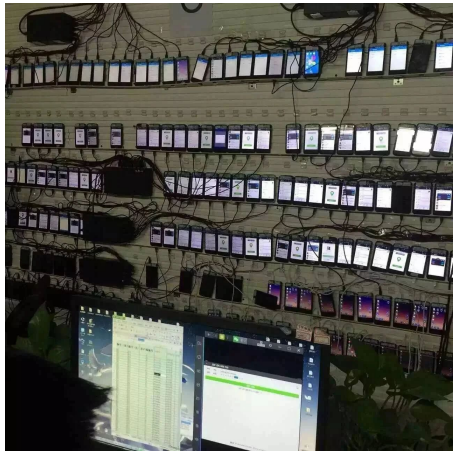
SilentProof at Görbraurei: On-Chain Proof of Liveliness

Multi-Modal Authentication with Distributed Proofs for dApps

Problem

Bot farms challenge the economics of tokenized assets and people's trust in crypto.



83 percent of businesses surveyed experienced **at least one bot attack** within the past year [1].

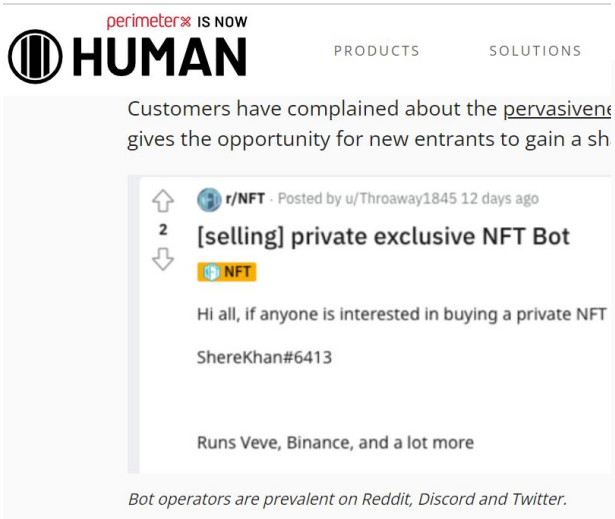
Out of that, **39 percent** reporting a revenue **loss greater than 10 percent.**

[1] https://www.scmagazine.com/brief/botnet/83-of-companies-hit-by-bot-attack-in-last-year

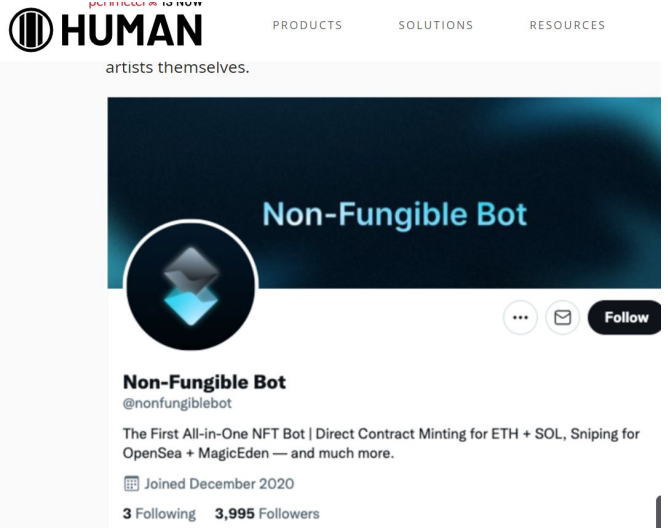
Problem

Bot farms challenge the economics of tokenized assets

1. Scalper Bot
2. Spoofer Bot
3. Spinner Bot



Bot operators are prevalent on Reddit, Discord and Twitter.



