims. This allows a bad actor to create new aliases and otherwise continue to defraud victims.

Reputation Manipulation

In centralized reputation systems, there is risk that reviews are being manipulated by the site owner or the business owner themselves. This concern surrounds companies like Yelp, TripAdvisor, and Facebook, among others. Conversely, bad actors can flood a legitimate participant with phony bad reviews with little recourse. It is also possible to shed a bad reputation by creating a new account. There is little cost associated with leaving a review or receiving a review, and moderation is generally required in these systems, which further exacerbates manipulation. It is difficult to trust reputations on such platforms, centralized or decentralized.

Solution

What is it?

***Uprightly* solves these problems with a unique combination of blockchain-enforced features and economic incentives.** Coupled with a delightful user-interface, the technology behind *Uprightly* creates an easy, robust, secure, decentralized and reliable protocol with which users can invest in their reputations both online and offline. **This protocol acts as a unifying reputation system across any platforms that a user conducts business.** Since *Uprightly* is platform-agnostic and can be used anywhere, an API is also in the roadmap to allow other services to integrate with this reputation system.

How does it work?

Uprightly is designed in accordance with the idea that it should be cheap to maintain a great reputation and very expensive to try to game the system or be uncooperative. There are three major components to the *Uprightly* solution:

1. The *Uprightly* protocol token (UPT)
2. Incentives for cooperating with each other
3. Public record of past behavior of participants

1. The *Uprightly* Protocol Token (UPT)

A token will be minted that users can purchase from the *Uprightly* genesis contract or on the open market. Tokens can be used to stake transactions.

When a user enters a transaction, they can send tokens to the *Uprightly* reputation contract, which is known as 'staking a transaction.' In other words, the user is risking their tokens on the basis that they will act in good faith. The tokens are either returned or destroyed at the end of the transaction as described below. **This means there is a financial cost associated with acting in bad faith and thus an incentive to cooperate or risk losing the staked amount.** The idea being that addresses which stake tokens have more to lose and are less likely to act poorly in the market.

This staking mechanism is a way for users to publicly declare that they are serious about their reputation on a certain address. A user who has consistently staked tokens over time on an address and accrued positive reviews is incentivized to stick to that address because they would not be able to easily recreate their history if they decided to abandon the address for a new one. Staking reduces the risk that a user will abandon an address because they would also lose the goodwill associated with the positive history on that address. Staking makes it difficult to recreate history because it entails a prolonged financial risk over time with many different users. Due to this difficulty, even a user who has received bad reviews is unlikely to abandon an address that has a long history. In the marketplace, it is likely that users would only do business with other users that agree to stake tokens on a transaction unless their history indicates that they are very trustworthy.

The amount that users would feel comfortable staking might be commensurate with the nominal value of a particular transaction in which they wish to partake. A user who stakes tokens totalling 100 USD of value would be very unlikely to scam a merchant over a 10 USD item, for example. Additionally, as long as that user maintains a pristine reputation, that 100 USD stake can be used over and over and the address would continue to be bolstered by good reviews and treat the user to a favorable experience in the marketplace. As a user accrues a history of positive reviews, the staked amount required for each transaction is likely to go down. In this sense, **a user's *Uprightly* reputation is an asset with demonstrable value. It lowers the user's cost of transacting.**

Due to the fact that losing staked tokens removes the token from the market, it permanently decreases the supply of UPT tokens and economic theory indicates that the UPT token should rise in price due to lost staked tokens[1]. A constant nominal stake amount will continue to grow in relative value as the pool of tokens shrinks when people lose them.

2. Incentives for Cooperating

A staked token by itself is not enough to ensure a reliable reputation system. A strong protocol that incentivizes cooperation and protects against manipulation from bad actors is essential. *Uprightly* has some basic rules[2] that govern how reputation is given and received:

Rule 1: The privilege to review a user must be explicitly granted by the user to another user.

This stops random reviews from being lodged against a user. For example, as part of winning an auction or making a purchase, both the buyer and seller could grant each other the privilege to give reviews. Generally, this grant would be given before the transaction has occurred or as part of signing a contract. There is no requirement for whether the users would transact on the blockchain. This means *Uprightly* can be used for business dealings in any setting, blockchain-based or otherwise.

