

NFC-Based person-specific Assisting System in Home Environment

Case Study: Medical Assistant for Elderly and Disabled People

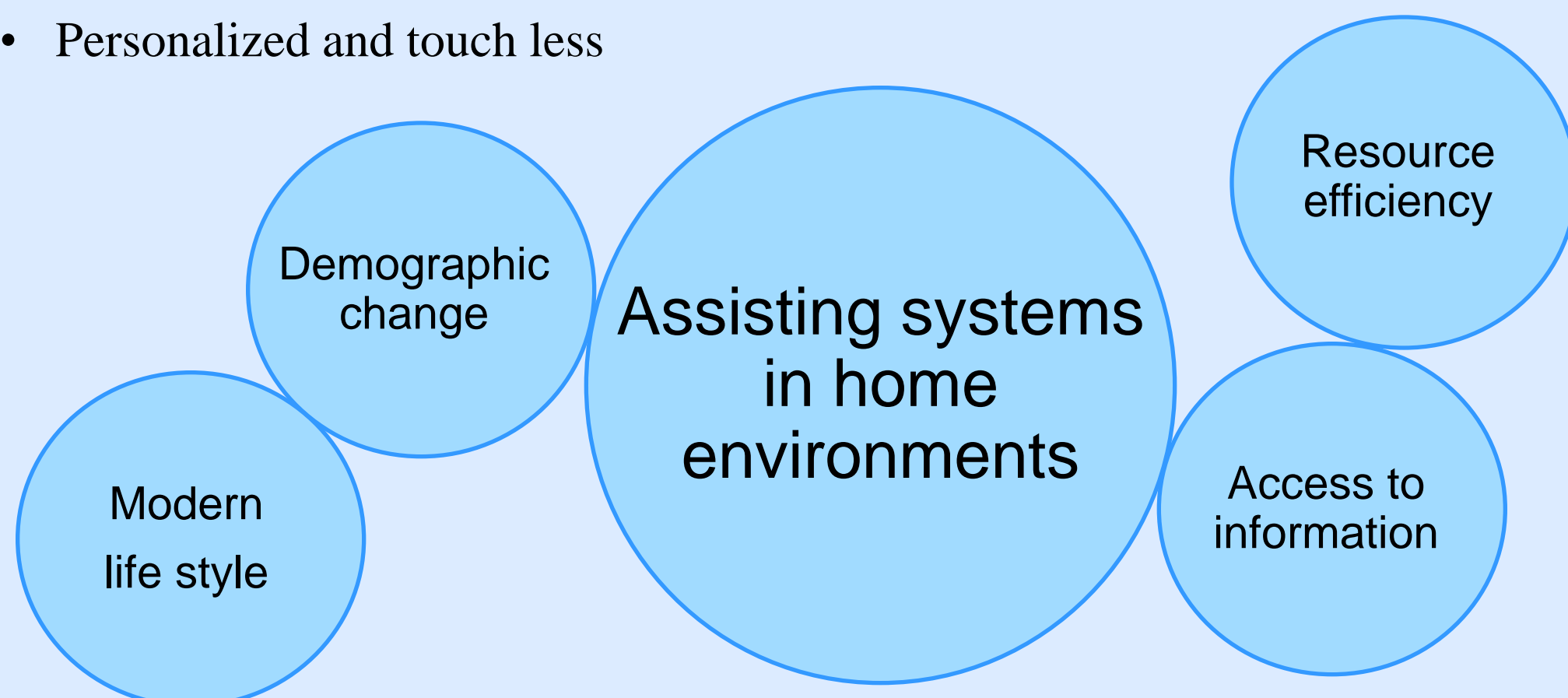
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1. Research Focus

