

**Generating resumes as verifiable NFT-based work  
experience and job-related documents**

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**Grant Category:**

Applications and use cases

**Focus Area:**

None (NFTs)

## Section 1. Executive Summary

The current verification of a candidate's work experience and job-related documents such as qualifications makes use of third-party services which can be a costly and time-consuming process in addition to raising significant risk around the storage of candidate data. In addition, job-related documentation fraud is on the rise and full trust cannot be placed on what is written and submitted in a traditional employee resume.

The main aim of this project is to leverage an existing decentralized platform where end-users can generate, issue, receive, securely store, and verify the authenticity of work-related documents (i.e., Degrees, certifications etc.) and work experience as Non-fungible Tokens (NFTs) on the Cardano blockchain. End-users will be able to interact with this platform through the use of a web interface and mobile application.

Cardano NFTs are public, immutable entries that record the exact date and time verification, and minting took place. Through the use of the Cardano blockchain, permanence and immutability are ensured.

The following details the advantages for each entity:

1. Individual users
  - They can own their data and share it with whoever they desire.
  - They stand out in the job market having verified and authenticated work experience and job-related documents.
2. Academic institutions
  - The goal of graduating from academic institutions for most students is to find employment. Each time an alumni student moves to a new employer, the academic institution will be contacted to verify the Individuals documentation. Academic institutions are therefore incentivised to generate NFT equivalent versions of degrees, diplomas, certifications etc. so that they do not have to do it continuously in the future.
3. Companies:
  - A reward incentive was developed in order to get companies to join the platform. This is discussed in section 4.4

The expected timeline for this project will be 12 months to get a MVP operating. We believe our approach goes beyond the digital artwork and collectable hype that is currently attached to NFTs at the moment and presents a real-world use case where NFTs can improve current processes. The current resume is on its way out and NFTs present the perfect way to transition users into a digital world where their professional lives are fully verified and data secure.



## Section 2. Core Team

### **Jagger Bellagarda - Business Development**

Jagger Bellagarda is a master's student at the University of Pretoria focusing on the convergence of Artificial Intelligence and Distributed Ledger Technology. He has already been published in the cryptocurrency space with his academic paper titled "The potential effect off-chain instant payments will have on cryptocurrency scalability issues - The Lightning Network" being included at the International Conference on Information Resources Management in Auckland, New Zealand in May 2019. When he is not busy with his master's research, Jagger works as an IT Auditor. In his free time, he enjoys producing music.

### **Snehal Shah - Technical Architect**

Snehal is a well-experienced Lead with a demonstrated history of leading and delivering projects of enterprise-grade. He is a master of executing multiple responsibilities at ease. Currently serving as a CEO of Techforce Infotech Pvt. Ltd as well as architecting multiple finance-based projects. He is also designing solutions for various blockchain-based enterprise systems for various clients that include Ethereum, Solana, and others. Extensively worked on multiple domains like Finance, Publishing, Medical, Insurance, and Legal along with proven experience in Agile project management framework in his long last career of 20 years. During his journey, he has also co-author books on Alfresco and also participated in reviews of Alfresco-based books. With his exceptional skills of providing solutions and coordinating with the vast team, Snehal is leading different projects with the zest and power.

### **Bhavin Shah - Project Leader (Certified Scrum Master)**

Bhavin has 9+ Years of experience in Software Development and has domain knowledge of design, development, maintenance, and product development. Bhavin mainly focuses on Blockchain Development, NFT, provides Retail Banking Solutions ( Fin-Tech & Financial Services ) Shopping Carts and E-wallets Integrations. Bhavin is always involved in a project where he can utilize his skills creatively that effectively contributes to the growth of an organization and client's business directly. With the experience and constantly upgraded knowledge about the industries, Bhavin manages different projects, works with his team, and provides tactical solutions for all the new opportunities.

