

Lab 1 - First Draft

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Art Guardian - Team Blue

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# 1. Introduction

On February 19, 2021 an NFT of “nyan cat”, a popular meme from 2011, sold for \$500,000 worth of crypto currency (BBC, 2021). This sale sparked a rise in interest of NFTs, with multiple artists joining in the craze. As the value of the market increased from \$100 million to \$41 billion (Dailey, 2022). This craze then developed from online influencers and tech giants like Jack Dorsey selling NFTs of his first tweets, to everyday artists creating art, sometimes procedurally generated, in collections, and selling pieces of these collections for a high markup. This burgeoning market has seen up to 50% of all sales reach over \$200 (Dailey, 2022), and due to the unregulated nature of the blockchain, this incentive has led to a rise in theft.

From November of 2021 to December of 2021 Deviantart, a popular platform for digital artists, reported 90,000 possible cases of digital art theft, an increase of 300% in one month (Beckett, 2022). Artists must find each case of art theft, file each DMCA themselves, and keep track of all related documents on their own, a tedious and drawn out process. Not all artists have the knowledge to fulfill these tasks, something that a solution would have to take into consideration.

One solution is Art Guardian, a progressive web application that would allow users to register and upload their art on both desktop and mobile devices. The app would monitor NFT marketplaces for stolen art and alert the artist when the art is found. The app would also need to generate a DMCA for artists to e-sign and issue within minutes. This would greatly reduce the work artists are required to do to protect their art and streamline the takedown process.

## 2. Product Description

Art Guardian is a progressive web app, where users upload their original artwork into a database. Art Guardian will then monitor popular NFT marketplaces, searching for stolen art. When an NFT is found containing stolen art, an alert is sent to the user whose art was stolen. The user will then choose whether or not to issue a DMCA claim. If the user chooses to pursue a claim, a DMCA will be generated, which they must read and approve with an e-signature. This DMCA will then be filed on the artist's behalf by Art Guardian, allowing for anonymity for the artist. Art Guardian will then monitor the progress of the DMCA requests informing artists when the art is removed from the marketplace, or if the request is denied and they need to take further action. Art Guardian will also allow the whitelisting of NFTs, either when the art associated with the NFT is uploaded, or when the artist is alerted to potential theft regarding the NFT.

The goal of Art Guardian is to streamline the DMCA process and ease the burden on artists during an increase in theft for the art community. Art Guardian will also educate users on how they can protect their art with a “Tips and Tricks” section. This will help artists avoid theft before it happens.

### 2.1 Key Product Description and Capabilities

Art Guardian will allow artists to upload their art into the apps database and will then monitor marketplaces for theft. When the artist uploads their artwork they will be required to identify whether or not they will whitelist an NFT associated with the art, if they do they will provide a Token ID to help prevent false theft alerts for NFTs the artist minted themselves. If an incident of theft is found, Art Guardian will send a notification to the artist’s account on desktop