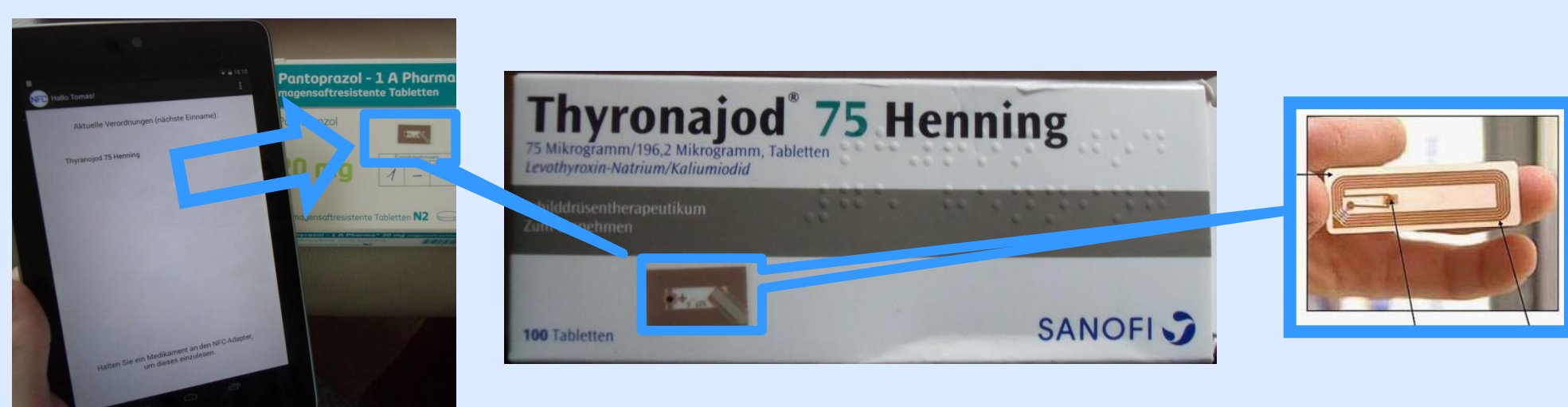
Idea: Realization of an assistant system for elderly and disabled people

- Use Case: Various medicine have to be taken (multiple medicine packages, different persons, different dosage)
- Personalized and touch less



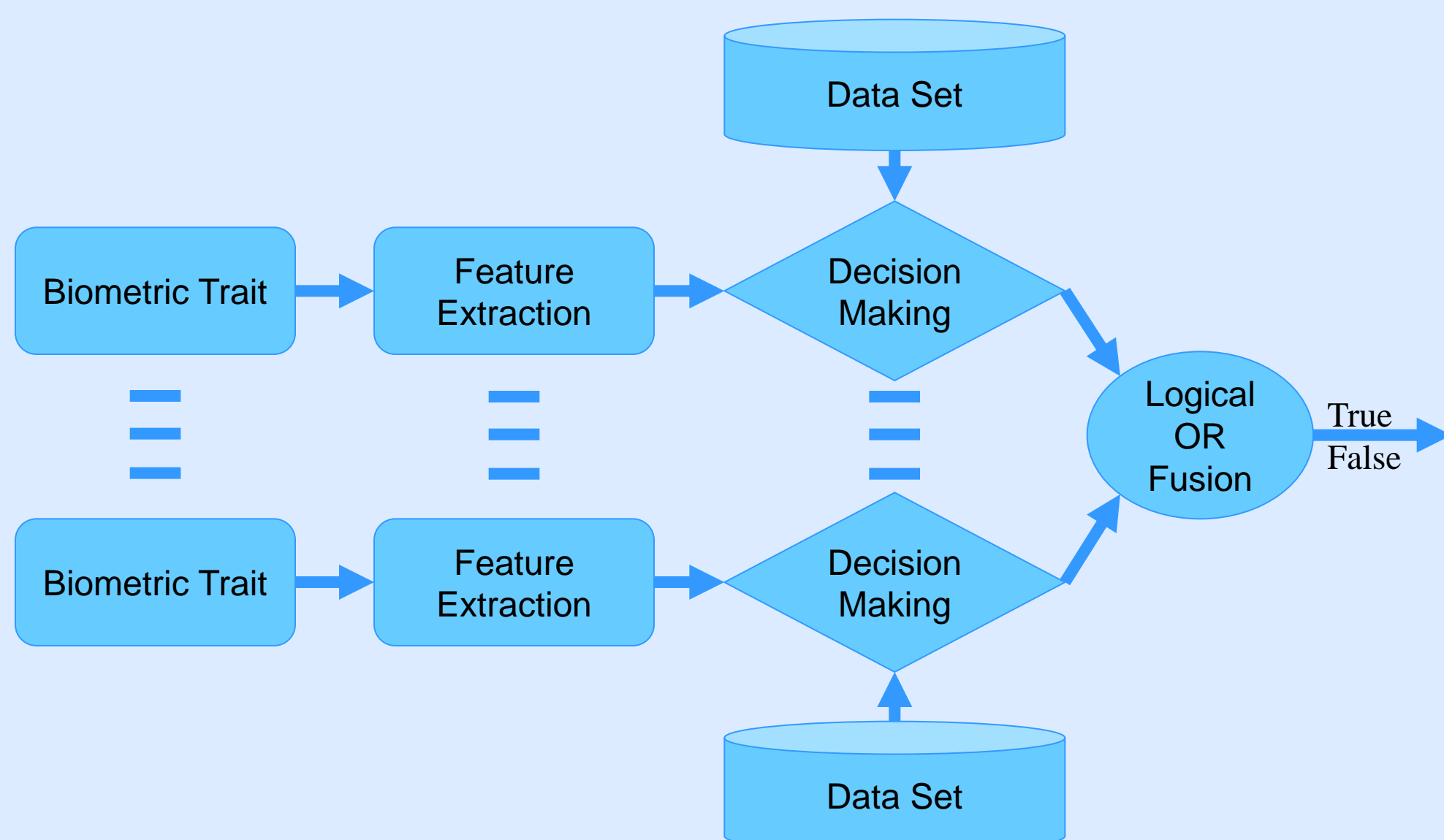
2. Near Field Communication to identify Medicine Packages

