

**“Huge mess  
of theft and  
fraud:’ artists  
sound alarm  
as NFT crime  
proliferates”<sup>5</sup>**



# Art Guardian

Team Blue

CS410 Spring 2022



# Table of Contents

3. Biography
4. Glossary
5. A Growing Problem
6. Problem Characteristics
7. Problem Statement
8. Customers, Stakeholders, and Users
9. Current Process Flow
10. Solution Statement
11. Solution Characteristics
12. What we will not do
13. Solution Process Flow
14. Major Functional Component Diagram
15. Technical Risk Matrix
16. Customer Risk Matrix
17. Security Risk Matrix
18. Competition Matrix
19. Benefits
20. Conclusion
21. References
22. Q&A

# Biography



Carlo Diaz



Paolo Ihde



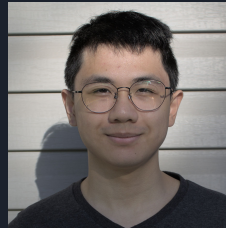
Brandon Kidd



Michael Thompson



Autumn Roberts



Tobin Zheng



Spencer Hite



# Glossary

- NFT stands for Non Fungible Token.
  - Non-fungible means unique, indivisible, and irreplaceable.<sup>1</sup>
  - NFTs are a certificate of ownership stored on a blockchain that links to a file.<sup>2</sup>
- **Blockchain:** an immutable ledger that anyone can validate.<sup>3</sup>
- **Minting:** the process in which the files become part of the blockchain.<sup>4</sup>
- **NFT Marketplace:** an online platform in which NFTs are minted, sold, and collected.<sup>7</sup>
- **DMCA (Digital Millennium Copyright Act) Takedown:** The owner of the copyrighted content requests the removal of the infringing content from the internet or platform.<sup>8</sup>
- **Art Platform:** A website in which users can post their digital art.



# A Growing Problem

- NFT Market rose from \$100 million in 2020 to \$41 billion by the end of 2021<sup>6</sup>
- Deviantart reported 90,000 possible thefts of digital art in December, 2021, an increase of 300% since November, 2021.<sup>5</sup>
- Vn-Parco reported that roughly 50% of NFT sales were over \$200 in 2022.<sup>6</sup>

# Problem Characteristics

- Artists are having their art minted as NFTs without permission.
- Artists must search on NFT Marketplaces manually for stolen art.
- Filing a DMCA takedown is a tedious manual process that artists must go through when they find their art is stolen.
- It can be hard to keep track of the success of a DMCA takedown as well as all the information associated with it



RJ Palmer  
@arvalis

Cool new scam artists should be aware of. Any rando can now turn your tweet and by extension, your artwork into an NFT by tagging this account @tokenizedtweets

Block this guy



RJ Palmer @arvalis · Feb 27

I always really appreciated that Pokemon could bring us together regardless of where we are in our lives.



73

1.1K

7.4K



Zach Cain @lamzachcain · 1h

@tokenizedtweets 0x6261aa23E013B9A6825EB913398d0415517C32fF



5:16 AM · Mar 9, 2021



[Read the full conversation on Twitter](#)



48.8K



Reply



Copy link to Tweet

[Read 615 replies](#)

[twitter.com/arvalis](https://twitter.com/arvalis)



# Problem Statement

Digital artists lack an automated system that will detect art that has been minted on NFT Marketplaces without artists' permission and prevent future sale of their art by having it taken down from those marketplaces.



# Customers, Stakeholders, and Users

## Users and Customers

Digital Artists : Automatically track their art and issue DMCA for stolen art.

