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WEB 3.0 COLD WALLET COMPATIBLE XR EQUIPMENT

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Web 3.0 Cold Wallet compatible XR equipment

With the recent Metaverse trend, new digital experiences are being developed every day for various purposes: work, education, entertainment, and others. Experiences become increasingly immersive leveraging XR devices and other emerging technologies.

Web 3.0 is a new version of the internet with an architecture build on decentralized and distributed networks such as blockchains. This architecture enables true ownership of digital assets, and trustless and permissionless interactions & transactions between users using cryptography and removing intermediaries from the equation. In Web 3.0 ecosystem, NFTs (Non-Fungible Tokens) are digital assets with unique identifiers. They can represent any digital belonging and are hosted on distributed networks such as blockchains. Cold wallets are pieces of hardware containing encrypted information for a user to access his wallet which contains all his digital belongings. Cold wallets contain private keys, which are required to sign any transaction on a blockchain, hence required to perform any action on the network. To use a cold wallet, the user sets up a password on it and plugs it to any personal system. The password he/she sets up enables him/her to use his/her private key to perform any action. Cold wallets the most secure way to store private keys as they are custodial (the user owns his/her private key) and this key is stored offline, preventing from cyberattacks. In a fully enabled Web 3.0 Metaverse, users would each store their digital assets (e.g., currencies, accessories, wearables, vehicle, house etc) on their wallets in the form NFTs and use this wallet as their interface to the Metaverse.

Digital identity management is a central piece and an open problem in the Metaverse race as it needs to provide enough freedom, security (for the user and its digital belongings) and privacy as well as ways to prevent and punish misbehaviors throughout the network. Currently, XR platform such as VR headsets or MR goggles exclusively manage identity and digital ownership via Web 2.0 protocols. This means that information about the users (e.g., identity, digital ownership, currency) is stored on centralized database and access rights are managed by logging in with a password on the database owner platform. This means that eventually, the user is not owning the data: the digital platform is. Indeed, the platform can edit/delete any information about any of its user. Web 3.0 architecture are an alternative to this centralization of data, empowering users and giving them true ownership over their data and belongings.

In the present innovation, we wish to build software and hardware interoperability between Web 3.0 cold wallets and blockchain network associated and various XR equipment. That way, a user could store his/her digital belonging on a blockchain, keep his/her secret key in a cold wallet and plug this wallet directly to his/her XR equipment when accessing the Metaverse to be able to take advantage of his/her digital belongings in it in a secure way and keeping true ownership over it. This feature would be crucial in the Metaverse as we need to secure blockchain digital belongings, identity features, and digital currency private keys offline and be easily able to recover it when we connect to the Metaverse. XR equipment are the door to the Metaverse and with the current idea, cold wallets are the key to open this door. Cold wallets ensure that you enter the Metaverse as you and prevent any other user to usurpate your identity.

Compatibility would be ensured in several steps: first, we would connect cold wallets to XR equipment's using USB connection. Then, instead of typing a password to unlock the cold wallet, the wallet would communicate to the XR piece of equipment to make it perform a retina scan. This retina

scan would function as an identity check to unlock the cold wallet. Then, the user would be able to access all his/her personal belongings online and sign any web 3.0 transaction. This retina scan is a key part of this innovation, as it ensures that only the user can enter the Metaverse as him/her. Unlike passwords which can be shared among users, biometrics data are unique identifiers to a persona and cannot be stolen or impersonated. In addition, Web 3.0 network architecture ensures that biometrics data are encrypted, not stored on centralized ledger, and not read by any human in between processes, which could comfort users in using this method. Indeed, there is an overall concern for most users about sharing biometrics data. With this type of identification, if the user gets his/her cold wallet stolen, the usurper will still not be able to connect to any device.

The present innovation favors the solution of enabling compatibility between cold wallets and XR equipment instead of embedding a cold wallet directly into one piece of XR equipment. The main reason behind this is the ability for several users to use the same piece of XR equipment. Indeed, in a prosumer ecosystem (e.g., education, medical training, military training), one XR device is often used by many different users. Therefore, each user possessing their own cold wallet (key to the Metaverse) is more convenient than embedding this key to a device.

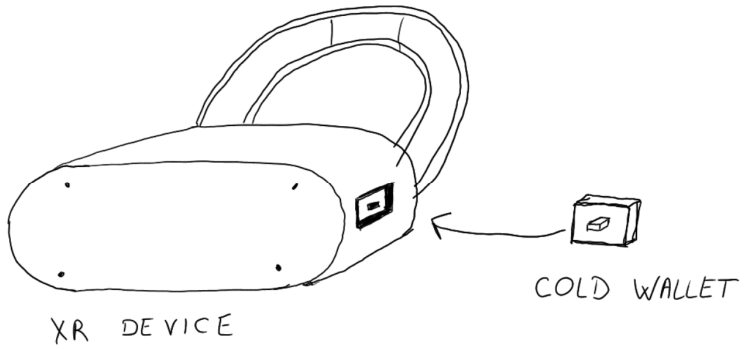

Figure 1 Concept sketch

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