Lab 1- Product Description

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1 Introduction

Currently, NFT artists have to manually track down their artwork by searching various NFT marketplaces and looking for their artwork and if a piece of stolen art is found the original artist would have to fill out a DMCA takedown request for each piece that may have been compromised. Many NFT marketplaces are growing at a crazy pace and NFT markets such as OpenSea are doing very little to aid NFT artists when it comes to tracking and taking down stolen pieces of artwork even though there has been an increase in NFT theft. “The rise in such thefts comes as the market for non-fungible tokens, or NFTs, exploded last year, growing to an estimated $22bn”. (Beckett, L. 2022, January 29).

Tracking stolen art and filling out DMCA takedown requests can be a tedious and tiring process and there is no current software out to automate these tasks. With NFT marketplaces placing a lot of the burden of policing their artwork on the artists, having an automated process to track stolen artwork is a workaround to frustrations that an artist may experience when trying to track solen artwork manually.

“OpenSea has grown at a dizzying pace, and is now valued at $13bn. But amid its spectacular rise, the company is doing far too little to prevent the trade in fraudulent NFTs, some artists charge, and is placing much of the burden of policing art fraud on the artists themselves.” (Beckett, L. 2022, January 29).

There is no easy or automated way to search the various NFT marketplaces for stolen art and send DMCA takedown requests if a stolen piece of art is found. This is where the Art Guardian can come in and help by providing a solution for these issues.

2 Product Description

The Art Guardian is a progressive Web Application that monitors an artist's artwork for theft on NFT marketplaces. The Art Guardian provides an automated system to detect stolen art that is being sold as an NFT and also eases the DMCA takedown process for artists. To ease the tedious DMCA takedown process, the Art Guardian will pre fill DMCA requests if it finds a stolen piece of art and ask the artist to verify that the art identified is really theirs and proceeds to get a signature from the artist to send the DMCA takedown Request.

2.1 Key Product Features and Capabilities

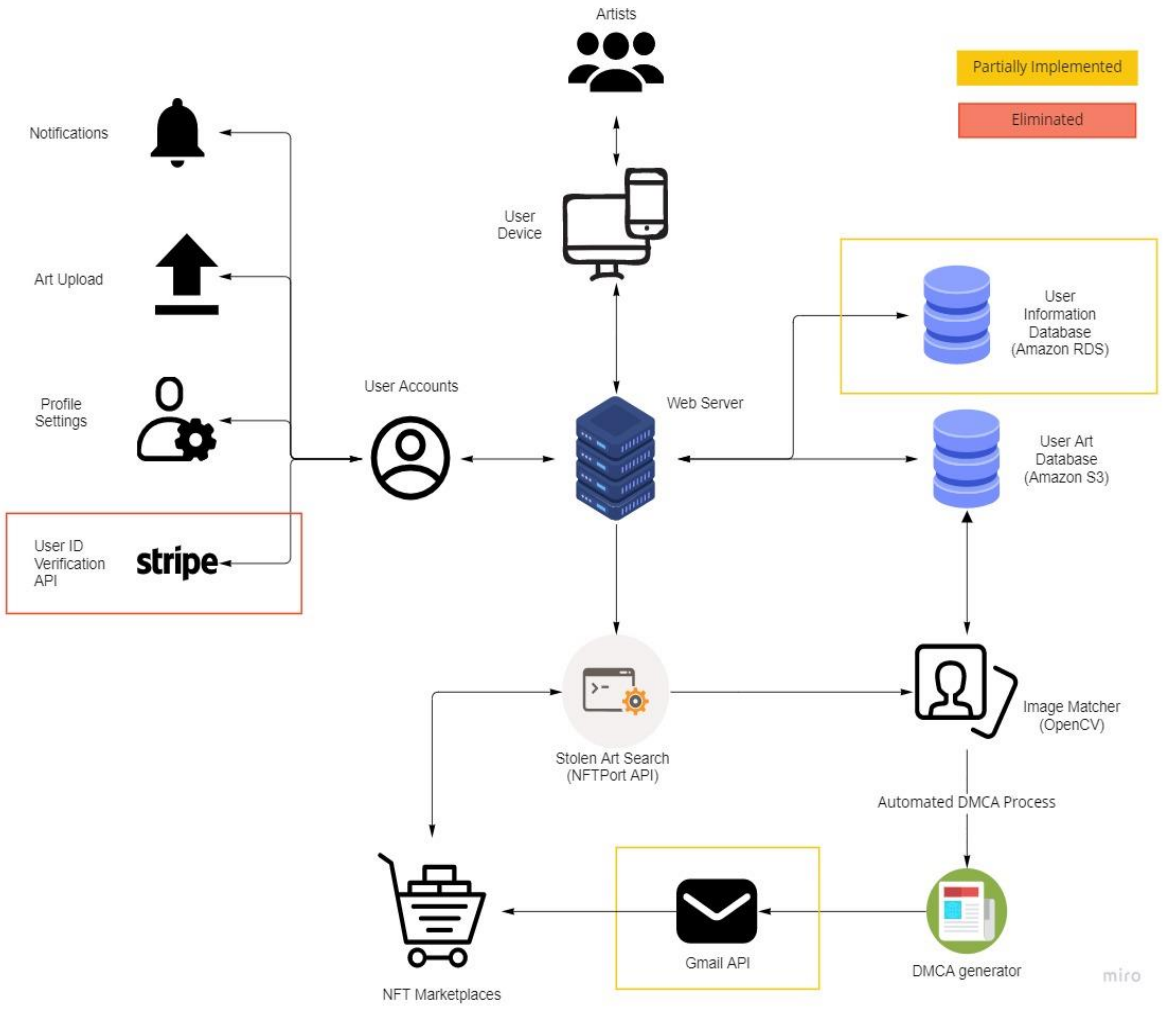
The Art Guardian will be able to upload an artist's NFT art to the Art Guardian's database. Any piece of art that is in the Art Guardian database can be used to search against existing images on NFT marketplaces to find stolen artwork. The Art Guardian can search a NFT multiple times to see if there are any matching NFTs that may be stolen. If a stolen NFT is found by the Art Guardian, then the Art Guardian has the ability to fill out a DMCA takedown request for that stolen NFT.