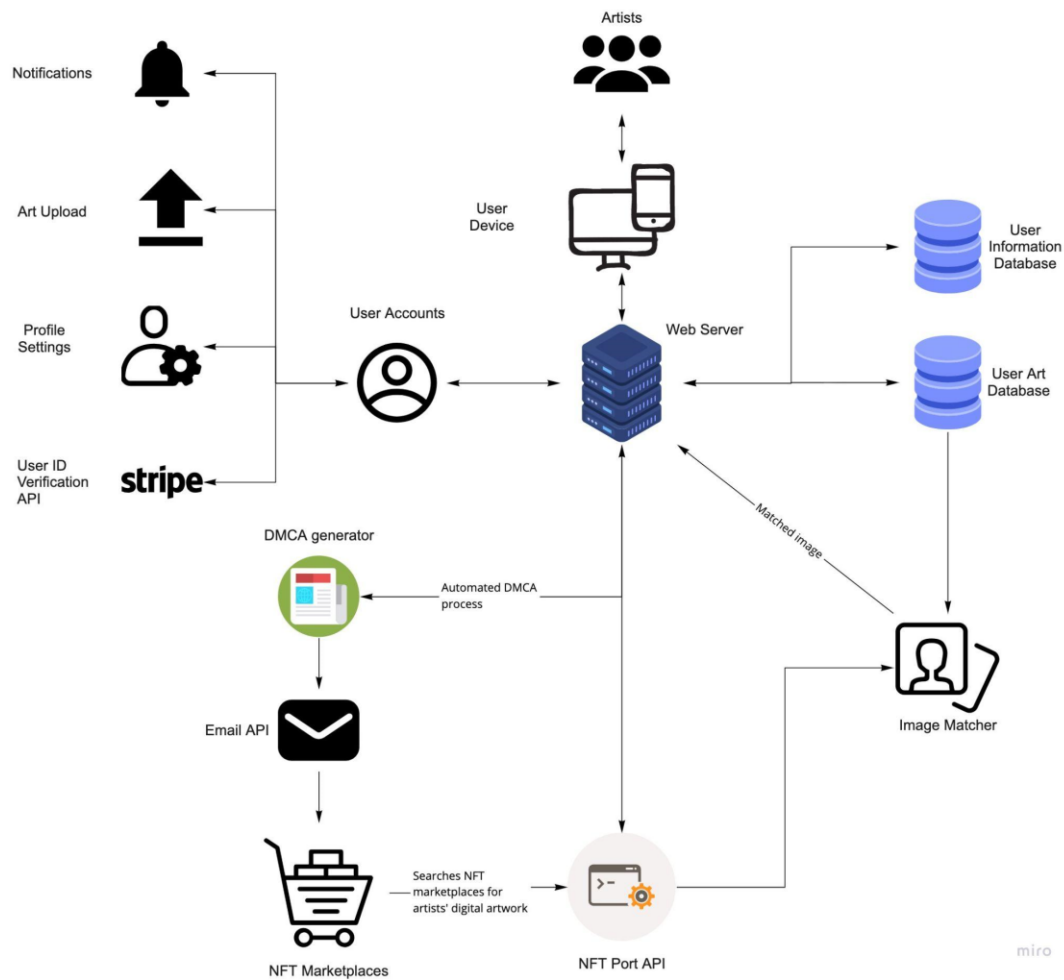
and send a push notification if the artist has the app downloaded on mobile. When the artist taps on the notification they will be asked if the art is theirs, and if they would like to file a DMCA. If the answer to both questions is yes, a DMCA is generated and the artist e-signs, taking liability by agreeing the DMCA is accurate and that the art is theirs. If they choose not to file a DMCA they will be asked if they wish to whitelist the NFT, in which case they will not be bothered about that token again. If the artist ignores the notification, or closes our part way through the process, they will receive notifications every 6 days for 30 days, thereafter the database will delete the flagged NFT and no longer notify the artist of the theft.

Artists will have a profile with Art Guardian, this will contain the artists legal information, such as: name, contact information, address, and date of birth. This information is collected in order to file DMCA's and verify artist identity. The profile will also be linked to an account on an art platform, this is done to verify the user is the artist they say they are. All information will be encrypted and securely stored to retain user anonymity.

All filed and in-progress DMCA requests are stored in the database. Filed DMCA claims are monitored and status updates are reported to the user. If the user needs to access information on the claims in order to pursue further legal action, all information is available to them in the app.

Artists will also be able to access a "Tips and Tricks" section to receive further help. This section will include articles and posts regarding how to guard art from theft, as well as a tutorial for the app. This section will also include a Frequently Asked Questions section to help artists find help for common problems or questions.

## 2.2 Major Functional Components



Art Guardian will be available on IOS and Android mobile devices, as well as on tablet and desktop computers. With the desktop website being programmed using HTML, CSS, and JavaScript. For mobile devices JavaScript will be used for Android and React Native for IOS. Art Guardian will utilize Amazon RDS and AWS to store and encrypt all user data and art. Git will be used for version control and collaborative development. The NFT Port API will be used to monitor art on marketplaces, with OpenCV being used for the image matcher. To verify user

identity Stripe API will be used. A DMCA Generator will be used to automatically generate DMCA's with the Gmail API being used to send the DMCA's via email.

### 3. Identification of Case Study

Art Guardian is oriented towards Commissioned Artists in order to protect their art from theft in the form of illegal NFT minting. It will allow them to upload their art into our database, where we will monitor the marketplaces for cases of theft. If one is found the artist will be alerted and can choose to issue a DMCA. Art Guardian will also serve artists who wish to mint their art as NFTs allowing them to whitelist an NFT when a work of art is uploaded, or later found. They will then be alerted to NFTs that were minted using their art and can then choose to perform a DMCA takedown.

Art Guardian hopes to expand its protection to all digital artists in the future, but due to the limitations of the app, is focussing on commissioned artists and NFT artists. It may also be used with art platforms in the future to help protect artists everywhere on the internet.

### 4. Art Guardian Prototype Design Description

## 5. Glossary

Art Platform - A website in which users can post their digital art

Blockchain - An immutable ledger that anyone can validate

DMCA (Digital Millennium Copyright Act) Takedown - A request sent by the owner of the copyrighted content to remove the infringing content from the internet or platform

Minting - The process in which the files become part of the blockchain

NFT Marketplace - An online platform in which NFTs are minted, sold, and collected

NFT - Non Fungible Token

7. Non-fungible - Unique, indivisible, and irreplaceable
8. NFTs are a certificate of ownership stored on a blockchain that links to a file

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