Rule 2: As part of the review privilege grant, a token amount is staked on the grant.

If a user receives a negative review, the staked token amount is not returned to the user at the end of the transaction. In a mutual grant agreement, the tokens are only withheld if both users leave negative reviews for each other.

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[1] https://en.wikipedia.org/wiki/Law_of_supply

[2] We must consider under these rules that it is possible to easily acquire phony positive reviews. It is affordable and low-risk to control multiple addresses and submit fake positive reviews. In this light, **the main determining factors in the reputation of an address would be the staked value for a particular transaction, the age of the account, the reputation of users they interacted with in the past, as well as any negative reviews that were received in the past.** Positive reviews are nice, of course, but do not carry much weight unless the user which gave the review also had a good reputation. The incentives are purposefully aligned to encourage participants to cooperate even during a dispute in order to not gain a negative review. This trade-off is acceptable due to the increased likelihood of positive outcomes.

For example, as part of a mutual grant agreement, User A may stake 5 tokens on the grant and User B may stake 3. Users may negotiate these amounts up front, of course. If User A receives a negative review but leaves a positive review for User B, both users receive back their tokens. Only in the case that both users receive bad reviews will the token stakes (5 and 3 respectively) be lost. This is meant to be an act of good faith, in that a user has something at stake during the transaction. If both users cooperate then there is no cost. **If users are uncooperative and leave negative reviews, they will lose their staked tokens.** This encourages cooperation and dispute resolution as well as disincentivizing retaliatory reviews. A user who knows they will receive a negative review still has the power to not lose their tokens as long as they do not leave a negative review in retaliation. When tokens are not returned, they are 'burned' or destroyed.

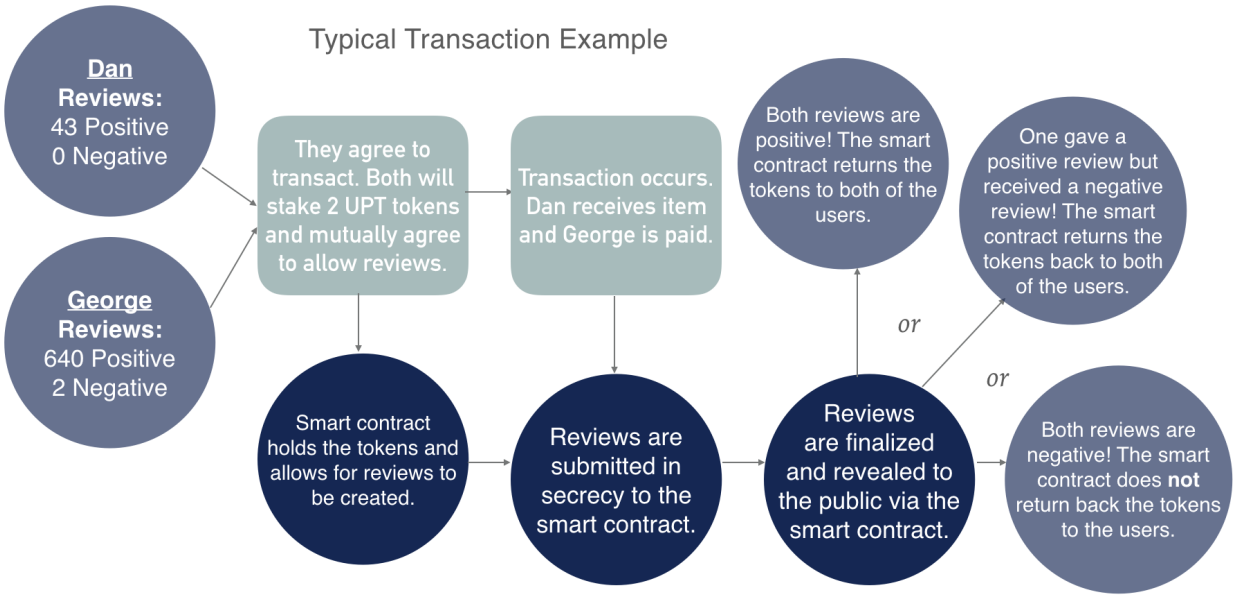
Rule 3: Reviews are kept secret during the review process.

