

A Bench For All Moods

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ABSTRACT

At XRCE we explored a new type of interface, the *CommunityWall*, based on public large screen displays. A *CommunityWall* is an interactive device that monitors and collects information and comments from a group of people sharing a physical location, be it an office setting site or a neighbourhood in a town. The *CommunityWall* display device is a large screen with interaction features like pen based scribbling and touch-screen manipulation. Here we describe how to extend its functionality and embed it in public benches to support community awareness. The work originated by an internal reflection at XRCE about how to augment the work setting (comprising a beautiful park) with awareness support. While the *CommunityWall* application has been implemented and deployed for testing in a workgroup at XRCE, the bench is at the level of system design.

KEYWORDS

Ubiquitous computing, large screen display, community awareness

INTRODUCTION

A bench is more than just some pieces of wood. It is a (social) place in a community, whether the community is a neighbourhood in a town or an organisation like XRCE. It is also a place for solitary reflection away from the office, friends, family and co-workers. It is a place for discussion in pleasant surroundings.

So far benches have supported several functions:

- Sustained a solitary people thinking, by giving him or her the means to sit in a chosen place and use the environment as an inspirational context of thinking; a bench like this can be defined a *inspirational* bench.
- Provided the possibility to communicate to future people sitting on it a thought, a feeling, a complaint; whatever the emotions were at a certain moment on that bench placed in that place; a bench like this can be defined a *graffiti* bench.

- Sustained the conversation among several people, maybe on the base of existing graffiti or stimulated by the context where the bench is located; a bench like this can be defined a *conversational* bench.

Despite all these existing usage, benches are the same since many years and in serving the above usage, they are still quite primitive. A first suggestion about how to improve them has been made in [2], where the authors suggest to display slogans sent from home by elderly people.

In particular, existing benches have the following “problems”:

- An *inspirational* bench provides access only to context in terms of physical context, i.e. what the eyes can see. Nothing about the community in which the bench is located is accessible, for example.
- A *graffiti* bench suffers from the time deterioration of the content; nothing is provided to make it more long-lived and easily accessible.
- A *conversational* bench provides nothing about storing the conversation results and maybe sharing them with other people in the community, if not just putting another graffiti on the bench.

We propose a bench augmented with ICT functions, in order to enhance the inspirational, conversational and graffiti possibilities available to the occupants of the benches.



Figure 1: The *CommunityWall* display in a bench

In addition to the standard shaped bench shown above, more interesting designs are possible. For example

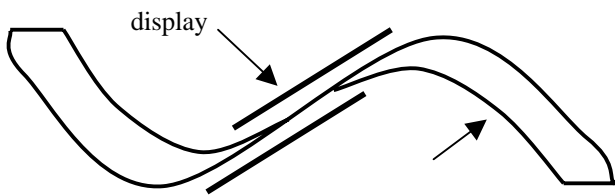


Figure 2: Overhead view of the bench

THE BENCH FOR ALL MOODS

Input means

The main provision of information to the bench is done in context, as response to an already existing information or as new information. We envision two main ways of providing input: by using a pen for hand-written input or using a PDA for beaming the information to the bench.

The bench would also be provided with other sensors to help it assess information about the people around it, for example:

- Pressure pads to detect the number of people (if any) currently sitting on the bench.
- Video camera or infrared proximity sensor to detect any people within a radius of a few metres – i.e. people who might be standing in front of the bench talking to someone sitting on the bench.
- A microphone to detect audio levels to enable the bench to guess whether the people sitting on it are thinking or reading quietly or are engaging in conversation. This would allow the possibility to use speech recognition to input commands to the bench (for example to enable or disable the ambient sound suppression and background music). Another option would be that to have “audio graffiti” whereby users could leave comments (or just sounds) embedded in a particular soundscape.

Output means

The content submitted to the bench would be visible on the back of it. The CommunityWall application [3] can be used for this purpose (see Figure 2). Provided that the amount of the information would increase rapidly, the CommunityWall filtering rules can be used to prioritise the content. Additionally on place filters could be applied by people sitting on the bench, in order to access to the portion of information of their interest.

Identification of people and personalised services

Above we have described means for detecting whether any people are currently sitting on the bench or are in its immediate vicinity. However, there are also possibilities

for identifying individual users thereby allowing more personalised services. One (easy) way of doing this would be to install a badge reader in the bench so that anyone who sits on it is recognised (assuming in this case the usage in a closed setting like an organisation) and his or her preferences can be accessed.

Once a person is recognised there are a number of possibilities it is possible to filter the graffiti that match a person’s interests

Networking

One of the points of having the bench is its location, away from the home and office – so for this reason the bench it might be an advantage for the bench not be networked together with desktop PCs. However, benches could be networked together so that a person sitting at one bench could read some of the graffiti on another or could “think out loud” together with a person at a distant location. One way of doing this would be to use Pollen [2] to distribute information (if real-time communication was not required) – in this case, and if the benches were solar powered they could be placed almost anywhere without any cables at all.

Alternatively, the benches could be addressable from desktops and just used to spread information in the environment (literally!) and share it with the others. A bench would become a very effective means to transmit thoughts, believes, ideas, and would be very useful to understand the *mood* of the organisation as a whole. Perhaps, the choice of receiving and sending information to/from the bench to the desktop could be make a matter of individual choice.

ACKNOWLEDGEMENTS

The work on the CommunityWall interface is supported by the EC within the Campiello project (ESPRIT LTR #25572).

Many thanks to Stefania Castellani, Jean-Luc Meunier, Christopher Thompson for comments and ideas.

REFERENCES

1. Gaver, W. & Dunne, A. (1999). Projected realities: conceptual design for cultural effect. *Proceeding of the CHI 99 conference on Human factors in computing systems: the CHI is the limit*, May 15-20, Pittsburgh, PA: ACM press.
2. Gance, N. & Snowdon, D. (1999). Pollen: Virtual Networks That Use People as Carriers. *Proceedings of the International Symposium on Handheld and Ubiquitous Computing (HUC 99)*, Poster Abstract
3. Grasso, A., Snowdon, D. & Koch, M. (2000). Extending the Services and the Accessibility of Community Networks. In *Digital Cities: Experiences, Technologies and Future Perspectives*. Lecture Notes in Computer Science, Springer-Verlag, 2000.