Solution

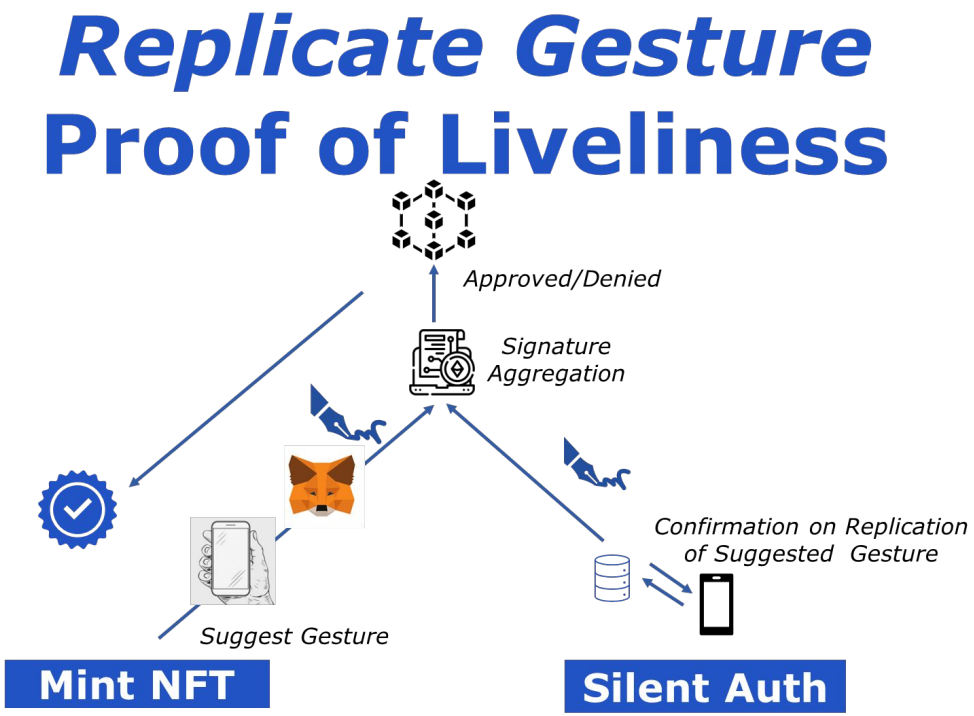
Proving humanity and individuality with Proofs of Liveliness

Solution

Distributed Cyber-Physical Proofs of Liveliness (MPC + Sensing on Wallet)

1. **Proof of Liveliness** through randomised activity on registered token/smartphone,
   - Heterogeneous Data Fusion on registered phone wallet.
2. Proofs with **distributed Signature** between browser and registered phone wallet.
3. Proof of **Proximity** between web and phone wallet.

