**Gate reminder [1]:**

This concept centralizes around providing reminders at the moment a user leaves their house. Knowledge about possibly forgotten items is obtained through the use of RFID tags, focusing on a zero user workload interaction. A crucial part in its working is that it is focused on Korean household, where shoes are generally left at the front door, so there is a clearly defined time slot in which all tags can be analyzed. Focus on the study was mostly the actual prototype rather than any smart algorithm.

*Properties:*

* Physical prototype
* Transparent interaction
* Object detection

**Decision maker [2]:**

This concept intercepts notifications from all sources and processes them in a “decision maker” prior to actually arriving at the user. Instead, it processes information from sensors and IoT devices within user and environment contexts to decide upon the target device, type of notification and time of notification. This is done using a machine learning approach. Rather than analyzing the actual patterns in decisions on whether to and how to notify, the paper continues by focusing mostly on the speed and accuracy of various machine learning algorithms.

*Properties:*

* Machine learning
* Habit analysis

**Smart reminder system [3]:**

This concept creates a smart reminder system through three major components: activity recognition, location recognition and prediction. The activity recognition is done through the use of analysis of the hand movements over time and applying machine learning algorithms and fuzzy logic to map this to activities. Location recognition is done through image recognition by camera and neural networks. These two are then combined to analyze coupled activities, two activities that are strongly related. Alongside, predictions are made regarding pending and forgotten activities. As such reminders can be produced when likely to be forgotten activities should occur.

*Properties:*

* Specific setup

**Olisto/IFTTT/CybreMinder/CAMP [4]–[7]:**

These apps and concepts allow setting reminders based on various aspects of user and environment contexts. Once the current situation satisfies all conditions in all contexts, the user is automatically notified. Information is retrieved from the user’s (IoT) devices and (online) services. No form of pattern recognition or prediction is done, however.

*Properties:*

* Existing (possibly discontinued) apps

**CogKnow [8]:**

This concept actually touches upon user values, but instead uses them to define the required support. A distinct number of support scenarios are handled and rulesets are defined accordingly. Predominantly the user context is considered rather than anything else. The rulesets are aimed at avoiding interruptions of important activities, but don’t do any further analysis.

**Fuzzy linguistics [9]:**

This concepts uses fuzzy logic and linguistic variables to analyze the urgency of the reminder and the level of annoyance created by the interruption of the current activity. Resulting from this is a reminder level which determines whether or not the reminder is delayed and/or how the reminder is presented. The urgencies and other levels are all given at design time, however, and are averaged over all users tested prior.

**Goal models [10]:**

This concept does not directly involve itself with reminders, but rather with linking certain activities to achieving certain goals. These activities may have complex relations with one another and may promote or demote a goal. As such, this can be similarly applied to activities aiming to achieve a certain goal where the promotions and demotions are linked to the user values.

*Special properties:*

* Linking activities to goals
* Not related to reminders

**PAIR [11]:**

This is a relatively older paper which describes one of the first, more advance planners. It takes into consideration several rules as prescribed by the user or caregiver and lays them alongside the activities of the user to provide appropriate reminders. However, no dynamic analysis is done, only design time rules are analyzed.

**AHCS/TAFETA [12], [13]:**

These concepts attempt to design a context-aware application which analyses data from various sensors within the user’s house. AHCS makes use of the CASanDRA framework [14] in order to create awareness of the user’s context. The CASanDRA framework is a middleware which provides easily consumable context information and accepts different information inputs which are fused together. The concepts use either the middleware or their own AI to analyze the collected information and compare this with a number of predefined rules to provide detailed information on the user to the caregiver and provide reminders when rules are broken.

*Special properties:*

* Context analysis independent from reminder system
* Levels and types of alerting

**Supporting daily activities [15]:**

Why is this PDF not available anywhere… It seems very interesting: mailed the author.

**HeadacheCoach [16]:**

While not directly a reminder system, HeadacheCoach does propose a possibly usable system. It uses user and environmental context analysis to identify possible triggers for a headache and consequently provides possible solution. A similar approach may be used to identify moments of lower cognitive ability in order to preempt a reminder being necessary at all.

**What should I do/Action Hierarchies [17], [18]:**

These two papers, while again not a directly related to reminders, do portray several underlaying concepts. The first papers presents a framework which represents hierarchical relationships among actions. This is formalized in the second paper. Secondly, this framework shows how the relationships tie in with promotion and demotion of values. Lastly, a method is shown on how to infer norms from values rather than vice versa. However, this remains a very theoretical paper.

*Special properties:*

* Values → Norms
* Not directly related to reminders
* Action hierarchy

**CIA [19]:**

Although this paper clearly states “smart reminder”, it doesn’t actually do much in regards to reminding. Instead, it uses image recognition to identify people. After this identification it combines information previously gathered through various systems to display information regarding this person and possible events and reminders tied to them.

*Special properties:*

* Linking information
* Not directly related to reminders

**Attelia [20]:**

Attelia is a middleware concept

| Concept | RP | RI | SS | Tim | Loc | Act | Env | Dyn | UV | IA | Ref. |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gate reminder | x |  | x |  |  |  | x |  |  |  | [1] |
| Decision maker |  | x |  | x | x | x | x | x |  |  | [2] |
| SRS | x |  | x |  | x | x |  | x |  |  | [3] |
| Olisto | x |  |  | x | x | x | x |  |  |  | [4] |
| IFTTT | x |  |  | x | x | x | x |  |  |  | [5] |
| CybreMinder | x |  |  | x | x | x |  |  |  |  | [6] |
| CAMP | x |  |  |  |  |  |  |  |  |  | [7] |
| CogKnow | x |  | x | x | x | x |  |  |  | x | [8] |
| Fuzzy lingustics |  | x |  |  |  | x |  |  |  | x | [9] |
| Goal models |  |  |  |  |  | x |  | x |  |  | [10] |
| PAIR |  | x |  |  |  | x |  |  |  |  | [11] |
| AHCS | x |  |  | x | x | x | x |  |  |  | [12] |
| TAFETA | x |  |  | x | x | x | x |  |  |  | [16] |
| SDA |  |  |  |  |  |  |  |  |  |  | [15] |
| HeadacheCoach |  |  |  | x | x | x | x |  |  |  | [16] |
| WSID/AH |  |  |  | x | x | x | x | x | x |  | [17], [18] |
| CIA |  |  |  |  |  |  |  |  |  |  | [19] |
| Attelia |  |  |  |  |  |  |  |  |  |  | [20] |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

**Legend:**

RP: Reminder Producing

RI: Reminder Intercepting

SS: Specific setup

Tim: Time

Loc: Location

Act: Activity

Env: Environment

Dyn: Dynamic

UV: User Values

IA: Interrupt Analysis

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