PIXO ARENA

WHITEPAPER

PIXOARENA

PixoArena is a blockchain based game where you can collect unique characters and fight to others. Climb the leaderboards and get prizes paid in cryptocurrency. Each character is summoned with a set of completely random generated Stats (HP, ATK, DEF, RCV) and attributes that will determine their performance on the Arena. Pixos can be equipped with artifacts to increase their stats and give them an awesome look. Once your Pixo is equipped and ready, go to the Arena and climb the ranks.
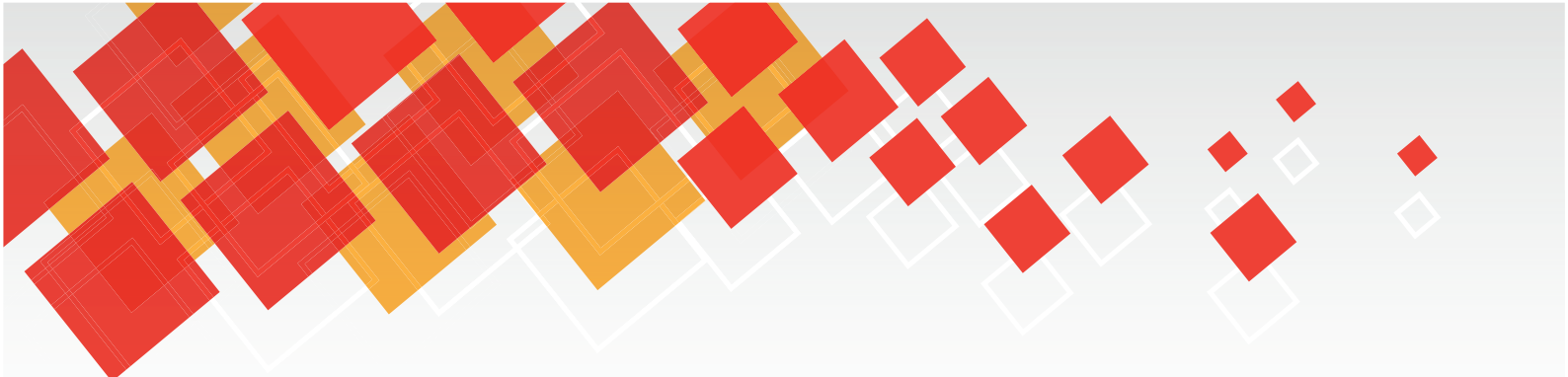
Summoning a Pixo

Pixos are not breedable or inherit characteristics of other Pixos. Each Pixo is unique in terms of stats and look, they are randomly generated so every time you summon a Pixo there is surprise factor on how strong will it be and look.

There are some special Pixos with super uncommon traits, so if you manage to get one of them you might add it to your collection or take it out for everyone to see to dominate the Arena.

Pixos are created with a set of:
- Skin Color
- Hair Style
- Eyes
- Mouth
- Upper Body Clothing
- Lower Body Clothing
- Shoes

This set cannot be changed. There is a huge number of different styles which make each Pixo unique and almost impossible to be the same as others.

Artifacts

Regardless of having a strong, weak, ugly or the most handsome Pixo. They can improve their stats and looks with artifacts. Artifacts are the equipment used by the Pixos in the Arena.

Helmets, Shields and Weapons are some artifacts which you can equip to any Pixo in your army. There are some ultra rare artifacts that will be very hard to put your hands on so if you are one of the few lucky ones to get this objects. You might customize your favorite Pixo with them or sell them for a profit on the Marketplace.

Helmet Tiers

Equipped Pixo

The marketplace

One of the greatest advantages of PixoArena and Blockchain Gaming is that once you summoned a Pixo or Artifact you are the owner of your digital assets, that means you are in full control on what to do with all your objects inside and outside PixoArena. You can buy, sell and trade your assets in the marketplace and become a PixoCollector with all the breeds and types of Pixos or buy the most powerful warriors from others and increase the power of your Army. It all depends on your gaming style, but the marketplace will be an important place to keep running the PixoArena Economy. PixoArena will integrate the marketplace with platforms such as RareBits and OpenSea.