Architecture



User Flow

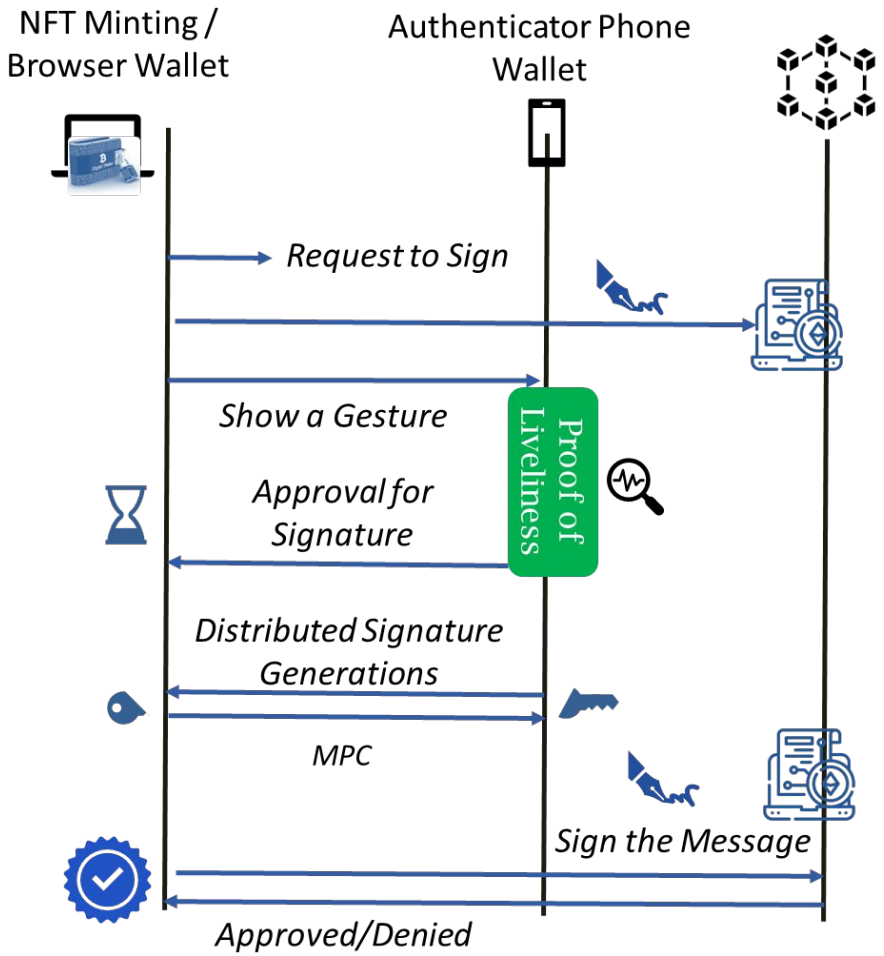
01 | Initiate transaction/Minting

02 | Show a **GIF** on the dApp; user to **Replicate the action** using registered Phone, with the wallet

03 | If user replicates the gesture, **Proof of Liveliness** is considered *"passed"*

04 | Distributed Signature is exchanged between dApp and Phone Wallet

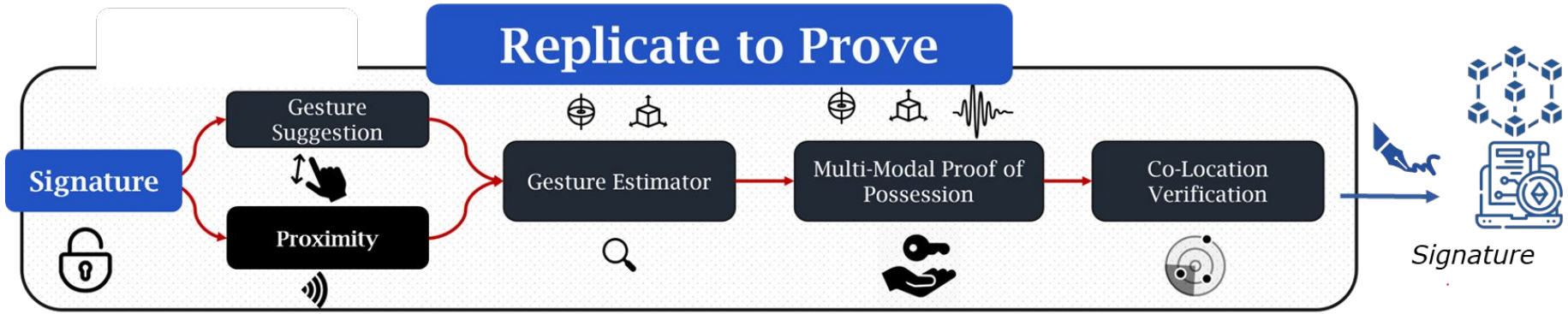
05 | Smart Contract verifies the proof of signatures before minting NFTs.



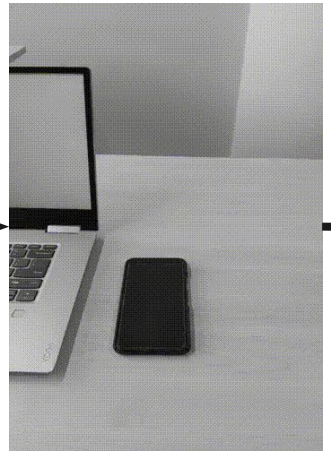
A. Replicate Action to Prove Liveliness

- **Randomised Gesture** is suggested to the user.
- **Phone Wallet** receives a push notification which triggers a multi-modal sensors based activity classifier.
- If **correct gesture** is performed with the phone, **the signature is triggered** and sent to the Smart Contract.

Replicate Action to Prove Liveliness



The **Signature** is sent to the smart-contract only if the gesture is correctly replicated on the phone by a human user.



A **verified NFT** is minted post the Proof of Liveliness.

Summary

- Showcase website (NFT brewery): https://goerbraurei.silent.sg/
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Thank you.