

PIXEL PROPERTY

Tradable and Customizable Digital Property
Enforced by Blockchain Technology

White Paper

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ABSTRACT

Within recent years, blockchain technology has made decentralized computing an incredibly popular reality. PixelProperty reaches new heights by introducing a customizable way for cryptocollectables to be presented to the public visually. Represented by an interactive digital canvas using the Properties and Tokens that power PixelProperty, each user can contribute and display their ownership visually. Each 10x10 region of pixels on the canvas is a tradeable Digital Property. Property owners can allow the community to update the visual pixels of their Property, or keep their Property private. To incentivize users to play with the canvas, as well as incentivize owners to let their Properties be used freely, a crypto Token known as PixelPropertyToken (PXL) is created and distributed to such groups based on canvas usage. Integrating PXL with cryptocollectable Properties create a decentralized evolving canvas of digital real estate, following their own supply and demand market for trading between users via PXL.

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OBJECTIVE

Our vision is to create an ecosystem of cryptocollectables that connect the digital world with the physical world. We intend to connect PixelProperty with the real-world through a constantly evolving billboard installed in a popular city. Digitally, users may browse and edit the canvas through our user-friendly website, PixelProperty.io, which will update the billboard in real-time.

PixelProperty's technical design also allows for the advancements in other products using the same Properties represented in PixelProperty. Others may create separate supporting websites where their Properties represent other meanings. We plan to allow users to carry what they own within PixelProperty across multiple products, opening the PixelProperty ecosystem to additional markets up to the user base.

INTRODUCTION

Despite the most popular use case of blockchain technology being digital currencies, known as cryptocurrencies, another use case with growing interests is the creation of digital collectable items, also known as cryptocollectables. Cryptocollectables are unique, non-fungible, tradable assets powered by blockchain technology. Where traditional cryptocurrencies function like the US Dollar or arcade machine tokens, cryptocollectables are designed to function like trading cards or stamps. Cryptocollectables can be bought, sold or traded, with each being unique and impossible to counterfeit. Cryptocollectables can also be used to represent digital assets of ownership, such as a software license, an exclusive online membership, or a digitized deed to a house.

PixelProperty chose to build upon this revolutionary technology and explore the opportunity of creating meaningful Digital Property with proof of ownership. The concept of digital assets is applied to the digital Properties of PixelProperty, as each Property is represented by a region on the canvas. Not only does the canvas of PixelProperty represent tradeable Properties, it allows the users to customize the appearance and other info. In theory, the digital canvas has the potential to turn into an artistic battle between users, a collaborative masterpiece, or a powerful advertising tool for businesses.

While PixelProperty offers the opportunity for users to interact and share on a digital canvas, it creates the question; Why? Why would a property owner want other users to change their canvas' display? Why would users want to change the display in the first place? What keeps the canvas evolving, never stagnating? To create an incentive system to tie it all together, PixelPropertyToken (PXL) is produced for the users and owners of each Property, consistently rewarding users of the system. Users

who do not own Property can earn Tokens by contributing through changing the canvas, earning owners Tokens too.

The distribution model of PXL is uniquely designed around the use of the Canvas. Upon release, PXL is generated based on the activity on the Properties. There is no initial distribution of Tokens. Owners and contributors work together to evolve the canvas to acquire payouts. Tokens are used to buy Properties, change the color of Properties, and reserve Properties for advertising.

The incentivizing system of generated PXL ensures that Property purchases are not dependent on the price of another cryptocurrency. By pairing PXL with the success of the Canvas, a free market between Properties and Tokens allow the price of Properties to match market demand.

TECHNICAL DETAILS

TECHNOLOGY

PixelProperty Tokens and Properties are both powered by Ethereum. Ethereum is a blockchain technology which allows for the creation of Smart Contracts and decentralized applications. The PixelProperty Token, PXL, is an ERC20 token, allowing trade between other Tokens and Coins. Due to the secure nature of blockchain technology, once you purchase a Digital Property or start earning PXL, you own them forever and they are stored in your own wallet under your address. We have no control, possession nor mediation of transactions on the Ethereum blockchain.

