



Hearo.fm JAM Token
Whitepaper
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The Hearo.fm JAM Token

The Hearo.fm JAM Token is a Hedera Hashgraph powered music token to enable a global music marketplace platform for artists and fans.

Music Deserves More

Music is the stickiest form of media in the world and has a long history of connecting people through a common language. It has the power to change moods, stir emotions, unite communities, and change lives. Many neurological studies elaborate on music's profound effects on the brain and the great power it has within our bodies. Yet, music remains one of the least monetized forms of media compared to photos, text, and video, leaving independent music artists at a major disadvantage in the marketplace.

The industry has been held in a chokehold by the current licensing paradigm and the major labels supporting them. Millions of artists around the world are struggling to survive and get their music out to the world to be heard. The current digital music landscape is ripe for disruption and change. By bringing together music discovery and cryptocurrency in one cohesive place, we can create a groundbreaking experience that lifts up artists from all around the world and satisfies fans more than ever before.



Tech Empowers Artists

We embarked on this mission to create a global independent music marketplace for artists to collaborate, share their music, and connect directly to their fans. Our goal is to democratize access to music and level the playing field for artists around the world. Today, heard.fm is a thriving music marketplace where you can discover great independent music from all around the world.

Problems with Fiat & Blockchain

The reality emerged that fiat currency payment processing was the weakest link of the marketplace technology stack. Exorbitant credit card fees of \$0.30 plus 3% made it impossible for artists to get paid by the stream and made it cost prohibitive to buy individual songs in a simple transaction. We established a song cart to try and alleviate these fees by grouping transactions, but ultimately this was a lesser user experience and the complex logic necessary to account for fees cut deeply into artist payouts. The NATCHA batch file transfer system necessary to make ACH payouts to artists was built on a legacy banking backend system riddled with bugs, and frequently malfunctioned or flat out did not go through. International payments were a huge problem as various banks did not trust certain countries and tons of regulation put up roadblocks to hinder seamless international transactions. Many attempts to handle global marketplace payments have failed and the fee structure makes micropayments impossible.

We explored accepting cryptocurrencies like Bitcoin and Ethereum, and then creating a credit system based on the fiat value across exchanges. Ultimately the current state of blockchain technology imposed serious limitations. High volatility made it impossible to rely on a stable price and transaction fees are exorbitant, sometimes \$3 to \$30 depending on network congestion. Finally the throughput was very low (3-7 TX/s) on the whole network which would not meet our needs. Clearly blockchain technology is in its infancy, and the idea of slowing down the platform to incur high fees with a volatile asset did not solve any of the original problems caused by fiat.



Hashgraph DLT for Music

With the emergence of new forms of distributed ledger technology (DLT), notably Hedera Hashgraph, hearo.fm will be able to create new opportunities for artist growth, which were previously impossible. The JAM Token will be a Hedera Hashgraph-based token for music to power a global artist & fan marketplace.

We have designed this token to solve the existing issues with fiat currency and blockchain technology for music micropayments. In order to handle seamless borderless micropayments, the platform needs high throughput, low latency, low fees, and a bank-grade secure consensus protocol. Hedera Hashgraph will be able to meet those needs, featuring hundreds of thousands of Tx/s per shard, low fees, and an asynchronous Byzantine Fault Tolerant (aBFT) virtual voting consensus protocol. Thus the Hedera Hashgraph public network will be able to power a consumer music platform token at scale with millions of concurrent users. Also, Hedera Hashgraph will support smart contracts written in Solidity which means existing Solidity smart contracts will run without any changes required. Therefore, Hedera Hashgraph will be able to support ERC20 standard tokens and all the open source software frameworks and tools like Remix and Truffle frequently used in smart contract development.

JAM Token on Hedera Hashgraph

The hearo.fm JAM token will be an ERC20 standard smart contract token built to run on the Hedera Hashgraph platform. The token will enable creator and curator rewards to artists and fans in the form of borderless micropayments for streams and reviews. For the first time, artists will be able to monetize individual streams directly from fans around the world via seamless micropayments in the form of JAM token cryptocurrency. No longer will credit card & banking fees get in the way of real earnings. The JAM token will operate as a democratized value exchange between artists and fans around the



world. With DLT technology on hearo.fm, you can monetize your music, incentivize reviews, and grow your network.

JAM Token Ecosystem Incentives

The hearo.fm JAM token solves the problem of micro-payments in the music industry. Utilizing cryptocurrency and distributed ledger technology, the JAM token enables a direct symbiotic relationship between artists and fans, without the need of middlemen to collect license fees for streams and distribution.

