
Forget Me Not: An Ambient Display to Increase Communication Between Partners by Enabling Feeling Expression and Increasing Awareness

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Abstract

Scientists have long noted an association between social relationships and health. Geographic separation poses a challenge for relational partners as it is associated with increased distress and depression. Remote relationships can affect mainly couples' communication. Enabling feeling expression and increasing communication between couples can maintain their health and the health of their relationships. This paper aims to provide possible solutions that can bridge the gap between couples in remote relationships. *Forget Me Not* is an ambient display project to support the communication and emotion expression to maintain healthy long distance relationships.

Author Keywords

Healthy romantic relationships; emotional expression; emotional awareness; increase communication.

ACM Classification Keywords

H.5.m Information interfaces and presentation (e.g., HCI)
Miscellaneous;

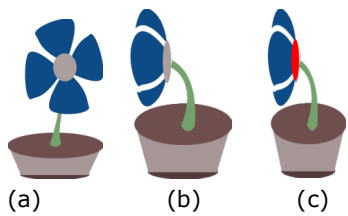


Figure 1: (a) Flower when there is good communication. (b) Flower when one partner has neglected relationship. (c) Flower when feeling sad or need more attention from a partner.



(a) (b)

Figure 2: (a) Low fidelity, paper prototype: upright flower. (b) Low fidelity, paper prototype: drooping flower.

Introduction

Scientists have long noted an association between social relationships and health. Physical separation of partners is associated with increased distress and depression with young couples [6]. Some individuals in Long-distance Relationships experience frustration as a result of communication difficulties [7]. Communication opportunities with geographically separated couples are restricted because of geographic distance [9]. Equally important that the limitation of face-to-face time can yield fewer opportunities for one's to provide emotional support and affection where individuals are less able to monitor their partner's behavior and offer emotional support [6]. With this in mind, we provide one possible solution that provides awareness of communication between partners in a long distance relationship. We designed an ambient display for conveying communication frequency in the hope of increasing communication opportunities and increase the awareness between couples to maintain healthy relationships. Our prototype also provides a physical expression of the couple's feelings of missing a partner and feeling sad with the hope of yielding more opportunities to monitor their partner's behavior and offer emotional support.

Related Work

Supporting communication and engagement in remote relationships has attracted several researchers. In [2] "messaging kettle" aims to foster communication with an older friend who lives remotely. Another example is [11], where a light 'orb' glows in New York when a family member walks into their London apartment. Several studies have provided range of technologies to support implicit, personal, and expressive

communication for couples in long distance relationship. Gaver in [3] describe awareness technologies that provide a feeling of presence of remote lovers through peripheral awareness. Strong et al. presented a feather in a plastic cone floats when the distant partner picks up a picture frame of the couple together [10]. In the same vein, Goodman et al. present the Sensing Bed that is intended for romantic couples who are not co-located [4]. Hug Over a Distance was presented in [13].

All of the above work did not take into account the sense of expression emotions experienced by partners that could affect crucially the health of the relationships. Our main contribution is to enable emotion expression and provide a physical representation of the communication between couples that could support awareness in remote relationships.

System Design

Based on the strategies in [8], Our prototype focuses on supporting emotional expression and awareness.

The flower concept

Flower concept has been used by different works. For example, "Flower in Bloom" that was moving back and forth between three different states: closed, partially bloomed and fully bloomed [5]. Another example is the lotus flower implemented to enhance the discovery of pitch black for an immersive theatre experience [12]. An interactive flower has been also used for home-based rehabilitation [1]. Together, these prototypes inspire us to design a physical computing flower that represents the health of the imitate relationship. Each partner has their own flower. When the partners are communicating frequently, the flower is upright and alive (Figure 1(a)). If communication wanes, the



(a)



(b)



(c)

Figure 3: (a) High Fidelity: upright flower. (b) High Fidelity: drooping flower for communication gap. (c) High fidelity prototype: drooping flower and tri-color-RGB LED color changing for feeling expression.

flower automatically starts to droop (Figure 1(b)). A partner can indicate to the system when they are feeling sad or in need of more attention from their partner, making the flowers droop and changing the color (Figure 1(c)).

Support Communication Awareness and Feeling Expression

Successful and healthy relationships involve active communication, which can be hard to achieve in a remote relationship. Active communication requires understanding your partner's needs and spending time talking and listening to your partner. Our prototype is aimed at monitoring this communication and helping couples express their feelings, which are generally difficult to express in a remote setup. We chose to bridge the communication gap in a physical form, which is more personal.

We concluded that the flower should convey the amount of communication between couples. The goal for the ambient display is to make visible any lacking communication between couples, thereby increasing the couple's awareness, resulting in them paying more attention to each other and bring them closer. Our understanding is that communication, in general, leads to better understanding of how the partner thinks and his/her thoughts and feelings.

In essence, the flower conveys the feeling of "Miss You", which is likely to occur when there is a long communication gap between partners. The prototype (Flower) reacts to the magnitude of the length between communication by showing signs of neglect. We represent this as "bending the stem", which conveys to the partners that their relationship needs attention, similar to a real world flower which droops when there is lack of water or light. Also, our prototype conveys

the feeling of "I am sad" when a partner feels distressed or pessimistic. We represent this as "bending the stem" and change the flower color to red.

Prototype

We first built a low-fidelity prototype that represents the main concept and validated the features that we intend to build in *Forget Me Not* (Figures 2 (a), (b)). Building this low fidelity prototype helped us in many ways, including testing the feasibility of this design, and learning what materials can be used in the enhanced design. The final prototype consists of a pair of a physical flower (Figures 3 (a), (b),(c)) and an Android phone app (Figure 4).

Software and Accessing the Phone Log

To monitor the amount of communication between partners, we developed an android app which checks the partners' call histories and identifies the frequency of phone calls between partners. The call log screen in the *Forget Me Not* phone app shows the latest communication history. The app looks for the number of times the partner's number has been dialed/received and based on this number, sends a message via Bluetooth to the physical flower to be upright or droop. The threshold value can be tailored to the communication desires of the particular relationship. Also, a partner can express his/her feeling of being sad within this application which sends a message via Bluetooth to the physical flower to be droop and change its color.

Conclusion and future work

We present our system, *Forget Me Not*, that aims to provide a solution for geographically separated couples. We built a prototype for implicitly expressing the

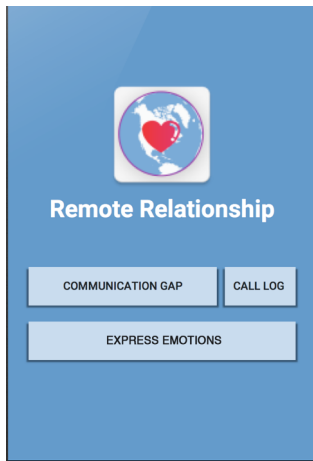


Figure 4: Screenshot of remote relationship app.

amount of communication in an effort to increase emotional expression and awareness between partners. We believe that expressing such features in a physical form could lead to a better communication and enables the development of emotional ties between couples in long-distance relationships.

This project could be seen as a way to increase opportunities of communication and stay connected emotionally by representing the communication gap visually and enabling feeling expression. Our design is preliminary. The next steps will be to obtain early feedback from individuals in remote relationships and iterate on the design. Once we have a final design, we will perform a user study to evaluate the impact of the prototype on relationships awareness and the communication between partners.

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