

Vision of Future of Email Featuring Upcoming Technology to Enhance the User Experience

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ABSTRACT

Information overload caused by emails is a growing problem faced by users in work environments. This leads to distraction and loss in productivity. We present a series of concepts to reduce time spent on browsing interfaces and improve the overall user experience of email. Our contribution includes visually clustering emails and information based on content, a timeline view to archive past correspondences, eye tracking used to highlight key terms and data, voice recording to emphasize the tone of messages, as well as proximity based data exchange. Further investigation and implementation of these suggestions along with emerging technologies will enhance the overall experience for the future use of email.

Author Keywords

Email; HCI; information visualization; eye tracking; speech to text

ACM Classification Keywords

H.5.1 [Multimedia Information Systems] Audio input/output, H.5.2. [User Interfaces] User centered design, H.5.3 [Group and Organization Interfaces]

INTRODUCTION

In the modern age, people are assaulted with waves of information everyday. One culprit is the continuous stream of daily emails people receive. Whittaker and Sidner (1996) pointed out what they called 'email overload'. While continuously receiving mails, the individual loses focus from their primary goals. This results in the extension of working hours and the loss of balance between life and work or loss of productivity (Mark et al., 2012, Dean and Webb, 2011). Considering the Email Statistics Report of The Radicati Group, Inc. the daily email traffic caused by business emails exceeds that of personal emails. The forecast shows that this disparity will grow further (Radicati, 2012).

PROCESS AND METHODOLOGY

Following a design process investigated by the Design Council UK research, ideation, and concept refinement were applied in an iterative process (Design Council, 2006). We've also applied methods used in the field of

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HCI like scenario-based design (Carroll, 2000).

RELATED WORK

Works discussing the impact of information overload include Whittaker and Sidner (1996) and Dean and Webb (2011). The latter also pointing out that multitasking work environments are influencing productivity in a negative way (Dean and Webb, 2011). In the field of information visualization novel tools for visualizing email data were created by Rohall and Gruen (2001).

DESIGN AND CONCEPT

One possible solution is to create an online platform that will assist the user to deal with the avalanche of information that will save time and will relieve email exhaustion. The following section describes ways to improve email use and personal information management for the working environment.

Visual Overview

In a professional environment, emails are linked to specific tasks and projects and should be ideally organized and stored together (Bellotti et al., 2003). However, in a traditional email system, related information is fragmented across time.

Therefore, we propose an online platform that sorts clusters of information based on content in a more organic and intuitive way. The user sees a collection of clusters, each providing an overview of one specific task. This creates distinct visual clusters of information, helps the user switch between different tasks, and keeps order in the information they receive. Clicking on a cluster allows the user to access a varied field of interconnected data, such as received emails, sent emails, attachments, notes, voice recordings and contact information.

Timeline View

Email is not only used to exchange information, but can also keep a personal archive of past projects. It has taken on the same role as filing cabinets. When people need access to documents sent to them in the past, they have to remember exact details such as keywords, titles and dates, or scroll through their entire mailbox.

Instead timeline view operates in a more humanistic way, by organizing content based on personal associations. It gives long-term timeline visualization and provides a bird's eye perspective of all past correspondences. This view helps identify patterns and involvement in long-term communications. Documents of different projects are automatically color coded, creating streams of related

information. By hovering over a certain project, an expanded view is shown allowing the user to drill down to specific information.

Eye Tracking

Often, people do not completely read an entire email, but their mail system automatically marks it as "read". Upon returning to the email, they sometimes cannot remember where they left off and are forced to re-read. In the long term, this leads to critical information being buried in users' inboxes. Using built-in cameras, eye tracking can identify where the user stopped reading (Jacob, 1995). A bookmark is placed after the last word they read, so they can easily return. The email will then be marked as "opened" rather than "read."

Another function for eye tracking is to create tags to categorize emails by content. We propose that eye tracking can help users highlight essential information in emails. The users need only linger their eyes on a word and the system will mark it automatically. The highlighted words are stored in a list of potential keywords. These keywords create a system of tags which group the user's emails by content, and reduce the amount of time spent searching for lost emails.

Speech Recording

Much of human communication is based on tone of voice. Email lacks the sender's tone of voice. Speech to text translation can clarify these misunderstandings. Technologies like Siri inspired us to include a function for speech to text translation. Both converted text and speech are sent to the recipient, enhancing the message with an obvious tone and intention. Audio and text files are also correlated to allow access to the audio when text is selected. Additionally, speech recording can be archived with clusters of information allowing personal reflection on specific messages.

Proximity Based Data Field

Email is the primary method of organizing meetings within large companies, as well as distributing information before and during the meeting. However, when dealing with multiple recipients, content can fail to reach its destination. Since a meeting is inherently a location based exchange of information sharing that should be as simple as handing out papers.

We propose a proximity based method of exchanging information. When a group of users enters a meeting room, they enter a digital data field, allowing them to share relevant content with the group. All this information is then automatically displayed on each group member's device. Content generated in the meeting is then sent to all attendees. By using proximity as a filter, sharing content becomes instantaneous and reliable and easy.

CONCLUSION

The contribution of this paper is an introduction to five context and task based concepts to improve the experience of composing, browsing through and organizing emails and email-related content. These

concepts center on using upcoming technology in a professional environment. These include, generating semantic clusters of information based on context and related tasks, a timeline overview to keep track of long term content, automatic tagging and bookmark through eye tracking, voice recording to emphasize the tone of messages and note keeping, as well as proximity based data exchange that allows easy sharing. With the implementation of these technologies we aim to achieve an overall more robust and versatile user experience.

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REFERENCES

- Bellotti, V., Ducheneaut, N., Howard, M., and Smith, I.: 2003, Taking email to task: the design and evaluation of a task management centered email tool. *Proc. ACM SIGCHI Conference on Human Factors in Computing Systems*, CHI '03, pages 345–352.
- Carroll, J.: 2000, Five reasons for scenario-based design. *Interacting with Computers*, HICSS '99 Volume 3 Page 3051.
- Dean, D. and Webb, C.: 2011, Recovering from information overload, http://www.mckinsey.com/insights/organization/recovering_from_information_overload Accessed: 2013-10-13.
- Design Council: 2006, Double diamond design process, http://www.designcouncil.org.uk/documents/document_s/publications/eleven%20lessons/elevenlessons_design_council.pdf, Jacob, R. J. K.: 1995, *Virtual environments and advanced interface design*, pages 258–288. Oxford University Press, Inc. 1995
- Mark, G., Volda, S., and Cardello, A.: 2012, "a pace not dictated by electrons": an empirical study of work without email. *Proc. ACM SIGCHI Conference on Human Factors in Computing Systems*, CHI '12, pages 555–564.
- The Radicati Group, Inc.: 2012, Editor: Radicati, S., Analyst: Hoang, Q. Email Statistics Report, 2012–2016, <http://www.radicati.com/wp/wp-content/uploads/2012/04/Email-Statistics-Report-2012-2016-Executive-Summary.pdf>, Accessed: 2013-10-13.
- Rohall, S. and Gruen, D.: 2001, Email visualizations to aid communications. *Proc. 2001 Conference on Information Visualization*, IEEE, pages 2–5.
- Whittaker, S. and Sidner, C.: 1996, Email overload: exploring personal information management of email, *Proc. CHI '96 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, pages 276–283
- Potluck: 2013a, Design Challenge Blog, OzCHI24 2013, <http://uidpotluck.tumblr.com/>
- Potluck: 2013b, Final Video Submission, OzCHI24 2013, <http://youtu.be/O6W-kHdZcvc>