

GroupSense: Omnipresent Awareness Information

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ABSTRACT

GroupSense is a suite of awareness tools for a medium size workgroup informing group members of people's in/out state and information of interest, such as talk announcements. Contrary to instant messengers and most other awareness tools, GroupSense is intended to show state changes that occur infrequently and tend to span longer time intervals (e.g. whole day, or week).

Representing such coarse grained awareness information requires a different approach than is commonly used in awareness applications. Information needs to become part of the work environment *omnipresent* in both physical and electronic worlds such that *people stumble over it*.

Keywords

Awareness, Ambient Display, Omnipresent Awareness.

GROUPSENSE

GroupSense (GS) is an awareness application to share whereabouts information with your colleagues. Contrary to common instant messenger type applications, GS does not provide messaging. People inform the system on plans to be IN or OUT of the office, to attend – for example – a conference, to go on vacation, or to work from home.

Additional information is posted as INFO notes, for example “coming in late” or “reviewing papers all day”. Most people set up a posting for regular workdays and override it with OUT postings or amend it with INFO postings. The system is designed to be free form and lightweight. Our goal was to explore whether such a system could still be useful for coordinating group activity.

Note, that the state conveys the predominant state in a day. If I plan to have a regular workday at the office, I'm IN. This does not signify I will physically be at my desk all-day. By convention, people do not post a state for weekends or holidays, unless they specifically want to say that they are IN or OUT. Most people post just for themselves, but it is possible to post for another person.

Each group contains a virtual member representing “group news”. Talk announcements and notes of general interest are INFO note posted to news.

GS covers two key concepts in awareness: presence and “future”. Presence is information about a person's current state and availability to assist users in planning their actions right now. “Future”, on the other hand, is awareness of a person's near term future activities that might have implications for their availability (e.g., Bob is leaving for a trip tomorrow so I had best talk to him today). Information about near future activities can be crucial in coordinating group activity.

GroupSense client

GS began as a dedicated client that was placed on top of the Windows™ taskbar (Figure 1). The client consisted of person-icons representing the status of myself and my collaborators -- people I want to stay aware of. In addition, group-icons provide status of the entire group in a compact visualization.

Brush-overs on person-icons show a larger picture and today's notes for that person. The client also provides a gallery view of the group and a monthly calendar view.



Figure 1. GroupSense awareness bar providing peripheral awareness on the desktop.

We encountered many problems with this client, most of them due to the large number of different platforms used in our group. This kept the system from gaining a broad user base early on.

Cultivating the physical environment

We soon realized that we had to make GS more visible. The USER commons, a gathering and meeting place for our group contains a large (5x3 feet) plasma display with a touch screen. It is frequently used for presentations, demos or as a collaborative workspace. We built an web-based gallery for this display. The display cycles through the gallery and other information pages when not used for collaboration. This move made GS information very

visible to the group. The gallery made it obvious when people had not set their state or pictures in GS. We frequently overheard people teasing each other about their “unknown” GS state. This constant visual reminder possibly motivated many people to start using the system more regularly. Also around this time we first noticed group members referring to people’s GS states in conversations. We believe the prime reason for the gallery’s success is the fact that people didn’t have to *do* anything to check GS – the information was readily available *in the world*.

Encouraged by this success we explored other ways to cultivate GS in the physical environment. One of us built a virtual fish tank. He extended this fish tank [1] to represent GS state (Figure 2): People who are IN show up as swimming fish, whereas people who are out OUT are shown as stationary objects at the bottom of the tank. Fish carry an image of their user or people can change their “fish” appearance through skins for IN and OUT states. Tapping a fish displays a person’s current note. The fishtank runs on a 2nd large display with touch screen.



Figure 2. GroupSense fish tank.

The fish tank is located right outside the commons area, a frequently visited spot. Again, the awareness information is in the environment to perceive without effort. The fish tank became both a conversation piece for visitors, and it effortlessly conveys awareness information to people walking by.

Cultivating the digital environment

We soon replaced the GS client with a web based interface. It is now the main method to put information into GS and provides access to group galleries and week previews (future). Based on our experiences with the big displays we wanted to make GS information available without effort so that people could *stumble over it*. Our solution is an email-based report sent out every morning.

To be both concise and to provide useful “future” this report differs significantly from other GS representations. It does not list obvious information, but shows who is out today, what is new, and what is upcoming in the next two weeks. Thus, the report shows when somebody is back in the office after a trip, or when somebody is about to go

out of town. The email report was found to be very valuable, because it summarized important details at a glance.

Since people tend to check their email first thing in the morning, our email-based report provides awareness information in the digital workplace at a time when it is most likely to be “stumbled across”. People encounter these reports just as they encounter the fish tank in their physical work environment (though without stumbling).

EVALUATION

System logs were analyzed over an 11 month period. During this time, 19 of 21 full time employees in our lab and 7 of 11 summer interns used the system. Postings patterns are summarized below. In general, users only rarely posted items to newsgroups or on behalf of others with the exception of the person who posted the seminar speaker each week (79) and the lab admin assistant who posted information about the lab manager (74). Postings could be assigned a state where in = 135 postings in total, out = 281, and info = 303 postings across all users of the system.

# postings by a single user	average	median	range
About themselves	19	12	2 to 62
On behalf of others	16	4	2 to 79
To newgroup	16	3	2 to 74

Table 1: System usage statistics

SUMMARY

The coarse grain nature of GS information significantly impacts the ideal representation of awareness information. People care about others being “back in the office” or “going on a trip”, but they are less interested in state changes during a day. The success of the email report indicates that “awareness moments” as described in [2] can occur using very coarse grain awareness such as GS provides (day level as opposed to minute level.)

We believe that GS’s success can be mostly attributed to the availability of the awareness information at various common physical and digital locations in the workplace.

We are working on other representations of GS information such as door panel displays in office doors. While GS does not tie into an existing calendaring system at this point, it seems an obvious extension.

REFERENCES

- [1] S. Farrell: Social and Informational Proxies in a Fishtank, ACM CHI 2001 short papers, pp. 365-366.
- [2] B.A. Nardi, S. Wittaker, E. Bradner: Interaction and Outeraction: Instant Messaging in Action, ACM CSCW 2000, pp. 79-88.