PixelProperty.io is the website created to interact with the PixelProperty Ethereum Smart Contract. Users can communicate directly with the Smart Contract if they choose, our website simply offers a convenient user experience. An additional web server caches data from the smart contract, allowing for a more seamless user experience when using the PixelProperty.io website.

USER FEATURES

DRAW, UPLOAD & SHARE

Users and Property owners can draw pictures or upload images to Properties and share them with the world through the digital canvas. All visual expressions are welcome, including pixel art, photography or an organization's visual display.

CONNECT, NETWORKING & ADVERTISE

Properties showcase the personal messages of their owner through hover text that appears when a user moves their mouse over a given Properties' display. Should a user click on the property, it will redirect the user to the personal URL of the Property owner.

This allows for Properties to be perfect for advertising anything from a personal blog to a YouTube channel, from personal messages to corporate advertising. Property owners are rewarded in PXL when sharing their canvas with the public users. Properties continue to advertise using the owner's hover text and link while in any mode.

BUY, TRADE & SELL

Users can buy Properties, trade them with other users or sell them for PXL to each other. Users can initially purchase Properties off the system in either Ethereum (ETH) or PXL.

PLAY & REWARDS

The digital canvas is similar to a visual arcade, where it can cost Tokens to play and you may receive Tokens back for your efforts in advancing the display. Users earn Tokens through playing with the canvas in a fashion like a king of the hill style game, where the Tokens a player earns is based on the duration they held the king status. The longer your uploaded image stays on the Property without being altered, the larger your payout is when a user eventually dethrones you by updating the same Property. Users new to PixelProperty who do not have Tokens at first can still set the images of Properties for free, but with reduced payouts.

SMART CONTRACT COMMANDS

CHANGE PROPERTY MODE

A property owner can change what mode their property is in as long as it is unreserved. When the property is in "Private" mode, only the owner of the property can change the display picture. When a property is in "Free Use" mode, the owner is sharing it with the public, allowing anyone to change the display picture. Unowned properties, also known as "System Owned" properties, always default to Free Use mode. A Property in Public mode is paid out the same amount as the rewarded user when the image of the

Property is changed. A property in Private mode is charged one (1) Token per minute. These charged Tokens are burned, removing them from circulation forever.

CHANGE PROPERTY DISPLAY IMAGE

If a Property is in Free Use mode, the Property's display image can be changed by any user. Seventy-two (72) hours after contract release, users can choose to spend Tokens (t) to change the image, reserving the Property from being changed for $30 \text{ seconds} * t$, and providing a potential reward for $(t + 1)^2$ Tokens. Before Seventy-two hours, Property changes are free for changes costing 5 or less tokens to boost initial circulating supply.

After a Property is updated, it begins accumulating Tokens until the Property image is changed again, triggering a payout. A Property payout is sent to the last user and owner (if owned by a user) of the Property, where 1 Token is paid per full minute since the last update. As a user, best payouts come from Properties that do not change often. If the property was set for free, it follows the same model... Setting for free will reserve the Property from changing for 30 seconds, and a maximum of one (1) Token may be given to the user after one (1) minute (including reserved time).

If a property is in Private mode, only the owner of the property can change the display image. However, private Properties forfeit the right to generate Tokens, and cost one (1) Token per minute for the owner. The Tokens normally generated are never created or added to circulation.

CHANGE USER URL LINK

Each user can choose their own hyperlink which will be associated with their Properties. When a user clicks on a Property owned by this user, they are redirected to the owner's URL link. The maximum length of a hyperlink is 64 characters, and is free to change.

CHANGE USER HOVER TEXT

Each user can set their own hover text for all their owned Properties. Hover text appears near the mouse cursor when it is on a Property. The maximum length of a hover text is 64 characters, and is free to change.

BUY PROPERTY

Upon contract release, all Properties are "system-owned" and available for purchase. System-owned Properties are purchasable in ETH, PXL, or any mix of the two. Purchasing a system-owned property raises the price relative to the payment distribution between ETH and PXL. For example, purchasing in ETH raises the future ETH price, and purchasing in PXL raises the future PXL price. The rate of which these prices increase are yet to be determined.

Once Properties are purchased from the system they become "user-owned" Properties. User-owned Properties may be reposted on the market but can only accept PXL. Prices are determined by the seller when selling a user-owned property.