### **Prashant Siddhpura - Mobile Expert**

Prashant has 6+ Years of experience in Mobile development as an iOS, Android, and React Native. Prashant has the skill set of mobile application design, development, and maintenance. Prashant worked on multiple applications like Event, Medical, Lead Generation, E-Commerce, Custom SDK-based applications, and Learning with advanced UI/UX design patterns in modern technology. Prashant also shares his expertise in gathering the project requirements and creating the project scope with the minimum outcomes. He has always upgraded his knowledge in mobile development,

manages a team, manages different projects, and provides the solutions for all enhancement.

### **Kartik Rajendran - Blockchain Developer**

Kartik is a Java and a Blockchain Developer. With the deep knowledge of Ethereum, Solana & Multichain, Kartik has worked on various projects and provided solutions for Apexx, Aubit, and other different projects. Kartik shares the expertise in Private & Public Blockchain, blockchain file system integration using IPFS, he has expertise in development of DApps using Ethereum's / Solana's Web3.JS library and have developed ERC20, ERC721, Vesting & Token Distributor In Batches smart contracts. He has also created Private Blockchain with Multichain and related front-end apps. With the sharp skills of Research and Development, Kartik utilizes his Tech knowledge and comes up with strategic solutions for the new projects.

## **Section 3. Problem Description**

### **3.1 Introduction**

One of the core aspects in the job recruitment process is the performance of a background check, with specific focus on the validation of a candidate's employment history and job-related documents such as qualifications.

Document fraud is a recurring issue, with the following statistics highlighted:

- A study conducted by a leading Primary Source Verification (PSV) provider in 2020 reported that half of candidates falsified information to some degree in their application.
- An article published by CNBC in 2020, it was reported that 78 percent of candidates lie to some degree on their resumes.

Furthermore, the following details recent statistics regarding employee work experience:

- A study conducted by a leading Primary Source Verification (PSV) provider in 2020 reported that half of candidates falsified information to some degree in their application.
- In an article published by the New York Times in 2015, it was reported that over 3300 fake tertiary education establishments existed where individuals could purchase degrees and certifications of all levels.
- Recently from a South African context, it was reported in 2018 that there had been over a 2000 percent increase in fake qualifications detected since the 2010/11 financial year.

The verification of a candidate's work experience and job-related documents such



as qualifications makes use of third-party services which can be a costly and time-consuming process in addition to raising significant risk around the storage of candidate data. These third-party services usually have access to large electronic suppliers of tertiary qualifications as a means to verify the qualifications submitted by the candidate to a company. If this process fails, these third-party services will contact the institution directly (via email or phone call) in order to gain confirmation on the authenticity of the candidate's qualifications.

The issues mentioned above highlight the need for a system that can ensure a candidate's employment history and job-related documents are stored in a secure and verified manner. This proposal will attempt to address these issues by using blockchain technology, with a specific focus on Non-fungible Tokens (NFTs). Potential recruiters would be able to access a candidate set of one or more NFTs and verify their employment history and job-related documents based on the digital trail attached to each secure and immutable NFT.

### 3.2 Aim of the project

The main aim of this project is divided into the creation and verification of two aspects, work experience and job-related documents.

#### Work experience:

Verify a user's work experience by having the original employer digital sign and approve its authenticity.

#### Job-related documents:

Verify the authenticity of job-related documents issued by academic institutions such as Universities, colleges, high schools, and online course providers (eg: Udemy)

### 3.3 Why Blockchain Technology

Blockchain technology is the most known DLT, garnering a lot of attention since the introduction of the cryptocurrency Bitcoin. Blockchain technology can be described as a distributed consensus model that is unchangeable, containing a shared digital ledger made up of a chain of blocks that sequentially records tangible and intangible data transactions.

### 3.4 Why Non-fungible Tokens

An NFT or Non-fungible Token represents a unique and non-interchangeable digital asset that is stored on a blockchain. Data stored in an NFT is digitally secured and verified using the cryptographic functions related to blockchain technology.

## Section 4. Solution Approach

### 4.1 Goals and scope of solution

The main goal is to build a decentralized platform where end-users can generate, issue, receive, securely store, and verify the authenticity of work-related documents (i.e., Degrees, certifications etc.) and work experience as Non-fungible Tokens on the Cardano blockchain.

