State of Mind

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ABSTRACT
As an entry to the OzCHI 24 hour student design competition we introduce State of Mind, which we propose as a solution to help enhance the way people collaborate in everyday environments. State of Mind intelligently loads relevant applications, preferences, documents, and media automatically when entering a contextually defined space. As users naturally utilise physical space to communicate, their virtual states adapt dynamically, allowing for a productive edge that requires no set-up, inherently enhancing collaboration.

Author Keywords
State of Mind, OzCHI24, mindset, social collaboration, synchronous, contextual.

ACM Classification Keywords
H5.2. User Interfaces.

INTRODUCTION
Most currently available collaboration systems focus on enabling geographically distant and/or asynchronous groups of users, but do little to enhance the way we interact in person. We investigated the dynamics of local collaboration, as well as how we currently take advantage of online, distant collaborative tools and apply those to everyday life. After a first round of user testing rejected our initial concept of a modern 'talking stick', we revisited prior research in light of that feedback, and developed our final concept 'State of Mind', which takes the real physical phenomenon of the brain's "event boundaries" to a digital platform, making the disconnect between your computer space and cognitive space as transparent as possible.

BACKGROUND
We started our process by looking at some existing collaboration tools. Some of the most influential ideas were the features offered in Synergy, Airdrop and Android Beam. For our initial background research, each team member researched different domains based on personal intuition. Individually, we researched the arising frustration with the personalization of devices, demand to share experiences, contextual awareness, the collaborative potential offered by space and architecture, new forms of input devices, and the concept of "embodied knowledge, which is defined as situational experience which helps us experience, understand and interact with the world, as well as the concept of physical artifacts having a social life and their role in cognitive group work.

PROCESS
Initially the design process involved a cycle starting with brainstorming for potential users and use-cases, background research, and the mutual defining of terminologies. Important distinctions were made such as the difference of 'sharing' and 'collaboration'. In the case of collaboration, sharing builds for the mutual gain of the participants. Conversely, sharing does not imply collaboration and, as such, does not imply the creation of value. Our definitions informed three distinct models of collaboration; 1. individual entities exchanging content, 2. Individuals contributing to a communal space, and 3. No notion of individuality – only a shared space.

CONCEPT: CONVERSATIONS AS COLLABORATION
The concept of conversations as collaboration was one of the stronger concepts we found personally appealing as participants each contribute towards building an idea, memory or relationship, so in essence every conversation is a type of collaboration. Our user interviews made apparent that our proposed concept did not present itself as novel or useful enough to our users to generate a positive response. Many were indifferent or intimidated by the notion that we were introducing a new system or physical component to something as simple as conversation. Due to this discouraging feedback, and with strong resolve, we decided to return to some previous brainstorm developments, and came up with the idea of having contextually relevant 'states' on your computers that aid with collaboration. A second and third round of online three-person user tests further informed our design and reaffirmed demand for our new system.

CONCEPT: STATE OF MIND
Our personal work spaces are often described by the surrounding environment. Factors like location, time of day and the people we work with can all be considered qualifiers for different kinds of work. Despite this external influence, our cognitive workspaces are most often bound internally as current technology fails to afford for our spatial obligations and predispositions. The systems we use do not care whether we're entertaining at home or studying for an exam with friends. We introduce *State of Mind,* which addresses this directly by intelligently loading relevant applications, preferences, documents and media automatically when entering a contextually defined space. As users naturally utilise physical space to communicate, their virtual states adapt and synchronise dynamically, ensuring that collaboration is as fast and seamless as possible.