The Arena

Each Pixo has his own Reputation (REP points) , winning and losing battles in the Arena is what increases and decreases their REP points. Pixos with more REP points are more likely to win battles. There are 2 ways of fighting your Pixo.

As a Defender

The Pixos sent to the defence group will see a boost into their DEF stats and can keep fighting and farming REP until beaten. Once they are beaten, they will need to take a rest. Rest cooldowns vary depending on the RCV stat.

As an Attacker

Pixos in the attacking group will see an increase in their ATK stat. They have the chance to choose their opponent wisely and analyze their stats but they will need to take cooldowns between battles.

Once you decide in which side your Pixo will fight, the Attack Power and the Defence power is calculated as follows.:

Attacker Power: ((HP * 0.25) + (ATK * 0.5) + (DEF * 0.25)) * REP
Defender Power: ((HP * 0.25) + (ATK * 0.25) + (DEF * 0.50)) * REP

For example: If the stats of the Attacker are HP: 90, ATK: 70, DEF: 67, REP: 115 and the Defender HP 80, ATK: 60, DEF: 70, REP: 120

(90*0.25) + (70 * 0.5) + (67 * 0.25) * 115= 8538 ATK Power
(80*0.25) + (60 * 0.25) + (70 * 0.50) * 120 = 8400 DEF Power

All the fights in PixoArena have a luck factor, The chances of a successful attack benefits the character with the biggest ATK or DEF Power. The Chance of success is calculated as follows:

Range = MAX(ATK Power, DEF Power)

% Success Atk = (Range + ATK Power - DEF Power) / (Range / 2)

In this case if we have a battle between the previous characters the chance would be calculated as:

Range = MAX(8538, 8400) = 8538

% Success ATK = (8538 + 8538 - 8400) / (8538 * 2) = 0.5081 = 50.81%

Because we have similar stats the ATK Power and DEF Power gap is small and the advantage between Pixos won't be a huge difference. Let's take another example where the ATK Power is 5197 (REP 70) and DEF Power 8400 (REP 120)

Range = MAX(5197 , 8400) = 8538

% Success ATK = (8400 + 5197 - 8400) / (8400 * 2) = 0.3093 = 30.93%

In this case, the Attacker is below 50 REP points! so there is a chance of success but as the gap between REP points increase, the probability of success decrease. The way the battles work allow us to benefit the best Pixo and keep the luck factor in the fight. A Pixo never has a 100% chance of success even if its 10x REP points above the other.

Once the chances are calculated, we "Roll a Dice". We will get a random number coming from the blockchain and determine the winner with a Blockhash.

Rewarding System

Each fight rewards the winner with 1 REP point and punishes the loser with -1REP, but if we only base the game according to this rewarding system the high REP Pixos would be attacking the low REP Pixos all the time, which would decrease the competitive incentive due to a big gap between the high level and low level. To keep the game balanced we calculate the Bonus REP awarded and lost after each battle depending of different factors:

The formula to calculate the REP points in case of winning is:

Gained REP = (Base REP) + Minimum(REP Multiplier, REP limit) * Current REP

Lost REP = - (Base REP) - Minimum(REP Multiplier, REP limit) * Current REP

Where:

- Base REP = 1
- REP Multiplier = Absolute(Defender REP / Attacker XP) - 1
- REP Limit:

This limits are the maximum and minimum your REP can go. To reduce high level users beating weaker enemies all the time and weaker enemies to go up 100x their current REP.