Cardano NFTs are public, immutable entries that record the exact date and time verification, and minting took place. Through the use of the Cardano blockchain, permanence and immutability are ensured.

End-users will be able to interact with this platform through the use of a web interface and mobile application.

The following functionality is currently in scope:

- Generation or “minting” of data as NFTs
- Issuing of NFT minting orders or requests
- Sending and receiving of NFTs
- Integration of external digital wallets (eg: Metamask) to store NFTs
- Ability to display NFTs aesthetically using web or app-based platform
- Cardano blockchain and NFT design ensures

immutability The following functionality is not currently in scope:

- Development of a recruitment portal where jobs can be advertised by recruiters and applied for by individual users

#### 4.2 Technical approach

Academic institutions and companies can use the platform to either:

- Mint and Issue verifiable NFT-based job-related documents or work experience, or
- Digitally sign and approve requests sent by individual users

Individual users can use the platform to:

- Build and share (via various communication channels) their digital NFT-based resume
- Send requests to academic institutions attended and/or past employers to have their NFTs validated
- Receive NFT-based job-related documents or work experience from academic institutions and/or past employers

A core web application will be used for generating, issuing, and verifying the authenticity of an individual user's work experience or job-related documents. The following details the workflow for each entity on the platform.

Individual users:

- 1) Users will sign up to the platform
- 2) Users will perform KYC functions in order to validate their identity. This entails proof of ID and Address checks in addition to biometric face verification. This functionality will be outsourced for cost optimization.
- 3) Users will connect their external digital wallets to their accounts
- 4) Users will create their resume as multiple pre-NFTs (not yet minted), each representing a specific qualification, certification, or period of past work experience. Each pre-NFT will contain mandatory fields that need to be filled out such as the type of qualification obtained (MSc, Bcom, etc.).
- 5) Users will lodge a request via the platform to have each of their resume

**CVNFT**

pre-NFTs verified by the applicable third-party (University, Company, etc.). They will pre-authorise the minting of this NFT on the basis that successful approval by the third-party takes place. The user will need to have a minimum amount of tokens in their digital wallet to cover the transaction fee should the pre-NFT data be verified.

**CVNFT**



- 6) (see third parties' section below) A third-party will receive the request and review the data contained in the pre-NFT. If they decide to approve the verification of the pre-NFT, the NFT will be minted at the users cost and placed in their digital wallet to be viewed on the platform. If the third-party decides not to approve the verification of the pre-NFT, it will be returned (with optional notes) to the user and their minting fee returned. The user can make the necessary changes and request verification once again.
- 7) A user will have the ability to share the NFTs and pre-NFTs they want with prospective employers and recruiters through multiple communication means (eg: email). A recruiter will be able to view a landing page aesthetically showing off the users NFT resume and which of the users NFTs have been verified and which have not.

Companies and/or academic institutions:

- 1) Users can recommend a third-party be contacted and loaded onto the system. Third parties can also voluntarily sign up to the platform.
- 2) A third-party will sign up to the platform and create their business account.
- 3) Once signed up, users will be able to select the specific academic institution or company from a drop-down menu and request verification of their specific pre-NFTs.
- 4) A third-party will only have to mint one NFT representing their "approval signature". This "stamp of approval" NFT will be linked/embedded to the users NFT once minted upon verification.

#### 4.3 Transaction costs

A flat fee will be charged in addition to the token transaction fees for minting NFTs. Users will be charged the normal blockchain network fee for sending NFTs.

#### 4.4 User network growth

In order to ensure the growth of the platform, the following incentives will be implemented:

1. Financial rewards for Individual users: Should a user help onboard a new company or academic institution, they will receive a permanent percentage for each NFT transaction the new company or academic institution mints/issues.
2. Financial rewards for Companies and Academic Institutions: Each company and academic institution will receive a small percentage of the transaction cost for verifying documents (cash back). The intention with this is to motivate these entities to spread the word and use the platform.