The Art Guardian contacts the original artist for verification and a signature to confirm the sendoff of the DMCA. The Art Guardian monitors sent and ongoing DMCA takedown requests. With these features the Art Guardian will be able to solve the existing hassle of having to manually search NFT marketplaces for stolen art and the tedious nature of filling out and sending DMCA takedown requests.

2.2 MFCD

The Art Guardian will be compatible with any PC or mobile device that has internet connection and artists will be able to access the art guardian through a web browser. The Art Guardian will be using an ID verification API to verify an artist's identity. The Art Guardian will have profile settings or notification settings and will also have access an art upload feature. There will be two databases, one is used to store an artist's information and another is used to store an artist's artwork. Amazon RDS is planned to be used to hold artist information while Amazon S3 is to be used to store artists artwork.

The Art Guardians user art database is used to compare with the NFTPort database in order to find similar images. If a similar image is found then the Art Guardian will use OpenCV in order to see how similar the two images are and if it is a stolen piece. The Art Guardian will fill out a DMCA takedown request if a piece of art is similar enough to be considered stolen and request verification from the user to send the DMCA. DMCA takedown requests will be sent to NFT marketplaces using a Gmail API. The Web application will be developed using JavaScript, HTML, and CSS whilst the mobile Application will be developed using JavaScript and React Native.



(Figure 1: Art Guardian Major Functional Component Diagram**)**

3 Identification of Case Study

The Art Guardian is designed for ODU art students. ODU art students can use the art guardian to make the process of looking through NFT marketplaces for stolen art much less tedious. With the addition of generated DMCA takedown requests, the Art Guardian is the best application to be used to search for stolen NFT art and immediately generating and sending a DMCA takedown notice. The Art Guardian can help ODU art students feel secure in the vast market of NFTs. Artwork should never be sold without the

original artists permission and the Art Guardian is envisioned to ensure that for all digital artist.

4 Product Prototype Description

- Architecture (Hardware/Software)
- Features and Capabilities
- Development Challenges

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.

Non-fungible: Unique, indivisible, and irreplaceable.

NFTs are a certificate of ownership stored on a blockchain that links to a file.

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