

# QLeaves: Tangible Message Containers for the Vitality Enhancement of Public Places

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## 1. Introduction

QLeaves is a tangible<sup>1)</sup> digital information container<sup>2)</sup> system intended for use in public and shared spaces. With a mobile phone, one can add text and photos to a physical leaf shaped card called a “QLeaf”. Using real QLeaves to distribute and share virtual messages in a place creates an information space that reflects the people and activities of the place.

Systems for blogging and content distribution in public places, as opposed to from one’s home or office computer, are becoming more prevalent<sup>3)-5)</sup>. The requirements of these systems are unique from an interaction perspective – having to share the user’s attention with other activities in place and do so with more restrictive devices (i.e. a mobile phone), and from a social perspective – weaving system use into the fabric of a place’s established social behaviors. We wish to study the QLeaves system in a real world setting in order to better understand these requirements. Focus points for a future study are derived from discussions during an initial presentation of QLeaves at a research forum.

## 2. Life in a Building

Modern buildings can be sterile, impersonal places. They are clean, organized, and maintained thus sometimes lacking indicators of culture and history beyond what is fabricated for presentation purposes. It is desirable to have means for people in a building to leave personally created content in order to develop an information space that better represents the culture and history of the place or “life” in that building.

QLeaves is a public message distribution system through which this information space can be created. The use of a leaf as an object to which messages can be added and then read from is inspired by the ubiquity of fake plants in buildings. They bring about the vision of leaves strewn over the ground of a place, an acceptable mess for one to explore and find messages relevant to that place.

## 3. QLeaves System

The development of the first QLeaves prototype which is described in details below was driven by the following:

*tangibility*: using physical objects as containers for digital messages to add the objects’ affordances and perceived value to the messages.

*message ephemerality*: limiting the time a message can be contained in a physical object to induce change in a place’s information space.

*simplicity*: supporting the largest number of users using simple, familiar, and widely available interaction methods (a mobile phone’s QRcode reading, email, and web browsing functions).

*anonymity*: alleviating use hesitation due to shyness or concerns of privacy.

### The QLeaf Object

The QLeaf is a plastic leaf shaped card, around the size of a business card, imprinted with a “write” QRcode and a “read” QRcode (see Fig. 1). The “write” QRcode contains an email address to which a message to add to the QLeaf may be sent. The “read” QRcode contains a URL. A QLeaf’s message may be viewed by accessing this URL in a mobile phone’s web browser. The email address and URL both contain an ID that is unique for each QLeaf.

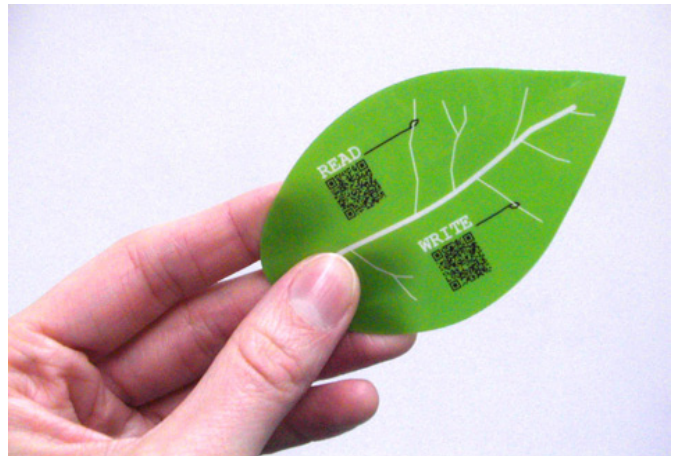


Fig 1: An example of a QLeaf

A QLeaf may contain only one message at a time and this message will expire after some predetermined period of time (for the first presentation of QLeaves, this time was set to 2 hours). After a message expires, the QLeaf becomes empty again and a new message can be added.

### QLeaves Visualization

QLeaves are freely moving objects so their use cannot be tied to a place specifically. The connection between QLeaves usage and a place is made indirectly through the use of a visualization displayed in the place where the QLeaves are distributed.

The visualization (see Fig. 2) depicts real-time states of all QLeaves associated with a place. Each QLeaf is represented by a graphical leaf floating slowly in the display. When a message is added to a QLeaf, its representation becomes green in color. As the message ages, the color fades through stages of red,

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orange, yellow, and brown. Finally when the message expires, the displayed leaf loses all color - it is empty. A person may select a leaf on the display to view its current message, or browse archived messages.



Fig. 2 QLeaves Visualization

### A QLeaves Scenario

There are QLeaves scattered on the shelves of a bookcase next to the café’s most comfortable chairs. Ben sits down with his coffee and before opening his book he takes a QLeaf and captures the “read” QRcode with his mobile. In a few clicks he is looking at a message written by a former patron of the café. It includes a quote from a book, the name of a song, and an image of the author’s shoes. Reading two more QLeaves results in similar messages. This is a routine that some of the café customers have. They do it to share their current book and music interests with others. It also acts like a personal diary, but kept in a place they associate with reading good books and enjoying music.

Ben leans over, takes a picture of his feet with his mobile’s camera and attaches it to a message that includes an enjoyable passage from last night’s reading. He takes a QLeaf from his pocket, captures the “write” QRcode, emails his message to the received address, and tucks the QLeaf between two books on the bookshelf. A few moments later he notices two younger girls looking at the QLeaves display. They select the only green leaf on the screen and read the message he just added. One girl glances around the room, looking at people’s feet and then continues to talk with her friend. Ben chuckles and goes back to reading his book with a smile on his face.

### 4. Experiences

We presented the above described prototype at SFC ORF 2006<sup>6)</sup>, a public research forum held on November 22<sup>nd</sup> and 23<sup>rd</sup> of 2006. During this event the QLeaves system was introduced to between 150 and 200 people. Our presentation goal was to engage people in discussion of their thoughts on using a system like QLeaves in order to identify important points that we could use when framing a future study. The most prevalent issues discussed were:

*user privacy and profiling:* There was a mixed reaction to the anonymity of QLeaves use. Opinion was highly based on what

a person’s motivations would be for using the system. For example, if a message was written with a target reader in mind, some indicator of the message’s author would be desirable.

*feedback and knowledge of activity:* The QLeaf object bears no information as to whether or not it contains a message. From one perspective this is a system fault but from another, it keeps the objects and the space they are used in simple. Without wanting to “pollute” spaces and objects with indicators of information space activity, when and how should feedback be given?

*message management:* An important aspect of the QLeaves system is the “management” of messages. We explained how they are basically managed (a QLeaf can contain one at a time and it will expire after a predetermined amount of time) and then discussed variations on this scheme. For example, QLeaves could come in pairs so that a message added to one could be read from another and vice versa. This discussion stimulated many other suggestions for forms of message management (varying time limits on objects, message categories, visual format, access management, etc.). How do these possible schemes relate to the context of QLeaves use, the intentions behind leaving messages, and the motivations to read messages?

*public versus personal use:* Finally, when asked “how would you use QLeaves?”, responses with both public use scenarios (leaving messages for strangers) and personal scenarios (sharing QLeaves in a closed group) were given. This produced thoughts on which elements of this kind of system support public use and which elements support private use.

### 5. Future Study

We will implement QLeaves in a real world place to analyze usage patterns and message content, as well as conduct a more in depth diary study with a smaller group of participants who regularly frequent the place. Data collection and analysis will be motivated by the above four issues. Our final goals are not to evaluate the use of the QLeaves system specifically, but to gain insight into systems for blogging and message distribution in public places in general.

### References

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