

Personalized Preferences

The delivery of personalized content can be achieved in several ways in a home automation network to improve the user experience and interaction with the system. It involves

- Identification of the person(s) and provision of the content tailored to their personal preferences
- Allow access to content they have permissions to
- Store separate profiles for users containing predefined preferences or per-person adaptive data

The key challenge is to provide personalized services to the user based on their identity and also allowing for feedback to the system so that it learns/adapts over time. The services are targeting user comfort and efficiency, access control to some degree, but without aiming to become a standalone security feature, e.g. it is not intended that the 'person recognition' element of these concepts can replace traditional home security systems.

The solution is designed to be open, scalable and based on commercially available hardware so that it can seamlessly integrate to home automation solutions on the market. Reliability for the supplier is also critical and so the system must be reliable, well tested and robust for deployment to the mass market.

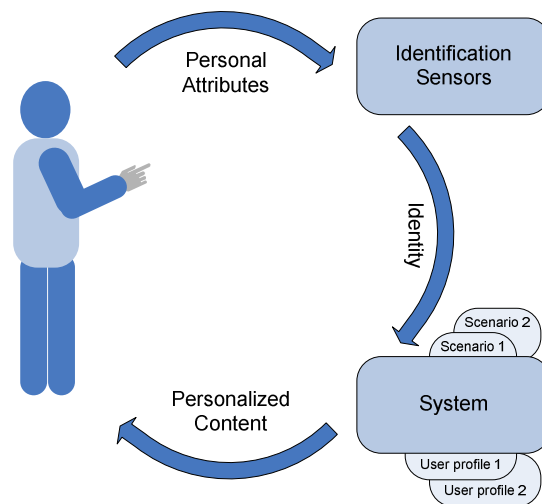


Figure 1: High level diagram of personalized content delivery

The person can be identified based on some unique personal attributes (face, biometrics, access cards, tags or fingerprint) utilizing a system of sensor(s) and processing element.

Based on the identity of the person, its user profile is selected by the system and the preferences (lighting, audio, video, scene setting etc) are enabled. The user profile stores the information (preferences, playlists) needed for personalization of scenarios and generation of personalized content.

The user profiles, as well as editing of scenarios, preferences and playlists will need to be supported by the vendor's composer tool, which is used both by commissioners and users.

Knowing the person identity in the given context, the user profile can be continuously refined in background according to user actions, behavior and conditions. This way the system can learn about the specific user. As there are separate profiles for users, they profiles are more accurate and can provide good basis for personalized services.

To enable such services, two key components are required on top of the existing solutions in the market:

- Intelligent sensors able to identify a person, appropriately interfaced with the rest of the system
- Scenarios (typically developed in LUA) triggered by the sensed inputs and utilizing the identity (user profile) to then provide the relevant personalized content

For identification, i-NOVI propose to use a commercially available optical camera running recognition based algorithms as the key enabling sensor.

- In combination with face recognition and person tracking algorithms it become an intelligent sensors, which can provide the identity of the person
- No wearable tags are required for identification, thus the solution is not intrusive to the user
- Intuitive operation and integration into the home environment and users' life and habits
- It can be combined with simpler sensors (already deployed in the home) to extend functionality (e.g. motion detectors for extended range person tracking)
- It can also be applied in commercial building applications for energy saving initiatives

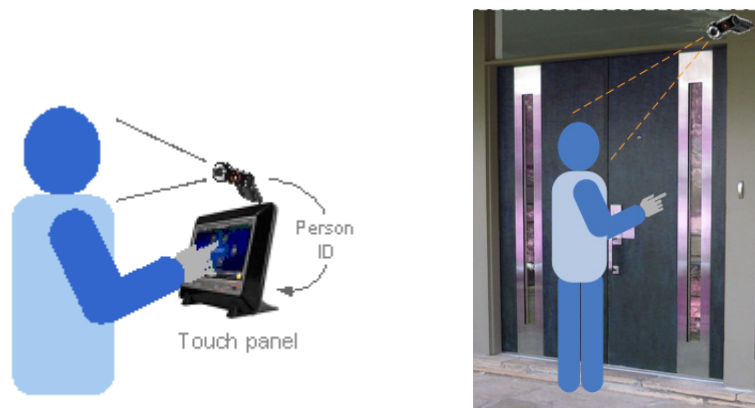


Figure 2: Potential Use Cases

The scenarios have to improve the user experience, without any negative influence on the everyday routine. The scenarios in combination with user profiles allow tuning the system behavior to the user needs. Some possible scenarios are explained below:

- Personalization preferences in house
 - At the front door, the intelligent camera recognizes the person entering the house.
 - The system recalls the stored user preferences/playlist and sets up the house environment accordingly.

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- The information about identity can improve other services (alerting others in the home of home owner)
 - Once detected, other sensors could be included in the scenario to create a more integrated experience, e.g. triggered / layered scenarios
 - E.g. as the person moves around the house, their preferences could follow to the relevant room
 - Energy management related
 - Alarm related (preventing access to non-allowed areas e.g. parents room, home office)
 - Control panel UI personalization
 - The user stands in front of the control panel, and the near-by intelligent camera recognizes the user. No additional action is required from the user.
 - Upon detection of the identity, the system automatically recalls the stored user profile.
 - Based on the user profile, the UI will be rendered in a way to show the information the user has rights to modify and see, by taking into account the most frequently used features by the given user.
 - As the control panel is intended for everyday usage, the adaptation of the UI to user needs provide more efficient way of controlling.
 - It also provides certain level of access control, e.g. the children cannot change important system parameters – those options are not available in UI, while the parents can.

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