REFERENCES
Beach, A., Gartrell, M., Akkala, S., Elston, J., Kelley, J., Nishimoto, K., Ray, B., Razgulin, S., Sundaresan, K., Surendar, B., Terada, M., & Han, R. (2008). *WhozThat? Evolving an Ecosystem for Context-Aware Mobile Social Networks*, Network, IEEE, 22(4), 50-55. DOI: 10.1109/MNET.2008.4579771. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4579771&isnumber=4579761

Billinghurst, M., Poupyrev, I., Kato, H., May, R. (2000). Mixing realities in Shared Space: an augmented reality interface for collaborative computing, Multimedia and Expo, 2000. *ICME 2000. 2000 IEEE International Conference*, 3 ,1641-1644. DOI: 10.1109/ICME.2000.871085. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=871085&isnumber=18858

Chaey, C. (2012) *The Team Behind Bump Aims To Crack Photo Sharing On Smart Phones*. Retrieved 23 September, 2012, from http://www.fastcodesign.com/1670380/the-team-behind-bump-aims-to-crack-photo-sharing-on-smart-phones

Chin, A., Xu, B., Wang, H., & Wang, X. (2012). Linking people through physical proximity in a conference. *MSM'12 Proceedings of the 3rd international workshop on Modeling social media, ACM, New York, NY, USA,* 13-20. doi: 10.1145/2310057.2310061

Eagle, N. (2009). *Social Serendipity*. Retrieved 23 September, 2012, from http://reality.media.mit.edu/serendipity.php

Erickson, T., Halverson, C., Kellogg, W., Laff, M., & Wolf, T. (2002). Social translucence - designing social infrastructures that make collective activity visible. *Communications for the ACM, 45(4), 40-44*. DOI: 10.1145/505248.505270

Johnson-Lenz, P., & Johnson-Lenz, T. (1991). Post-mechanistic groupware primitives: Rhythms, boundaries and containers. *International Journal of Man-Machine Studies, 34*(3), 395-417. DOI: 10.1016/0020-7373(91)90027-5

Klemmer, S. R., Hartmann, B., & Takayama, L. (2006). How bodies matter: five themes for interaction design. *DIS '06 Proceedings of the 6th conference on Designing Interactive systems. ACM, New York, NY, USA*, 140-149. DOI: 10.1145/1142405.1142429

Krauss, M. R. (2002). The Psychology of Verbal Communication. *International Encyclopedia of the Social and Behavioral Sciences*.

Krejins, K., Kirschner, P. A., & Jochem, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: a review of the research. *Computers in Human Behavior, 19*(3), 335–353. DOI: 10.1016/S0747-5632(02)00057-2

Lanubile, F., Ebert, C., Prikladnicki, R., & Vizcaino, A. (2010) Collaboration Tools for Global Software Engineering. *Software, IEEE, 27*(2), 52-55. DOI: 10.1109/MS.2010.39. Retrieved from http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5420797&isnumber=5420782

McKechan, S. & Ellis, J. (2012). Collaborative learning in the Scottish curriculum for excellence: the challenges of assessment and potential of multi-touch technology, *Education 3-13: International Journal of Primary, Elementary and Early Years Education*.

Radvansky, G. A., & Copeland, D. E. (2006). Walking through doorways causes forgetting: Situation models and experienced space, *Memory & Cognition, 34*, 1150-1156.

Spikol, D., Milrad, M., Heidy., & Pea, R. (2009). Integrating Co-Design Practices into the Development of Mobile Science Collaboratories. *Ninth IEEE International Conference on Advanced Learning Technologies*.

Wigdor, D., Jiang, H., Forlines C., Borkin, M., & Shen, C. (2009). WeSpace: The Design, Development, and Deployment of a Walk-Up and Share Multi-Surface Collaboration System. *CHI'09 Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. ACM, New York, NY, USA*, 1237-1246. DOI: 10.1145/1518701.1518886

Wilson, M. (2012) *Finally, A Location-Sharing App That's Less Creepy Than Foursquare*. Retrieved from http://www.fastcodesign.com/1670275/finally-a-location-sharing-app-thats-less-creepy-than-foursquare

Wonn, D. (2012). *Situational Awareness: A Method for Mobile Content Planning*. Retrieved September 23, 2012 from http://johnnyholland.org/2012/07/situational-awareness-a-method-for-mobile-content-planning/

The Psychology of Sharing. (2011). Retrieved September 23, 2012 from http://www.publicsocial.co.uk/2011/09/the-psychology-of-sharing/