- Win to Stronger = 0.05
- Win to Weaker = 0.01
- Lose to Stronger = 0.03
- Lose to Weaker = 0.08

    Current REP - Defender and Attacker REP

So for this example we have a fight between a Attacker REP 100 and a Defender REP 120 If the Attacker win the fight this would be calculated as

- Victory REP = 1 + Minimum(Absolute((120 / 100) - 1) , 0.05) * 100
- Victory REP = 1 + Minimum(0.2 , 0.05) * 100
- Victory REP = 1 + (0.05 * 100) = 6

So in this case the reward is 6 REP points. Let's take a look on how we could calculate the lost REP if the attacker is defeated:

- Defeat REP = -1 - Minimum(Absolute((120 / 100) - 1) , 0.03) * 100
- Defeat REP = -1 - Minimum(0.2 , 0.03) * 100
- Defeat REP = -1 - (0.03 * 100) = - 4

Decimal numbers are always rounded to the nearest integer.
The same is calculated for the Defender swapping the positions in Multiplier.

Roadmap

This is the first version of PixoArena Roadmap, we will have a fully updated roadmap in our website once up. Keeping you updated with the progress of the team. Or you can come and talk with us on our social networks. We would love to hear your support.

Q2 2018

◆ Create and Release PixoArena Founder Token. (PFT)

◆ Pixos Art Assets

◆ Get a Pixo Introduction website up

◆ Set up the first version of Pixo Arena Contract

◆ Auction Integration

◆ Blogging and Communities

◆ Rinkeby Alpha/Beta

◆ Prepare Pixos for Updates on Runes and Artifacts

Q3 2018

◆ Release Pixo Arena DAPP

◆ API

◆ Get a Pixo Introduction website up

◆ Release Army fights

Q2 2018

✐ Create and Release PixoArena Founder Token. (PFT)

This are special tokens for early stage founders and Bounty collectors. (PFT) tokens will be exchanged for unique and strong Pixos and Artifacts after release.

Pixos Art Assets.

Pixos are handcrafted by the best Pixel artists that's why we are taking time to create awesome pixel art before they can be used in the marketplaces. No one likes a bad piece of art. So we are taking our time to creating pixel perfect Pixos. For Real.

Get a Pixo Introduction website up.

Pixos has a great story behind them. Here you will learn more about the Pixo world play with a Pixo generator demo and buy Founder Pixo Tokens with metamask or any browser based wallet to be used in Release.

Set up the first version of Pixo Arena Contract

This is one of the most important parts of the game, so we will create the ERC721 non-fungible contract with the mechanics described earlier and do a carefully testing and audit process to confirm that your Pixos will be safe!

Auction Integration

We develop awesome games, rather than awesome platforms. By integrating the OpenSea and RareBits into our Dapp we will accelerate the development process and allow players to start trading their Pixos before the release.

Blogging and Communities.

Join to our discord group! Follow us on Twitter and stay up to date with the latest development milestones that we have in our Medium.

Rinkeby Alpha/Beta

Measure Twice, Cut Once. Be a PixoArena Founder Token holder and have the chance to be invited into our private alpha and beta.

✎ **Prepare Pixos for Updates on Runes and Artifacts**

Some Pixos are weak but with good genetics, we don't want you to hate your most handsome Pixo because he is the weakest. Runes will help you to give a strength boost to your favorite Pixo.

Q3 2018

✎ **Release Pixo Arena DAPP**

We are planning to release the first stable version of Pixo Arena early in Q1 to be fully playable and ready to keep the upgrades for new features coming.

✎ **API**

Pixos love to be fully decentralized, but they also love to be affordable. Even when your Pixo is completely on-chain, the assets that generate them are stored on a server. But the good news is that we are planning to offer a free api to get your Pixo image and assets from our servers. Want to use your Pixo in a Race game, use it in another dapp or creating something new? We got you.

✎ **Release Army fights**

Our focus at this moment is to create 1vs1 Pixo fights. After this module is completed we will start developing army fights so you can create your Pixo Army and fight to others. Army creations will incentivize the need to sell and buy Pixos from the marketplace, some teams that match certain characteristics will get boosted.

PixoArena 2018