Only when the review process has ended will each participant find out the review they received. Reviews can be changed during the review process. Once the review process has ended, reviews are finalized and revealed. Finalized reviews cannot be changed. During this finalization process any tokens are returned accordingly. Keeping reviews a secret until finalization encourages unbiased reviews. It would discourage retaliatory reviews because a user has no knowledge of the sort of review they will receive. It would also discourage users from attempting to extract a ransom from a user in exchange for a positive review because the ransom-er could not prove that they are leaving a positive review. This incentive is similar to how votes cannot be proven during an election in an effort to discourage vote-buying. Ideally, a user has agreed to a mutual review grant and would be able to respond with a negative review of an attempted ransom-er which would make such ransom attempts unprofitable and risky to attempt.

3. Public Record of Past Behavior of Participants

A good reputation system makes it easy to find reliable information about market participants. **Perhaps the best deterrent against fraudulent bad actors is to avoid them right from the beginning.** *Uprightly* utilizes the blockchain's guarantees to provide uncensored, unmanipulated, and comprehensive information about potential partners. It is important to see how long an address has been used, how much they have staked (and lost), what sort of reviews they have received, what kind of reviews they leave for others, and the reputation of users that they interact with most. Storing this sort of information on the blockchain is very feasible and allows *Uprightly* to be more reliable than any other competing reputation service. Given all of this information, users are empowered to transact successfully!

Example



Some things are intentionally NOT handled by *Uprightly*

There are many aspects of a transaction, of which reputation is just one. *Uprightly* is intended to be the best solution for reputation and reviews and thus has to make some trade-offs in what it can offer. Due to the variable nature of business, *Uprightly* does not try to solve things like payment gateways, dispute resolutions, negotiations, charge-backs, delivery confirmations, and things of that nature. This project leaves those problems for other projects to solve. *Uprightly* can fit in to any solution with its API integration features. In the absence of a good solution for these issues, **participants must work with each other to cooperate in whatever way works best for them.** The protocol is open and flexible enough to allow any business process to work with *Uprightly*.

Marketing Plan and API

The protocol and decentralized nature of the system makes it superior to any existing reputation service. To begin, we plan to create a robust user interface that can be used alongside existing platforms or in off-line applications. In this sense, *Uprightly* will be a perfectly acceptable stand-alone solution for reputation. It does not depend upon any other system in order to be a success. This means that the system does not absolutely require a strong 'network effect' to be successful! A single user can gain value from *Uprightly* by managing their own reputation and allowing other users to create reviews. Even though the system does not suffer from network effects, it does stand to gain from them.