LIST PROPERTY FOR SALE

As an owner of property, you can list it for sale in the market at your chosen price in terms of PXL. A Property will stay for sale until the owner cancels the sale offer, or the sale has been filled. Trades of user-owned Properties are charged a 2% fee in PXL from the seller's cut.

TRANSFER PROPERTY OWNERSHIP

Users can transfer ownership of their property to another user should they choose. If being used outside of PixelProperty.io, this should require a confirmation before the transaction can be sent.

PROPERTY & TOKEN RELEASE DETAILS

The digital canvas will be created with 10,000 unique 10x10 pixel properties. No more will ever be created, and no Property is destroyed. Each Property is unique, mapped to its own identifier, and can never be affected by others due to the natural security built into Ethereum's blockchain system.

For PXL, there will be an infinite number of Tokens released. The theoretical maximum inflation of PXL possible is 20,000 PXL per minute. This is under the assumption that every property is set to public, and there are no Property changes to interrupt generation, except to renew. If a Property is in private mode, one (1) Token is instead removed from circulation for every minute, rather than generated. If a Property is updated, it can cost variable amounts of Tokens, all of which are burned. The result is a system that balances between Tokens generated and Tokens burned.

PROPERTY DISTRIBUTION

Upon contract launch, none of the properties will have owners, other than ten properties that will be reserved to the development team of PixelProperty for advertisements and giveaways. All system-properties will by default be for sale and in free-use mode on release—this will not change. This allows everyone to change every pixel of the canvas.

Every Property is for sale at the start, sharing one price for all system-owned Properties known as the system prices. The system prices begin at .005 ETH and 1000

PXL. Purchasing a system-owned Property will increase the system prices independently from one another.

The system-owned Property price increase does not necessarily mean that properties cannot be bought for less. Users who own properties already can sell to other users on the market on PixelProperty.io, built into the Smart Contract. This gives users the freedom to choose to pay free-market pricing for user-owned Properties, or pay the system price for system-owned Properties. Users will naturally select the cheaper pricing of the two options, meaning income to the contract is only received as the market naturally grows to match the system-prices.

This pricing method is to accomplish a few goals. The first is to allow users to enter our ecosystem through both ETH and PXL. Secondly, Property prices will scale with inflation, and in result will deter hoarders from purchasing the majority of Properties on release. Since ETH price is indeterminate, PXL is created for the canvas to allow system prices for system-owned Properties to ride with the supply and demand of PXL without relying on reasonable future prices for ETH.

INCOME MODEL

INCOME ANALYSIS

All income sources are designed to rely on the success of PixelProperty. Earnings will be used to contribute to the development of the rest of the roadmap. This includes advertisements to increase PixelProperty interest and growth and the development of the live updating billboard.

SUSTAINABLE INCOME MODEL

As a decentralized computing company, income is required to pay for software development, contract deployment, advertisements and to upkeep PixelProperty services. Rather than following an ICO income model, which pays the developers a large sum at once to create value in the company, we opted to rely on the interest of the average user to determine our earnings.

Our initial income comes from the sale of system-owned Properties. Early on, the system price is low to incentivize investors and interest new users. The 10,000 Properties for sale increase in PXL or ETH with every purchase. The system does not require Properties be purchased to function, so this price increase is not a hurdle, but an adaptation to inflation. Properties are designed to slowly sell out as the market rate naturally increases to meet the ceiling placed by the unsold properties.

To sustain future payments, we make a sustainable long-term income through a 2% fee on all Property sales between users. This small fee is taken from the seller's cut. There is no fee for simply transferring Property ownership.

QUALITY CONTROL & APPROPRIATE CONTENT

PixelProperty puts the power of determining an advertisement's visuals into the hands of users. However, not all images can be displayed everywhere. PixelProperty does not force censorship, although we may regulate the types of content that can be displayed on our website.

COMPLICATIONS

Quality control becomes very difficult to enforce due to the decentralized nature of Smart Contracts. This becomes even more difficult to enforce in our system because any user can change the display image of any public Properties. Locking violating Properties due to a user change may harm the Property owner, despite the owner not necessarily being the user who acted maliciously. Without human intervention or an overly complicated system to guarantee proper moderation, determining violations is hard. With these thoughts in mind, our solution provides a fair way to monitor content without overstepping boundaries.

