Frankfurt University of Applied Sciences

–Faculty of Computer Science and Engineering–

Using Non-Fungible Tokens to Track User Data Across Websites

What this paper is for (Abschlussarbeit zur Erlangung des ...)

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Hendrik Gruber

ABSTRACT

Lorem ipsum ...

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ACRONYMS

NFT	Non-Fungible Token

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INTRODUCTION

2 BACKGROUND INFORMATION

In order to discuss possible ways to track user data using NFTs, it is important to gain an overview of the required technologies behind NFTs. These technologies are blockchain, smart contracts, NFTs themselves and cryptocurrency wallets. After these technologies, the function of cookies and how they are implemented in order to track user data is briefly discussed.

2.1 BLOCKCHAIN

Blockchain technology allows for peer-to-peer electronic cash payments. What makes blockchain different from other forms of electronic payments is that it takes out the trusted third party acting as a middleman between each transaction [1]. This means that two parties can execute a secure financial transaction without relying on, e.g. a bank, to verify each transaction.

This is achieved via a distributed ledger system. The stored information is distributed across many nodes, which may be located anywhere in the world. Each transaction is transparent and secure, even without the parties' knowledge of each other. Transparency means that each transaction is immutably stored within the blocks and visible to anyone. Security is achieved via several measurements. Each block is hashed, meaning that tampering with data within a block leads to the entire block's data changing. The decentralized structure of the blockchain also means that each node has a copy of the blockchain, which makes it difficult to tamper with. [2]

Cryptocurrencies and NFTs are based on blockchain.

2.2 SMART CONTRACTS

Although Bitcoin does not natively support Smart Contracts, other blockchains such as Ethereum do. Smart Contracts are way to execute contracts between buyers and sellers, also without the need of a third party intervening. Once specific conditions of a contract are met, the underlying functions are automatically executed. [4]

The purpose of Smart Contracts in regard to NFTs is to ensure their uniqueness and specify the terms of agreement. An NFT's Smart Contract might specify that the NFT will be transferred from one party to the other if one party pays the other the agreed upon amount.

2.3 NON-FUNGIBLE TOKENS

NFTs are a type of cryptocurrency which is based on the Smart Contracts of the Ethereum blockchain. Cryptocurrencies, such as Bitcoin, are all the same. One coin is equal in value and indistinguishable from another. [3]

The value in NFTs thus lies in the fact that they are distinguishable from one another. Each NFT is non-fungible, meaning non-replaceable. This makes it possible to attach them to both digital and physical products in order to prove possession and authenticity of the product. [3]

For example, when buying a sneaker in an online store, it is feasible to receive an NFT with it as well. This NFT may contain the serial number

A common use-case of NFTs is to utilize them as an investment tool. Because NFTs have a price attached to them, it is possible to sell them at a higher price than what they were bought for. However, in the realms of this paper, NFTs will not be considered as an investment asset, but rather as a data-tracking mechanism.

2.4 CRYPTOCURRENCY WALLETS

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4 CURRENT STATE OF THE ART AND RELATED WORK

4.1 CURRENT STATE OF THE ART

Online Stores and NFTs / Wallets How is user data typically tracked online? Are there already nfts, sites, and tools to track data using nfts? Challenge of high entry barrier with nfts and wallets. A lot of nec- essary know-how

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