API

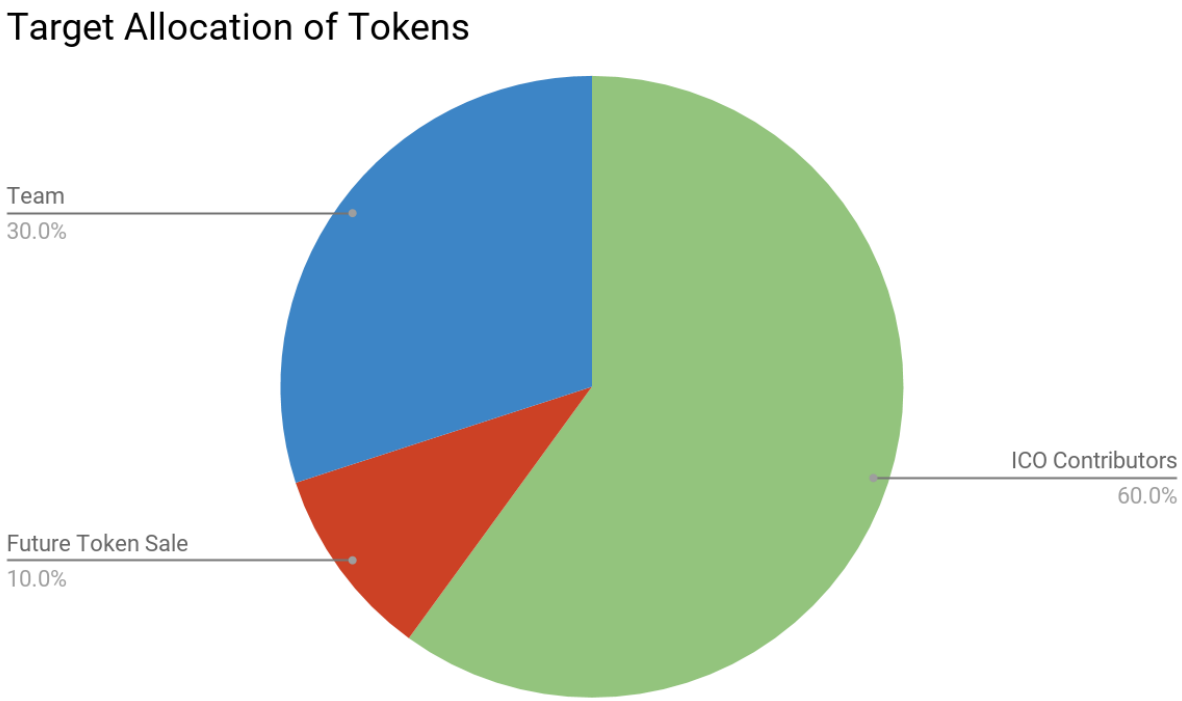
In order to increase adoption and provide value in the marketplace, *Uprightly's* reputation and reviews will be easily integrated into other platforms via a well-designed API. Such an API 'levels the playing field' for new applications competing with large incumbents. **Using our API, new applications will be able to get up and running with minimal user migration issues. This allows them to focus on their core strengths instead of battling the network effects of competitors.** Even incumbent competitors will stand to benefit from dropping support of their own reputation systems and adopting the *Uprightly* system. They will be able to onboard users and merchants more easily and they will reduce their own fraud costs. *Uprightly's* API will reduce switching costs for users and merchants when they decide to try out a new market or application. They will no longer need to start their reputations from scratch when switching between markets (Ebay to Amazon, etc.).

Token Sale and Contributions

Uprightly and its users stand to benefit the most from a token that is widely distributed amongst many people. To this end, we will execute a crowdsale that runs for one month and mints tokens for all users who contribute. The token conforms to the ERC20 standard and the ERC827 standard.

The date of the token sale will be announced when finalized. There will be an appropriate period of time for code review. During the token sale, we will accept contributions and mint tokens at a rate of 1,000 UPT per 1 ETH. Tokens will be minted and assigned immediately upon contribution.

The total amount of tokens that will exist depends upon how many contributions are received during the crowdsale. The *Uprightly* genesis contract aims to distribute 60% of the total tokens to contributors. After the crowdsale has ended, an additional 10% will be minted and held by *Uprightly* for future fundraising if required. 30% will minted and distributed to founders, employees, and advisors on a 2-year vesting schedule (1 year cliff).



Additional details about this sale can be found through the communication channels listed in the *Communication* section.

Use of Funds

Funds raised by the initial token sale will be used strictly for research and development of the protocol and API, and creating partnerships with businesses looking to integrate *Uprightly* into their applications.

This includes hiring a software development and design team, a marketing team, a business development team, and a community team.

Software and Design

The initial costs of the project will chiefly be salaries for engineers building the system. This will likely be a small group of four to five engineers to start. This may grow in following phases as the roadmap expands. There are requirements for web developers, smart contract developers, and security engineers. We will also require high-quality application designers if we are to succeed in creating an API that works well with the vast variability that exists within different platforms.

Business Development

This team will be focused mainly on identifying opportunities and building partnerships with potential organizations that stand to gain from using *Uprightly*. This team may take a few months to get off the ground while the upfront engineering is taking place. It will eventually be a key component of our organization and will help us find monetization techniques so we do not rely upon token sales for all of our funding.

Community

Success will largely be determined by adoption rates and user interaction. A strong community team will help educate users on why *Uprightly* is the best reputation system. They will also support our users along the way while they build their reputations. This team will get started right away talking with users and getting feedback about what is working and what is not working. This will be a key component of the software development cycle.

Current Progress & Roadmap

Communication

We have a community blog and website at http://uprightly.io as well as a slack community at https://uprightly.slack.com. We will announce roadmap items, contributor news, and other information on these channels.