BiCycure: Tackling Bicycle Theft

A Comprehensive Solution to Modernize Bicycle Theft resolution

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Problem Description

- In 2023, 1.3 bicycles per person in the Netherlands.
- Between 468,000 and 772,000 bicycles stolen annually.
- Intentionally handling stolen goods is illegal with jail time or fines up to €87,000.
- The current process for checking if a bicycle is stolen is manual and inefficient.

Stop Heling and RDW fietsendiefstalregister

Stop Heling

- Mobile app for users to register frame numbers and check against a database of stolen bikes.
- Does not allow theft reporting—users must report to police separately.

RDW fietsendiefstalregister

- Public database for stolen bicycles.
- No mobile app.

Problems with Existing Solutions

- Manual entry of frame numbers by owners.
- No direct theft report feature in apps.
- Only manual frame number checks; little automation in theft recovery.

BiCycure: A Modern Solution

- RFID tags embedded in bicycles for tamper-proof identification.
- Mobile app for ownership verification, theft declaration, and transfer of ownership.
- Seamless ownership transfer between individuals with bilateral confirmation.
- Community-driven recovery with public theft reports and rewards.

Key Envisioned Features of BiCycure

Verification of Ownership

- RFID tags allow authorities and individuals to quickly verify who is the owner.
- Tamper-proof tags reduce theft attempts.

Transfer of Ownership

- Need: smooth and traceable digital ownership transfer.

Key Envisioned Features of BiCycure (cont'd)

Declaration of Theft

- Owners can report theft directly in the app.
- Public theft declarations and rewards encourage community involvement.

Ethical Considerations and Privacy

- Large-scale scanning can lead to tracking of bicycles and owners.
- System usability must be inclusive, so everyone benefits from the service.
- Personal data needs to only become available once a theft takes place.

System Architecture Overview

- **RFID Tags**: Unique identifiers for bicycles.
- **Mobile App**: Scans tags, reports thefts, and verifies ownership.
- **Database**: Relational database for storing bicycle and owner information.
- **API Layer**: RESTful API to communicate between the mobile app and database.

Proposed Roadmap

- **Phase 1**: Proof of concept with a small user base.
- **Phase 2**: Expand RFID usage to major bicycle retailers.
- **Phase 3**: Collaborate with insurance companies and law enforcement.
- **Phase 4**: Scale to a national level, integrating additional features.

Conclusion

- BiCycure offers a comprehensive solution for bicycle theft prevention and recovery.
- Aims to modernize bicycle ownership.
- Strong partnerships with law enforcement, retailers, and insurers will enhance adoption and success (read our report :).

Thank You!

Questions?