University Degree Token

Soulbound NFT in education

About project

- Soulbound tokens (SBTs), or soulbound NFTs, are non-fungible tokens that cannot be transferred to another wallet after they are issued.
- For example, you graduate from a university and receive your degree certificate. Your university, which will issue a digital certificate and a token, will be the Soul in this case.

Important note: soulbound tokens, just like NFTs, cannot be issued without a blockchain.

They will forever remain there and will be tied to a specific user (wallet) for life.

Tech Stack



Contract writing & deploying:

Hardhat + Infura

Frontend: next.js

Images store: Pinata IPFS

Testnet: Sepolia

Project concept

University deploys a contract with its own max score, e.g. 100

University beneficiary creates new struct object for student with wallet address, name, and other needed info After student graduation, beneficiary (contract owner) updates student score

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Then manager uploads certificate image to dedicated endpoint on Pinata

To Issue Degree, manager makes transaction to contract

Finally, student is able to mint or claim his degree, only address is needed

See your transaction on Etherscan

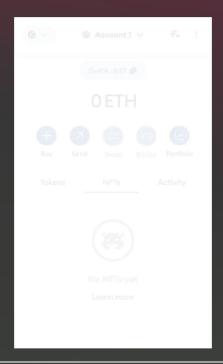
② ERC-721 Tokens Transferred:



ERC-721 Token ID [1] UniversityDe... (UDSBT...)

From 0x000000...00000000 To 0x2C9B7E...23BC13A6

Add NFT to MetaMask wallet



Final result



View on OpenSea

Why this token is non-transferable?

```
function _beforeTokenTransfer(
          address from,
          address to,
          uint256 tokenId,
          uint256 batchSize
     ) internal virtual override (ERC721) {
          require(from == address(0), "Err: token transfer
     is BLOCKED");
          super._beforeTokenTransfer(from, to, tokenId,
     batchSize);
     }
}
```

Every time this code will run, the require statement will check: if the from address parameter in the function is set to zero. If yes, it will allow the action to happen and block all the other transfers to make it a non-transferable token.

Note:

When the address from == 0, it means the token is being issued or minted and not transferred.

Closing thoughts

Soulbound tokens are still only a nascent concept. But they could break into our digital world at any moment. In the same way, we talked about Web3 as the idea of the future, but this future has already come and is developing now.

!Thank you for your attention