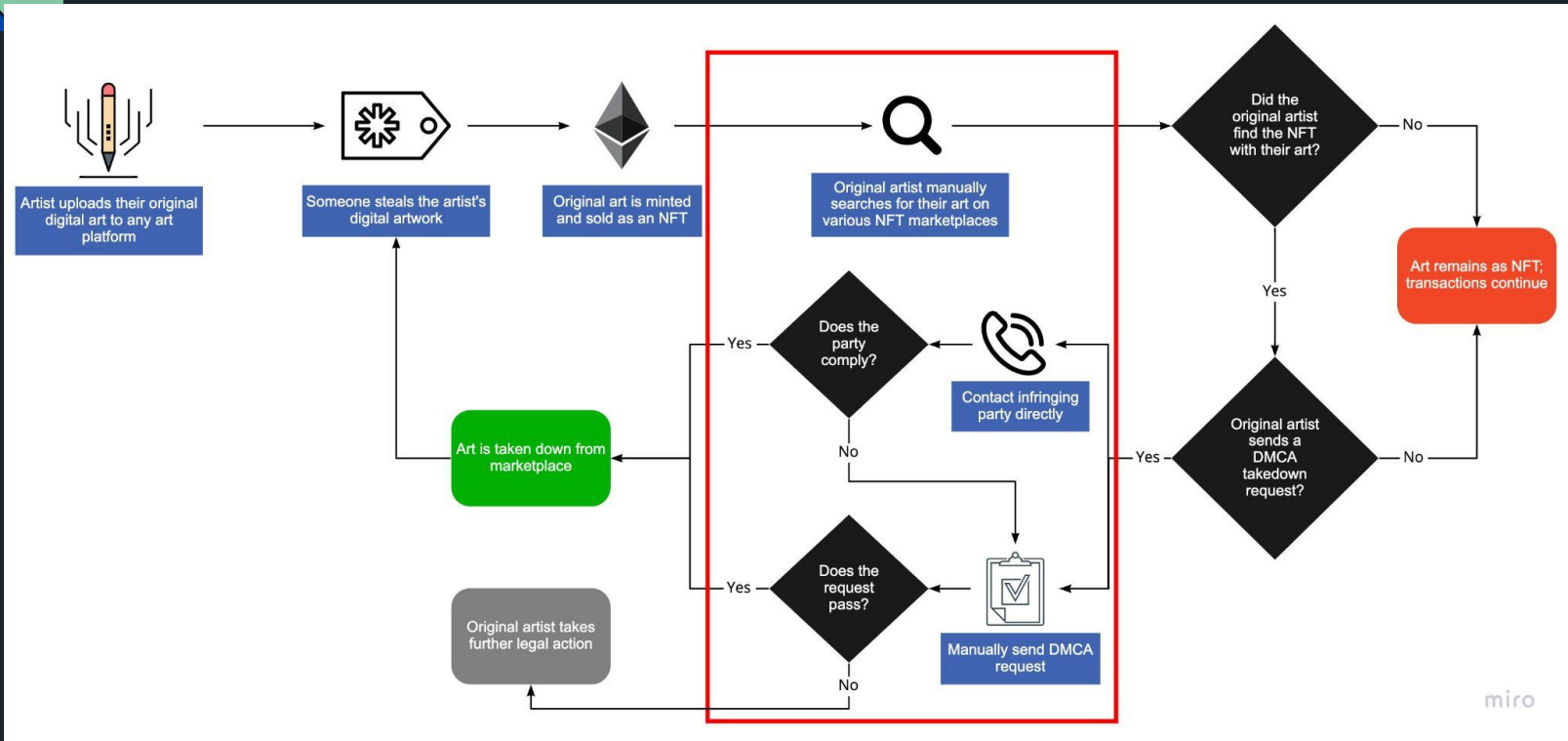
## Stakeholders

NFT Marketplaces: Marketplace users have more faith that their NFT is not stolen art.

Art Platforms: Users feel more comfortable posting their art on public domain platforms.



# Current Process Flow



miro



# Solution Statement

Art Guardian will provide an automated system for artists that will detect that their art has been minted as an NFT and file a DMCA takedown request to get it removed from the marketplace.



