Mind the Sensors:

Interactive Consent for Smart Environments

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Motivation and Objectives

Objectives:

- Let people walking into a smart room easily say “yes/no” to what sensors can collect about them.
- Make simple, clear consent screens or prompts that work with what’s available: phone, touch screen, or voice.
- Record what they chose so the space remembers and doesn’t ask twice.

Stakeholders:

- Visitors feel informed and in control instead of watched.
- Building owners get a cleaner, more trusted way to run smart spaces that respects privacy rules.
- Designers and developers gain reusable patterns to add consent to real spaces, not just websites.

Deliverables:

Scenarios: 2 concrete entry setups (smartphone-based, voice-based), each with clear assumptions.

Prototypes: Working demos—e.g., phone notification flow, voice dialog on a Raspberry Pi + speaker + microphone and a camera to do face recognition.

No-duplication link: A simple ID/handshake so consent given once is respected across other interfaces.

Technical Approach and Novelty

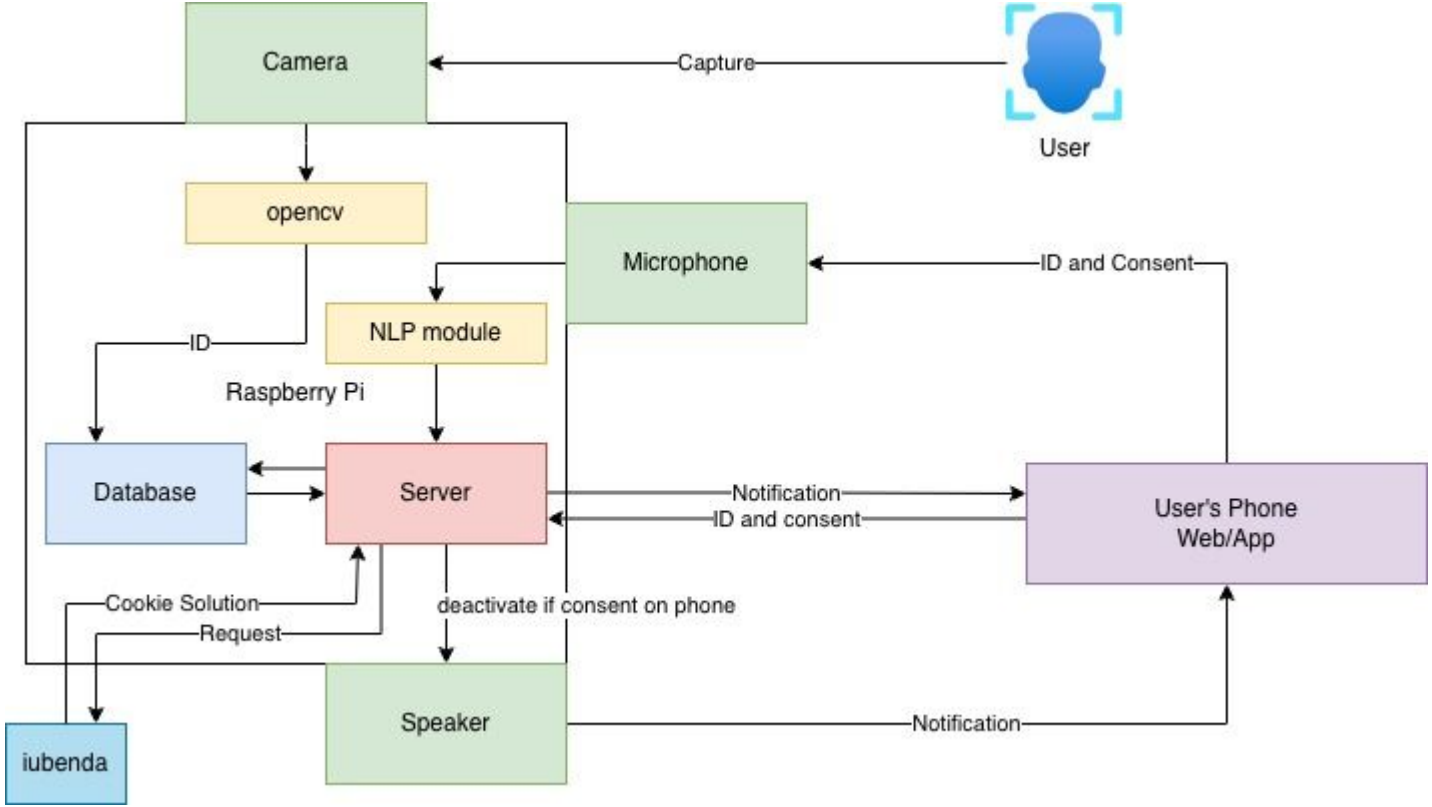
Current state of the art: Peekaboo

- The in-home trusted hub that pre-process data after it's collected and before uploading to the cloud server.
- Current systems lack a unified or standardized way to request and manage privacy permissions (consent) at the point of data entry.

Mind the Sensors:

- Define how users grant consent.
- Standardize the consent prompts.

Methods



- Server - Flask app + Nginx + Iubenda
- Databse - SQLite
- Embedded platform - Raspberry Pi
- Opencv - facial recognition package

Evaluation and Metrics

Metric	Definition / How to test	Target
Concurrent user detection	System correctly distinguishes two different people in sequence (without mis-ID or crash).	✔ Detects 2 users in a row without error
Database stability	Consent database stores both users' records separately (no overwrite).	✔ Each user's consent retrieved correctly after interaction
Response time under load	When two users are detected within 10 seconds, system still replies within < 3 s.	✔ ≤ 3 s response for both

Current Status and Next Steps

Current Status:

- The server and the web pages have been brought up
  - The iubenda cookie solution is embedded into the web pages
- The face recognition model is trained and tested.
- Set up the database and its connection with the face recognition part.

Next Steps:

- Integration test of the system
- Add a voice-based protocol for the system

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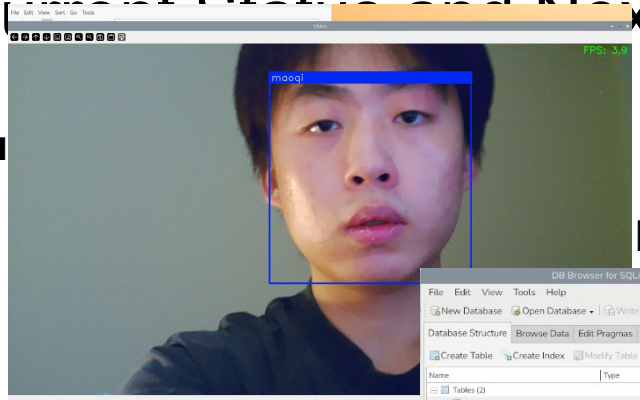

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