#### 4.5 What would be deemed a success

1. **Super success:** Platform is successfully launched and well marketed within the 12-month timeframe



2. **Great success:** Launch occurs with a delay of 6 months

3. **So-so success:** Launch occurs with a delay of 12 months and is not marketed correctly

#### 4.6 Future expansions of the project

- The potential to implement the renewal of NFTs to keep expiring job-related documents updated and verified. If not updated, the verification and NFT is burned.
- Bridges to other blockchain-based NFT platforms (if required) to generate cross-functionality.
- The launch of a recruitment portal where jobs can be advertised and subsequently applied for.
- The launch of a native token for the platform that can be staked. Based on the amount staked determines the number of unique NFTs that can be minted by companies and academic institutions.

#### 4.7 Social responsibility

A social responsibility scheme will be fully developed and will centre around giving a portion of financial revenue to NGOs and charities focused on the development of quality education.

### Section 5. Detailed Technical Plan and Statement of Work

#### 5.1 Tasks and subtasks

##### **Month 1-3:**

**Task 1:** Backend development

**Team Members:** Developers

**Deliverables:** Construct a development plan for the following:

- Web Interface - NFT work experience creation functionality
- Web Interface - NFT work experience verification functionality
- Web Interface - NFT job-related document creation functionality
- Web Interface - NFT job-related document verification functionality
- Mobile dApp - NFT work experience creation functionality
- Mobile dApp - NFT work experience verification functionality
- Mobile dApp - NFT job-related document creation functionality

- Mobile dApp - NFT job-related document verification functionality

**Task 2:** Marketing research & PR

**Team Members:** Business Development

**Deliverables:** Construct a marketing plan for the following:

- Social media account setup and marketing
- Other media formats (podcast and video-based participation) involving talking about the project

**Month 4-9:**

**Task 1:** Web-based application development

**Team Members:** Developers

**Deliverables:** The following will be executed:

- Development of application capability for NFT work experience creation
- Development of application capability for NFT work experience verification
- Development of application capability for NFT job-related document creation
- Development of application capability for NFT job-related document verification
- Cardano blockchain integration
- Digital wallet and web-based extension integration

**Task 2:** Perform pre-launch testing by onboarding first number of clients

**Team Members:** Business development team

**Deliverables:** The following will be executed:

- Mock UX designs of application and functionality presented to company and academic institutions
- Willing participants onboarded to be used in testing of continuous developed functionalities.

**Month 10-12:**

**Task 1:** Mobile application based (IOS & Android) development

**Team Members:** Developers

**Deliverables:** The following will be executed:



- Development of application capability for NFT work experience creation
- Development of application capability for NFT work experience verification

- Development of application capability for NFT job-related document creation
- Development of application capability for NFT job-related document verification
- Cardano blockchain integration
- Mobile wallet creation and integration

**Task 2:** UX design of mobile application

**Team Members:** UX Designer

**Deliverables:** The following will be executed:

- Design of mobile application user experience
- Design of digital wallet NFT presentation mechanism that will be seen by end-users

**Task 3:** Marketing campaign launched

**Task 4:** Mainnet release

## 5.2 Overall project goals

1. Successful testnet and mainnet launch
2. Growing end user base
3. Increasing the number of end user transaction verification

## Section 6. Technology Stack

**Deliverables:** Build 1 Web Application and 1 Mobile Application in Android and iOS.

**Technology Stack:**

Frontend	Backend	Database Details	Others
HTML	JAVA	MySQL	Cardano/Ethereum/ So lana
CSS	Spring Boot	Redis	Web3.js
jQuery	Spring Rest		IPFS
ReactJS/Angular	Spring Security		
	Workflow/JMS		

## Section 7. Budgets and Costs

- Development (back-end software development and design) - \$40.000 to \$80.000
- Referral system & KYC - \$12.000
- Marketing (SEO, social media, PR & review incentives) - \$13.000

## Section 9. Conclusion

This platform is a South African startup which, using the Cardano blockchain, will enable the permanent, immutable, and secure storage of verified and authentic work experience and job-related documents.

Verification of authenticity will be affordable, simple, and fast and will protect all entities from forgeries and manipulations. We fully believe this platform will harness the power of blockchain technology and non-fungible tokens to help reduce the rapid rise of document fraud and allow for more trust and transparency in the recruitment process.