

The Associative PDA

An Organic User Interface for Mobile Personal Information Management

Problem

Personal information management (PIM) is a **highly individual and creative task**. Information is arranged in ambiguous classification hierarchies and isolated across applications, formats, and devices.

Our solution is to unify the personal information space in a ubiquitous device and store it in a **network of associations**, connecting related items directly. Finding information is done by traversing this network or searching the shared neighborhood of related items. In the example on the right, Garfield could be easily found by originating a search from the items "Cat" and "Cartoon Character".

The Associative PDA is also an example of an **Organic User Interface**, which is a new design metaphor that respects and is inspired by the natural laws of physics, biology, and human cognition.

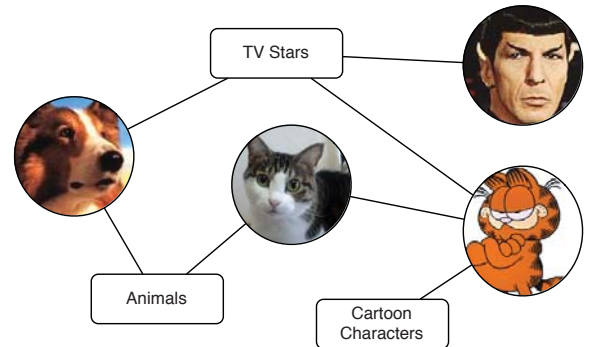


Figure 1. An Associative Network

Contextual Inquiry

To gain a better understanding of common PIM behavior, we have conducted a contextual inquiry with ten users. The **main findings** are:

- tasks are processed in a queue according to subjective importance
- incoming requests must be planned immediately or they are likely forgotten
- keyword classification is ambiguous and may lead to loss of information
- classification schemes are unified across applications and frequently extended
- compromising strategies are used to overcome technical insufficiencies

We are especially interested in supporting a mobile setting and the problems of ambiguity and evolution of classification hierarchies.

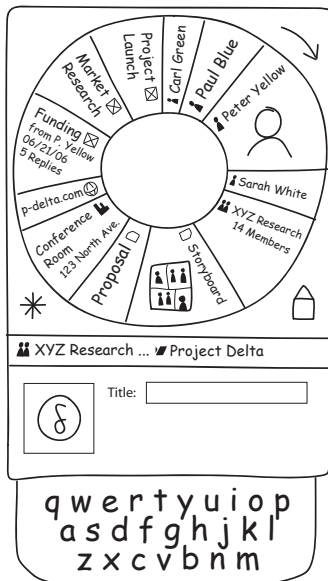


Figure 2. Paper Prototype

Design

The device is the size of an ordinary PDA, with a high-resolution touch-sensitive screen and an attached keyboard.

The "Dial" on the top displays items, related to the current selection and can be browsed in discrete rotations by touching the appropriate arrows. Each related item can be touched to traverse the network. New associations are created by dragging items onto each other. The center is used as a temporary storage area for items and to construct a search.

The **history bar** in the middle, is constantly updated with the most recently visited items, which can be interacted with in the same ways as items in the "Dial".

In the **detail area** on the bottom, the attributes of the selected item are shown and can be changed. The keyboard below can be used at any time to perform a keyword search in the attributes of all related items.

Outlook

The evaluation of our design using prototypes has yielded several interesting **new design ideas**:

- integrate system-wide keyword search, originating from selected item
- have the history influence the importance rating (prefer recently visited items)
- visualize immediate neighborhood of related items
- break down large lists using classification by common relationships and attributes

In general, the use of associations to store information was understood and accepted. Several users even suggested that this system might change their organizational habits to better reflect their way of thinking.