A Memory Library for Elders

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Introduction

This paper presents a conceptual specification for a Memory Library (ML) intended to allow individuals and groups, including elders and their friends and families, to record, share, and archive their memories. The ML began with a conversation among staff and friends of the Internet Archive[1] in San Francisco.

The precursors for the ML include corporate knowledge base applications[2] and computer-supported collaborative work tools, plus the expanding spectrum of Web-based social software.

New applications evolving from these precursors, as well as cheaper and faster digital storage media, make prototyping the ML relatively easy today. In addition, we propose an open source approach[3] to ML software development and enhancement, which will allow blending of existing proprietary and open source applications to achieve the functionality described in this paper.

We are seeking comments on the conceptual specification from potential users and collaborators to guide us in developing a ML prototype.

Sources and Drivers for the ML Project

The ML is a user-friendly, customizable set of applications that allows rapid creation, development, archiving, amendment, and recall of individual and collective memories. It includes software tools for assembling individual memory fragments from images, text, sounds, video, and connections into collective memory structures. It allows long-term memory storage up to the current limits of information duration.

The ML provides an immersive experience for users, realistically evoking events, concepts, and feelings from the past to achieve the richness of collective memory. By providing tools to compile, organize and share individuals' memories, it mirrors and augments their recollections. This fulfills the needs of potential users ranging from geneologists[4] and scrappers to individuals suffering from memory loss.

The following ML attributes address a broad range of user needs and requirements:

Usability: Incorporates simple, everyday technologies – such as remote control video displays – that reflect best practices in user interface design, speed, and reliability. The system uses a single, consistent interface for all functions, so it's easy for elders to access and use the ML with minimal computer skills.

Groupness: Any user or group of users can contribute to content and register responses to others' memories. All interfaces are optimized for interactive group use, and are respectful of individual and group privacy considerations.

Compatibility: Accepts, organizes, and searches all kinds of digital media and links – text, photos and other graphics, sounds, video, plus links to people, Web sites, and other collective memories.

Openness: Leverages existing social software tools and resources. Harnesses the power of open-source development, allowing registered developers to contribute to underlying applications.

What's Inside the ML

The following section briefly describes the five central functions of the ML – collection, organization, storage, recall, and sharing of memories.

Memory Collection: The ML guides users' initiation and development of collective memories with indicia[5] – "memory themes" – that can serve as a starting point to gather initial recollections. The indicia serve as meaningful category markers that evoke users' previously experienced events, concepts, and feelings, or that lead to others' collective memories.

Each of the indicia provides a link to a group of memory fragments – text, photos, sounds, and other media – to draw out users' recollections. The memory fragments are the fundamental building blocks of collective memories, each evoking part or all of an event, concept, or feeling.

The indicia themselves may also trigger immediate user recall of memory fragments that they can contribute to collective memory development. Table 1 shows ML indicia in "tag cloud" format.

Childhood	Education	Work / professional life
Hobbies	Friends and family	Accomplishments
Awards	Recipes / foods	Theater, dance & performance
Games	Music / art / films	Media / TV
Sport teams & events	Business / entrepreneurship	Health and medical
Personal organization	Children	Politics / activism
Gardening and farming	Crisis and loss	House / home
Housekeeping	Personal training, fitness and sports	Travel plans and souvenirs
Investments / financial	Philosophy	Social / cultural events
Spiritual / religious practices and events	Emotions / feelings	Possessions
Artwork / creative expression	Recreation	Governmental affairs
Romance / sexuality	Abstract thoughts	Mathematics and science

Table 1: ML Indicia

After users respond by contributing their own memory fragments in the form of text, photos, or other media, the ML prompts them for additional details about the situation and their observations, actions, results, thoughts, and feelings. By stimulating users' responses and commentary, the ML builds emotional richness and reinforces the meaningfulness of collective memories.

Memory Organizing: The ML provides organizing tools that allow synchronizing memory fragments from disparate media (such as text and video) and editing fragments in similar media. The organizing tools also support creating and editing comments and responses to memories with voice over and closed captioning, and adjustment of the time relationships between memory fragments to modify how they display.