# Solution Characteristics

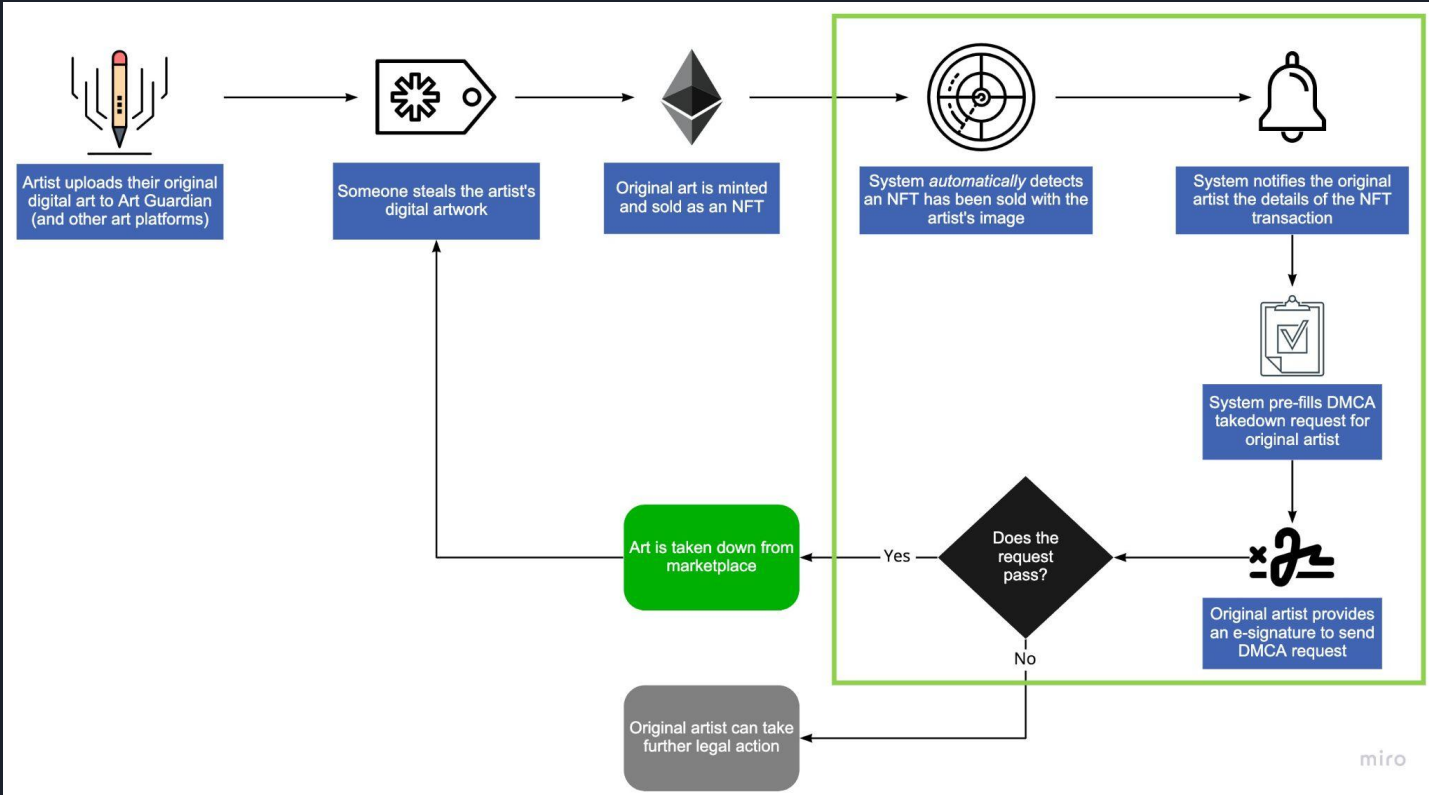
- Progressive Web App where artists upload their art into the database.
- Alerts users when stolen art is found on a marketplace.
- Automatically prepares and sends DMCA takedown requests once validated by the user.
- Keeps track of DMCA takedown requests:
  - Catalog DMCA takedowns.
  - Monitor the takedown status.