INAPPROPRIATE CONTENT (NSFW)

Inappropriate content, also known as Not Safe for Work (NSFW) content, is content which depicts nudity or vulgar images. We expect there to be two possible scenarios where NSFW images may potentially be displayed: Property owners setting inappropriate content on their private Property, or when the Property image is set by anyone during Free Use mode.

For private Properties, owners who may leave inappropriate content uploaded on their Property for extended periods of time may be flagged as NSFW by the nominated

moderators. These flags do not remove content, but allow an interface to detect if a Property has been set as flagged. PixelProperty will utilize the flag to hide NSFW content on PixelProperty.io and PixelProperty web services. However, users are free to create their own interfaces to display this content outside of PixelProperty. The Property owners or users who set the data will receive no repercussions.

For public Properties, we believe community moderation will naturally occur. Fellow Property owners are invested in the platform and will likely do their part in keeping it clean. As the canvas platform naturally cycles through changes, users are automatically incentivized to overwrite the NSFW content. In such scenarios, it is in the best interest of all advertisers on the platform to police each other. In the possibility that a NSFW image is not immediately changed by another user; our moderators can still flag that Property as NSFW until the image is changed.

INAPPROPRIATE LINKS

On PixelProperty.io, users may view a Property's hyperlink before clicking through to the site. This allows users to determine whether they wish to visit sites. If the links or hover texts set by owners are NSFW, they may be reset by moderators. The owner may reset the link or hover text for free afterwards.

PERSISTENT OFFENDERS

An owner who continually posts inappropriate content may be blocked from PixelProperty services altogether. We do not have the ability to ban or remove Properties and their data from owners, but we may refuse to display their content on our services. Owners may continue to sell Properties or use Properties to generate PXL.

DIGITAL ADVERTISEMENT SERVICE

The digital canvas with live updates will be viewable on any browser with access to the Ethereum blockchain through services such as MetaMask. It may also be viewed with semi-live updates when requested from our server. The web server will act as an intermediary on behalf of the website, caching the most recent state of the PixelProperty canvas. This caching is done to make the user experience more seamless and minimize load time. However, there is nothing stopping users from directly communicating with the Smart Contract through Ethereum on their own.

REUSABLE CANVAS WIDGET

An updating canvas widget will be available for use on any website which allows embeddable JavaScript code snippets. This feature allows for the PixelProperty to be easily viewed across other websites, bringing value through viewership to the canvas and Tokens.

INTERACTIVE WEBSITE

PixelProperty.io will showcase the reusable canvas and allow users to interact with the canvas Smart Contract. The website will require MetaMask to be used for such interactions. Through the website, users can change their Properties' visuals, text and links, earn Tokens, and buy or sell Properties. An owner of a Property should expect to have their Properties viewed by others, as PixelProperty.io appeals to users with various interests and goals for their Properties. Users may participate to earn PXL, trade Properties, or simply for the fun of it.

PHYSICAL ADVERTISEMENT

Upon adequate funding, PixelProperty.io plans for a physical advertisement service for the PixelProperty ecosystem. As a long-term roadmap item, we plan to build a (at minimum) one hundred (100) sq. meter live updating billboard in a location with a population of at least one million (1,000,000) citizens. This is an expensive project that will bring the Digital canvas to the real-world, providing a new form of prime internet real estate, giving additional value to the Properties. PixelProperty intends to cover the ongoing costs of this billboard with the 2% fee deducted from user-owner Property trades.

CONCLUSION

PixelProperty is an evolving digital canvas of Properties using tradable cryptocollectables for artistic, competitive, and advertisement purposes. The cryptocurrency generated by the Properties in the digital canvas power the system. Through limited availability and a unique pricing model, the sales of system-owned Properties are enforced by canvas use. After the initial sales are complete, all user-owned Properties are driven by a free market.

We believe that the live billboard and the services offered by PixelProperty.io will bring real-world value to the Digital canvas. These services will extend the visibility of the Digital canvas beyond the PixelProperty.io domain, allowing anyone to host the Digital canvas anywhere with little to no hassle.