The ML ranks the relative significance of collective memories by registering how frequently they are accessed or referred to over time. The ranking feature focuses attention on particularly significant or powerful "peak" memories, instead of continuously capturing experiences as in Gordon Bell's MyLifeBits experiment[6].

Based on the rankings, individuals or user groups can cull less significant memory fragments and even entire collective memories that no longer interest them. As Brian Eno has pointed out, "Forgetting is part of remembering." [7]

Memory Storage: The ML uses high-quality digital video recording technology to store memories, with redundant backup for archival preservation.

Memory Recall: The ML incorporates search capabilities for text, images, video, audio, and Web media, based on criteria including indicia, name, dates, key words, sounds, images, "linked to", and frequency. Table 2 lists the baseline ML applications. These software tools exist as stand-alone applications but haven't operated previously as part of an integrated system on a common platform.[8]

Medium	Collection Software	Recall Software
photos & graphics	Flickr.com	labs.systemone.at/retrievr
sounds / audio	Ourmedia.org	Podscope.com
video	Ourmedia.org	Virage.com
text	Seedwiki.com	any text search engine
Web	del.icio.us	del.icio.us

Table 2: Software Baselines for ML Collection and Recall

The ML's integration of social software[9] applications for memory collection and recall allows organizing and using multi-media in ways not previously possible for synthesis of immersive recall experiences. The ML creates a fundamentally different experience from video or audio recordings because an individual or community of users is reconstructing collective memories of events, concept, or feeling from memory fragments after the fact.

Memory Sharing: The ML's ultimate function is to allow users to experience their own memories and to share these memories with others in person or by sending them to remote users for them to experience.

The ML displays on a high-quality, high-resolution home theater or TV, allowing users to see and hear with maximum clarity, using a simple and widely-known user interface. It can also potentially display on a large format mobile device such as a tablet PC.

Conclusion

The ML offers a user-friendly platform for assembling, editing, searching and sharing memories. Its features, including its user interface, are designed to optimize usability, groupness, compatibility, and openness.

Increasingly, digital librarians and digital library researchers[10] are recognizing the power of technology convergence and integration to produce rich, immersive electronic records human memory.

The richness of the ML has potential to provide both psychological and educational benefits for elders. The ML can reinforce the sense of self and of belonging, reducing anxiety due to feelings of isolation and loneliness and stresses associated with information overload. For those interested in history, the ML can offer a virtual window into the past with its multi-media capability and precise recall capability. Finally, the ML may prove useful for stimulating and invigorating the user's own memory mechanisms.

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[1] http://www.archive.org/about/about.php

[2] Specifically, the On-Line Library, a knowledge base developed by the author for Pacific Gas and Electric Company in 1996-97 to provide in-house account managers with rapid access to background information on customer end-use technologies

[3] http://www.opensource.org

[4] Rice, J., Lawler, D. and Skousen, G. *Recapturing Memories and Reconnecting with the Past*. CHI Workshop on Designing for Collective Remembering, Montreal (2006).

[5] Thanks to Kathleen Burch and her book / game *Indicia... a romance*. Burning Books, San Francisco, CA. (1990) for insights leading to the expanded definition this term in relation to the art of memory and much more.

[6] http://research.microsoft.com/research/barc/MediaPresence/MyLifeBits.aspx

[7] MacLean, M. and Davis, B. (eds.) *Time and Bits – Managing Digital Continuity*. Getty Conservation Institute, Getty Information Institute, The Long Now Foundation, Los Angeles, CA (1998)

[8] Thanks to Chris Carfi of Cerado (http://www.cerado.com) for this insight and his guidance through the domain of current and new media search software (Personal communication, 1-11-2006).

[9] Roush, W. Social Machines. *Technology Review* 108, 8 (2005) 45-53.

[10] Beagrie, N. Plenty of Room at the Bottom? Personal Digital Libraries and Collections. *D-Lib Magazine.* 11, 6 (2005) http://www.dlib.org/dlib/june05/beagrie/06beagrie.html

The author presented an earlier version of this white paper at the CHI workshop on Designing for Collective Remembering , Montreal (2006).