The Associative PDA: An organic user interface for mobile personal information management (proposal)

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INTRODUCTION

Personal information management is currently a tedious and labor-intensive task. The main problem is that our information is scattered and isolated across many applications, incompatible formats, and independent devices. I think a feasible solution is to unify the personal space of information using a network of associations. To realize this, new visualization and interaction techniques for working with an associative network must be created. In my thesis I want to explore such techniques in the context of mobile devices and test them using prototypes.

RELATED WORK

There have been many visions about the future of information systems. Two that have had a tremendous impact were Memex [1] and The Knowledge Navigator [2]. Both consider associations as a vital part of information management. In Memex, Vannevar Bush introduces the notion of associative trails and links between books. In the knowledge navigator the system automatically follows internal links to come up with the most appropriate representation of data. These fundamental pieces of work describe the underlying vision of my project and thus my guidelines for design.

Mark Lansdale [3] describes a framework for research in the area of personal information management. In this framework he points out two different trade-offs such as directed and recognition-based search and the ease of filing. These trade-offs along with the use of keywords and attributes must be considered and further discussed. I will take these considerations into account when designing my prototypes.

Simon Williams [4] introduces the associative model as a model for databases. His explanations help understand the model itself and describe the technical implementation. It is likely that I will use his database as a basis for some of my prototypes.

Yuhan Cai et al. have built SEMEX [5], a flexible platform for personal information management that offers search-by-associations. This system represents a different approach to using associations in information management. Nevertheless, their studies and results will be very interesting for all stages of my project.

Jan Borchers et al. introduce the concept of organic user interfaces (no publications yet). They say that user interfaces should respect and be inspired by the natural laws of physics, biology and human cognition. My prototypes will follow this paradigm.

DELIVERABLES

Phase 1: Literature Review (1 month)

At first I will try to find more relevant contributions in all areas stated above in the Related Work section. I will also familiarize myself with the associative model, both technically and psychologically.

Phase 2: Initial Study (1 month)

When I am sure that I have read everything that is relevant to my work, I will design and conduct a contextual inquiry to identify current work practices. My goal is to identify common PIM strategies and how the existing systems support them.

Phase 3: Prototypes (2 months)

Using the results of the study I will try to come up with visualization and interaction techniques that match the users' needs. I will construct several prototypes to demonstrate different approaches.

Phase 4: User Study (2 months)

These prototypes are then tested in user studies. The results will determine whether these new visualization and interaction techniques are accepted by the users. I will also compare their efficiency with existing methods.

REFERENCES

1. Bush, V. As we may think. *The Atlantic Monthly,* July 1945

2. The Knowledge Navigator, concept piece for Apple. 1987

3. Lansdale, M. The Psychology of Personal Information Management. *Applied Ergonomics,* 1988, 55-66.

4. Williams, S. The Associative Model of Data, Second Edition. Lazy Software Ltd., 2002

5. Cai, Y., Dong, X., Halevy, A., Liu, J., Madhavan, J. Personal Information Management with SEMEX. *SIGMOD DEMO* (2005)