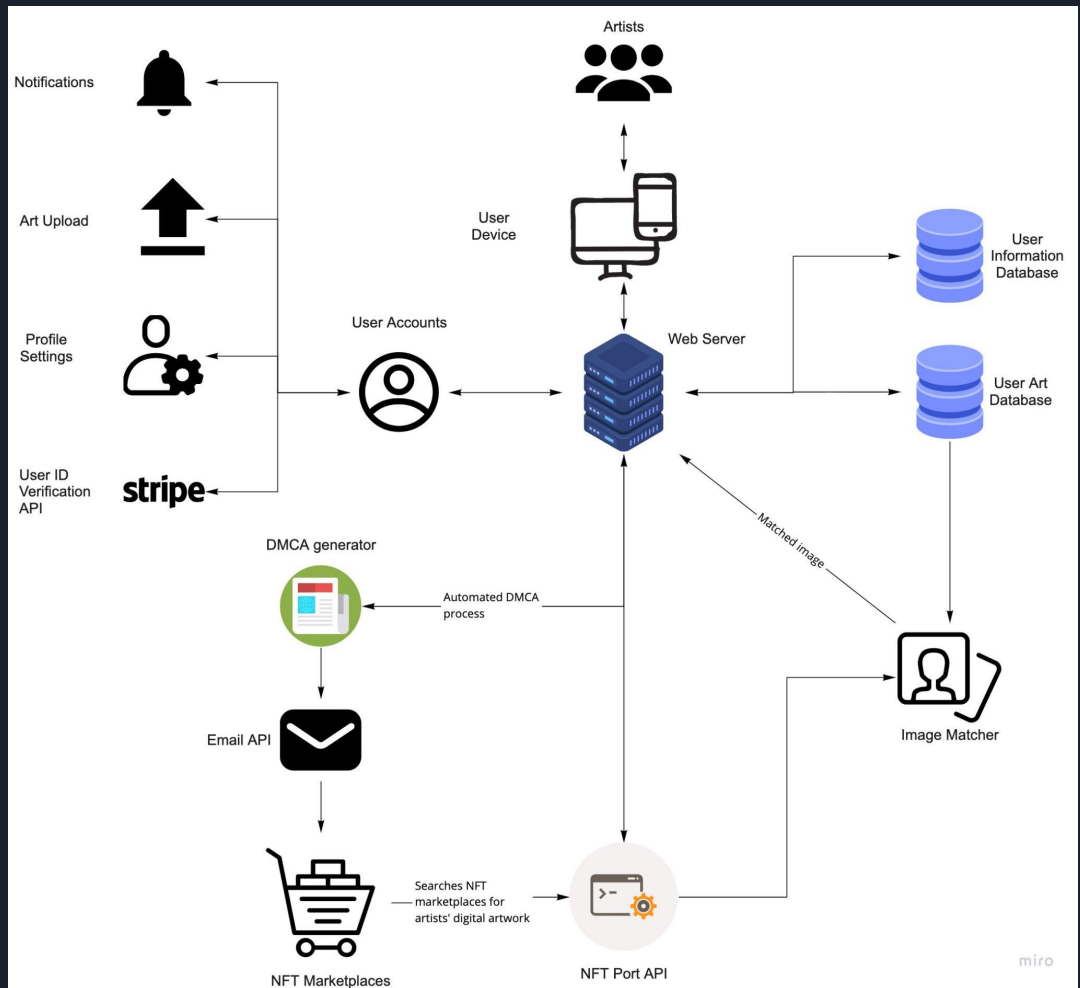
# What Art Guardian will not do

- We will not pursue legal action beyond a DMCA takedown request for the user
- We will not add watermarks or other features to uploaded art
- We cannot prevent art theft before it happens

# Solution Process Flow



# Major Functional Component Diagram



# Technical Risk Matrix

		Impact				
Probability		Very Low	Low	Medium	High	Very High
	Very High					
	High					
	Medium		T-2			
	Low			T-1		
	Very Low				T-4	T-3

## Technical Risks

- T-1: Matching API yields a false match
- T-2: Market does not comply with DMCA.
- T-3: ID API does not correctly verify identity.
- T-4: Automatic DMCA has wrong information

## Technical Risk Mitigations:

- T-1: User verifies art is theirs before sending DMCA.
- T-2: Flag art that reappears in the market place and notify user.
- T-3: Multiple ways to submit ID information
- T-4: Final verification check.