The JAM token creates a global music marketplace and ecosystem where artists can get paid in cryptocurrency for every stream and hi-fidelity download of their music. Fans can earn cryptocurrency by listening to tracks that artists and labels wish to promote as well as reviewing songs and albums, and then spend those tokens by listening to music of artists they love. After 10 streams, fans will automatically unlock ownership of the song which includes unlimited free streams and unlimited hi-fidelity offline plays and downloads guaranteed by the smart contract.

Through this fluid value exchange of micro-payments directly between artists and fans utilizing the JAM token, the hearo.fm network allows a healthy global music marketplace and ecosystem to flourish. Artists can get compensated directly for their music and earn far more than they would through traditional means per stream and download. Fans have an incredible way to get paid for streaming and reviewing new music, and then they can pay it forward to artists they fall in love with by doing a deep dive into their catalog.

The hearo.fm network will reserve a portion of the tokens to distribute back to the community to stimulate the marketplace and incentivize paid music listening and reviewing to continually bolster the marketplace with highly curated content. For the first time fans will be able to earn cryptocurrency merely by listening to music. Both artists and fans will share in the benefits gained from a tokenized music economy.



Disintermediating the Music Industry

We started hearo.fm to democratize the music industry. For far too long, large publishing companies, major labels, and streaming services have squeezed artists and the music industry as a whole by being gatekeepers to distribution. This creates a deadweight loss and the economics of music have suffered as a result. We intend to solve that problem through a direct-to-fan streaming and distribution platform and marketplace powered by cryptocurrency that enables micropayment to artists and fans alike as we incentivize listening and reward artists at the same time.

We algorithmically sort music based on how fans respond so the cream rises to the top and a level playing field is had by all. We are breaking down the silos formed by archaic licensing frameworks with our own music license that allows direct-to-fan music streaming and distribution for anyone around the world. By disintermediating the music industry with a consumer platform powered by cryptocurrency, we can bring hope to artists and a better experience to fans that does justice to a medium that is our only truly global language and so eternally important to humanity.

Our goal is to become a household brand that epitomizes music, authenticity, and tastemaking. Our footprint will extend beyond the web to be in every phone, TV, living room, cafe, and VR headset. Millions of artists around the world will be made whole through fair compensation via cryptocurrency that is proportional to the quality of their art and response by fans. Many artists will find an income stream that enables them to pursue a life in music and focus on their art rather than be shackled by the economics of a failing music industry. Music will once again resume its role as the most important and stickiest form of media that generates the most money for its creators.



Core Development Team

Andrew Antar and Brian Antar are brothers from the Philadelphia Main Line who grew up in a musical family playing violin and building things on computers together. Andrew went off to Brown University and Brian went off to University of Pennsylvania. At Brown, Andrew was jamming with friends and started Musicians@Brown which quickly grew to be the go-to place to find musicians on campus to collaborate with. He promptly decided a new social network platform for musicians was in order. Brian was producing beats for rap and hip-hop artists and realized there was a need for a direct-fan marketplace to sell tracks with flexible pricing option. Both brothers set out on their own to build music platforms. Upon realizing their parallel efforts, they joined forces and visions to create the ultimate artist and fan music marketplace.

In addition to both being web developers and designers, Andrew and Brian set out to recruit top engineers at Brown and Penn to help build the platform. Many talented developers have contributed to the project and gone on to work at some of the top tech companies like Google, Microsoft, and Amazon, and we have had the privilege to work with some of the best software developers in the world. Daniel Nordberg, our CTO and Lead Developer resides in Nairobi, Kenya, and is an expert with Python, Django, Javascript, and uses all the latest tools like Docker and Kubernetes. He has been instrumental in developing our core platform technology and music management services. James Pic, our security expert, resides in Paris, France, and is a top answerer around the world on Stack Overflow for Python and Django. He makes sure we maintain the highest grade security and best practices for server architecture and dev-ops.

Software Architecture

The core application is built in Python, Django, CSS3/HTML5 and Javascript on the client side. On the server side we are using Rackspace and AWS and migrating to Docker and DigitalOcean. The ERC-20 token smart contract will be developed in Solidity using Remix IDE, Truffle, and the Hedera Hashgraph platform.



Tokenomics

Standard	ERC20
Symbol	JAM
Supply	1,000,000,000
Soft Cap	2,000 ETH
Hard Cap	10,000 ETH

ICO Allocation

Public Sale	60%
hearo.fm Inc.	20%
Founders	10%
Engineers	5%
Advisors	5%

Public Token Sale

Token Sales	Presale 1	Presale 2	ICO
Discount	50%	33%	0%
Price	1ETH = 20,000	1ETH = 15,000	1ETH = 10,000
Date	Q3 2018	Q4 2018	Q1 2019