- RFID-based technology, but more secure, larger capacity, active mode and peer to peer communication
- Typically applications: access control, status monitoring and localization
- **In the given scenario: identification of multiple medicine packages**



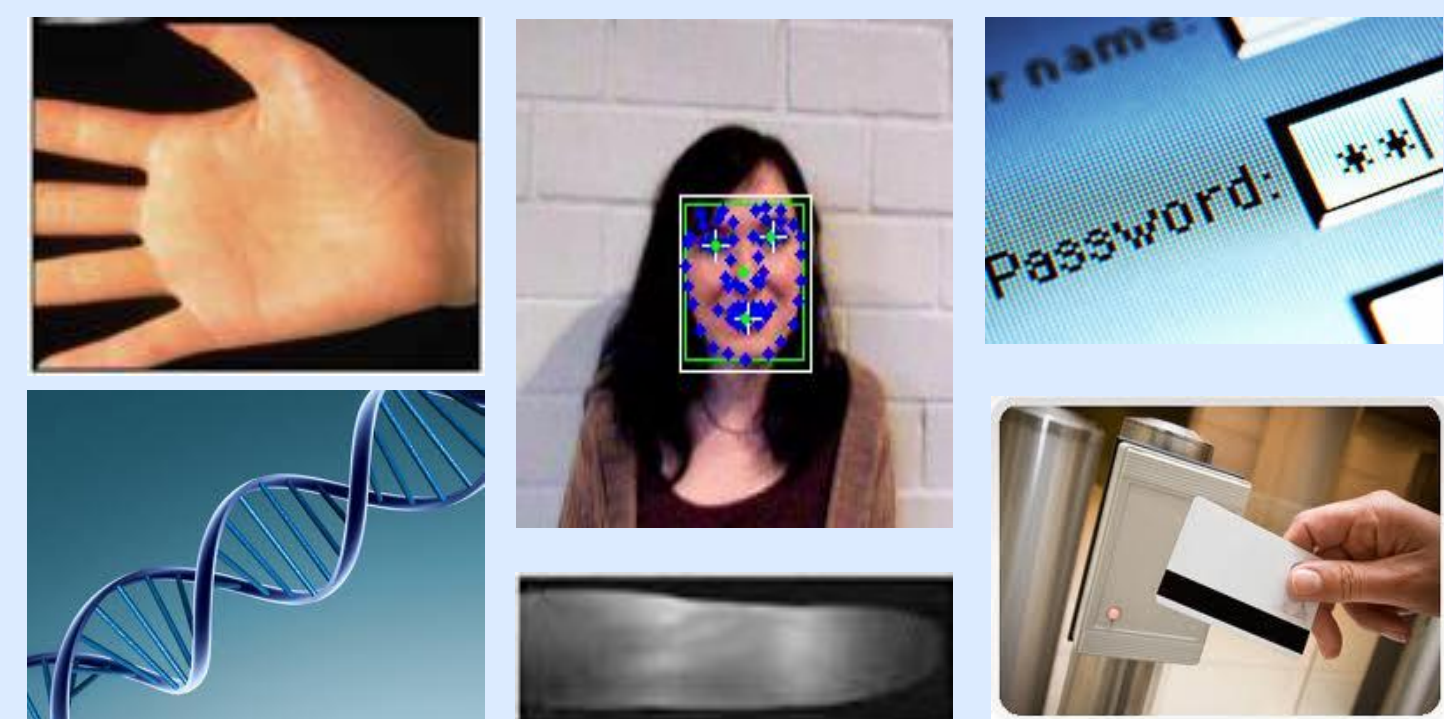
3. Multi-Modal Biometric System

- Aim of our work: realization of a health assistant system with the ability of providing person-specific support
- Sufficient condition: person is identified by means of analysis at least one biometric treat
- **The decisions of applied standalone biometric systems (uni-modal) are joined using a decision-fusion process (multi-modal)**