# Customer Risk Matrix

		Impact				
		Very Low	Low	Medium	High	Very High
Probability	Very High					
	High					
	Medium		C-2		C-1	
	Low					
	Very Low			C-3		

## Customer Risks

- C-1: Users abuse the system by uploading/issuing DMCA for art they do not own.
- C-2: User doesn't know how to use the app.
- C-3: User forgets to issue the DMCA

## Customer Risk Mitigation

- C-1: Sign up using art accounts.
- C-2: Integrated User Tutorial.
- C-3: Timer that reminds user to cancel or send the DMCA



# Security Risk Matrix

		Impact				
		Very Low	Low	Medium	High	Very High
Probability	Very High					
	High					
	Medium					
	Low			S-1		S-2
	Very Low					

## Security Risks

- S-1: Unauthorized access to a user account.
- S-2: Database Integrity.

## Security Risk Mitigation:

- S-1: Two Factor Authentication for Login.
- S-2: Use Secure Databases and Encrypt user data



# Competition Matrix

Competition				
Features		Art Guardian	Image Search Engines	DeviantArt Protect
	Art Match	✓	✓	✓
	Marketplace Monitoring	✓	✗	✓
	Stolen Art Alert	✓	✗	✓
	Automatic Takedown Requests	✓	✗	✗
	Monitor Takedown Requests	✓	✗	✗
	Whitelisting Capabilities	✓	✗	✗
	DMCA Catalogue	✓	✗	✗
	Artist Resources	✓	✗	✓



# Benefits

- Give artists the ability to automatically monitor stolen art in NFT marketplaces.
- Automating the DMCA preparation and submission process for artists.
- Track DMCA takedown progress for artists.



# Conclusion

- Art Guardian works to implement existing technologies to monitor stolen art in NFT markets.
- It will generate, send, and monitor DMCA takedown requests into one simple application.
- This is a new and evolving situation, and the digital art world needs a solution.



# References

1. Collins, B. (2021, December 23). Fungible vs Non-Fungible Tokens: What's The Difference? Bryan Collins. <https://www.bryancollins.com/fungible-vs-non-fungible-tokens/>
2. BBC. (2021, March 12). What are NFTs and why are some worth millions? BBC News, <https://www.bbc.com/news/technology-56371912>
3. Telmo Subira Rodriguez. (2018, December 2). Blockchain for Dummies. Medium; The Startup. <https://medium.com/swlh/blockchain-for-dummies-d3daf2170068>
4. Coincorner. (2022, February 11). What Is Nft Minting? Coin-Corner. <https://coin-corner.com/what-is-nft-minting/>
5. Beckett, L. (2022, January 29). 'Huge mess of theft and fraud:' artists sound alarm as NFT crime proliferates. The Guardian. Retrieved January 31, 2022, from <https://www.theguardian.com/global/2022/jan/29/huge-mess-of-theft-artists-sound-alarm-theft-nfts-proliferates>
6. Dailey, N. (2022, January 6). *NFTs ballooned to a \$41 billion market in 2021 and are catching up to the total size of the global fine art market*. Markets Insider. Retrieved February 23, 2022, from <https://markets.businessinsider.com/news/currencies/nft-market-41-billion-nearing-fine-art-market-size-2022-1>
7. Abrol, A. (2022, January 14). *What is an NFT marketplace and How Do You Create Your Own?* Blockchain Council. Retrieved February 23, 2022, from <https://www.blockchain-council.org/nft/nft-marketplace/>
8. Mr. DMCA Helper. (2022, February 23). What is a DMCA Takedown? Dmca.com. [https://www.dmca.com/FAQ/What-is-a-DMCA-Takedown?ref=why\\_is\\_sol5a32](https://www.dmca.com/FAQ/What-is-a-DMCA-Takedown?ref=why_is_sol5a32)
9. Palmer, R. (2022). @arvalis. Retrieved 1 March 2022, from <https://twitter.com/arvalis/status/1369230566843813891?s=20>



Thank You for Participating!  
Any Questions?