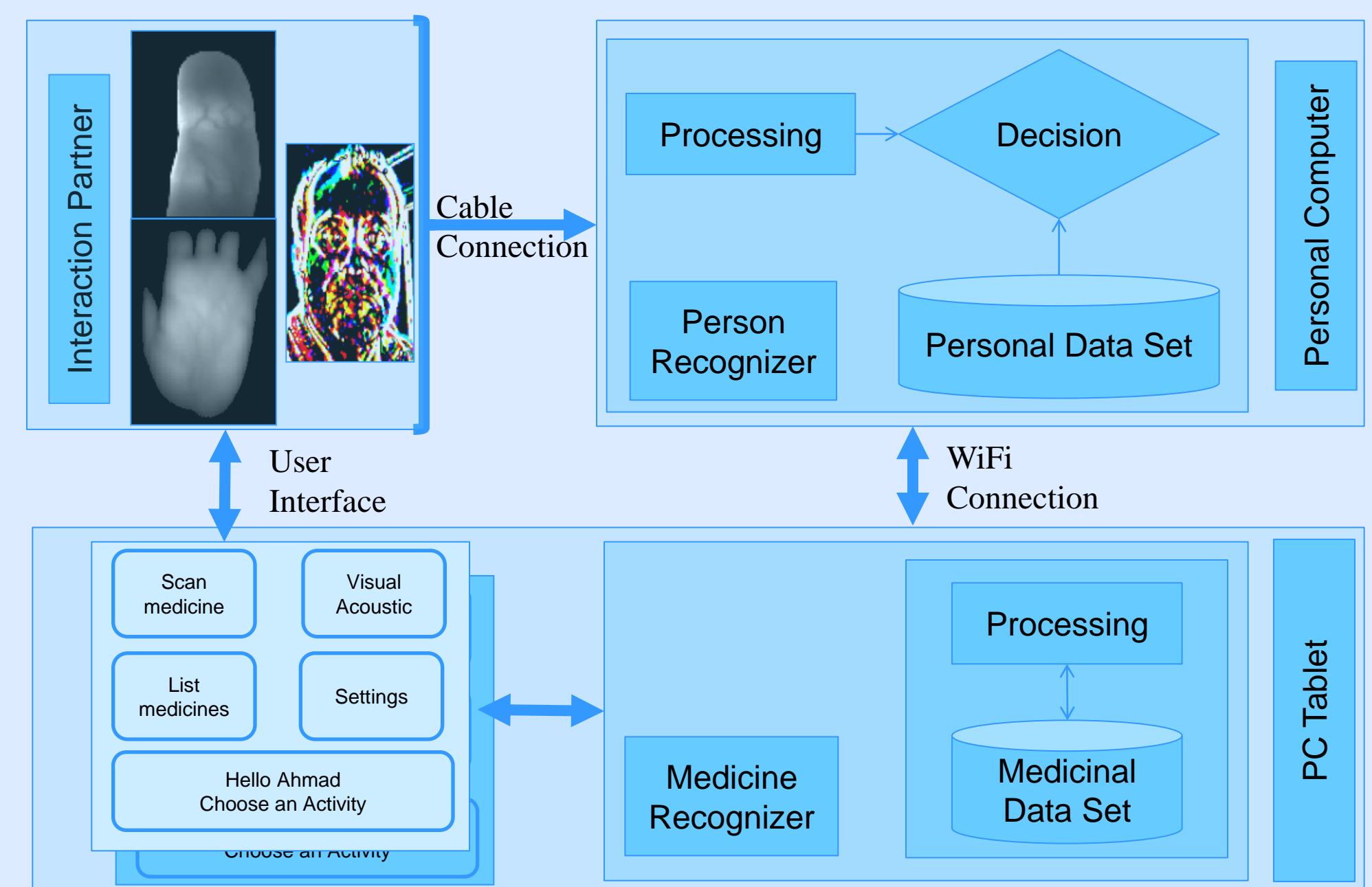
4. Biometric Cues to identify People

- Possibilities:
- visual (face, iris, fingerprint, finger- or hand-vein)
 - acoustic (speech)
 - others: DNA, passwords, signature, ...



➤ **In home-environments identification should be touch less an accidentally**

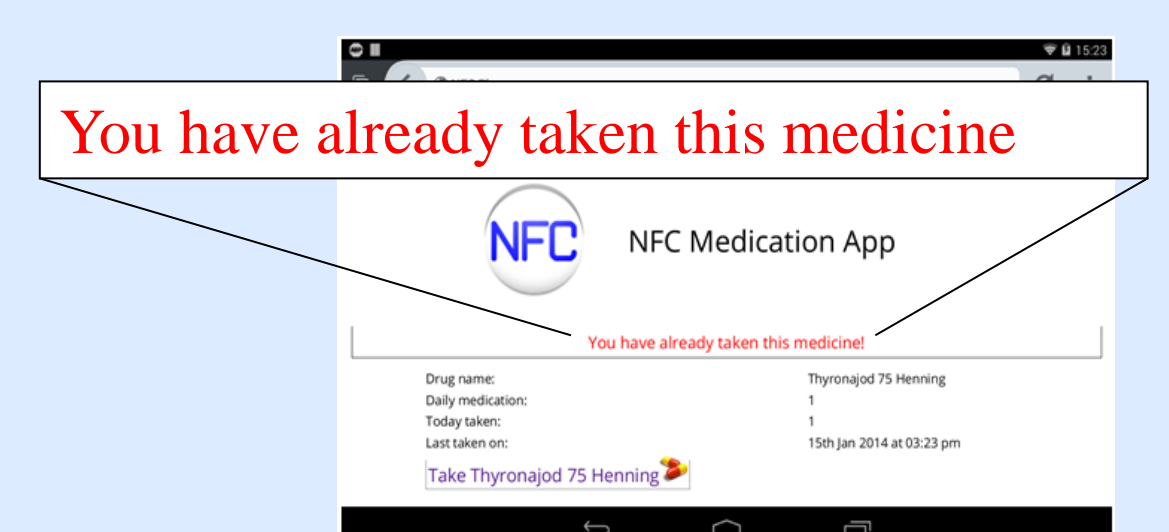
5. System Architecture



6. Evaluation

Test of the integrated system:: two Subgroups (on both system was working):

- **Young group:** 20-25 year old (technical familiarity, convenient supports modern life style)
- **Persons older than 60 year** (helpful and supporting, compensate weak perception skills considering the case of multiple medicine packages)
- Next steps: larger test group, package identification using barcode



Acknowledgements

This work was partly funded by the Ministerium für Innovation, Wissenschaft und Forschung des Landes NRW, Germany

