

Designing Augmented Refrigerator Magnets

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INTRODUCTION

In this poster we present the conceptual designs for several augmented fridge magnets, each illustrative of a larger number of concepts being explored and implemented. The designs have been informed through ongoing fieldwork studying the everyday, routine practices in home life and, in particular, the results of an examination of fridge surface use in family homes [4, 5].

Seeking to orient the presented concepts around people's established practices in the home, we have adopted a particular design philosophy; one of *less is more* [2]. Underpinning this philosophy is a motivation to design the interactions with computational artifacts to be intelligible by keeping their means of operation simple and, as far as possible, visible [see 1]. Using this approach, more functionally rich solutions are made possible by designing the artifacts so that they can be combined to augment one another. Thus, *less* immediate complexity gives rise to the eventual possibility of *more* functionality.

This philosophy is in keeping with the ways in which people manage and organize their daily household activities by artfully combining ordinary artifacts. Specifically, it resonates with the manner in which fridge surfaces, magnets and the content attached to fridges are assembled into the organizing systems instituted in households.

FRIDGE AND MAGNET USE

To briefly summarize, we have grouped the results of our research on fridge surface and magnet use into four broadly defined classes:

Reminding – Reminders for upcoming events or impending errands are often placed on fridge doors, such as leaflets, lists, school correspondence, etc. The location on fridge surfaces means items have a persistence and are viewed often (although not necessarily attended to) during the routine use of the fridge.

Organizing/planning – Items placed on the fridge often relate to family arrangements or activities, e.g. calendars, lists, etc. By being placed on the fridge, the content benefits from being on 'public' display to the entire household and readily available.

Ownership/activity regions – Particular magnets, or areas of the fridge i.e. the top, bottom and or sides, can come to be *owned* by different people or assigned to specific activities. The clearly delineated shape of the fridge and the indi-

vidual designs of magnets afford being owned or assigned in this way. The regioning off of fridge surfaces is important as it allows chosen items to be quickly located and quickly to hand. Household lists or correspondence, for example, are often placed in specific regions so they can be easily glanced at or written on.

Play – Objects on the fridge often have a playful role, e.g. toy-like magnets, magnetic letters/poetry, etc. The fridge's central location gives it a demonstrable quality so that the play is seen to be done. Its functional role as a storage appliance for food makes it a site for frequent, albeit sporadic, interaction, which in turn affords space for short and interspersed forms of play.

DESIGN

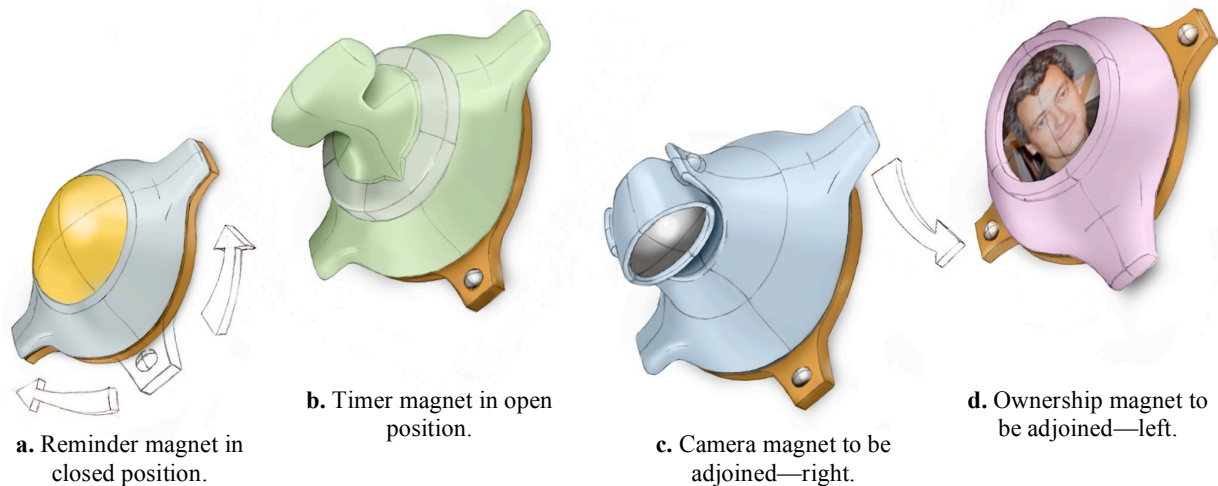
For illustrative purposes, we have chosen to present design concepts addressing three of these usage classes, namely *reminding*, *organizing/planning* and *ownership/activity regions*. The concepts aim to build on those properties of magnets that make them examples *par excellence* of the *less is more* design philosophy. As such, they are designed to operate as a modular based system so that their various functions can be combined (see below for details). Each magnet thus has a base that can swivel to an open position (Fig. 1a/b). From this position the protruding and beveled 'connectors' afford being adjoined (Fig. 1c/d).

Reminding

The first of the concepts augments the reminding function that items on fridge surfaces can serve. The magnet glows (or possibly pulsates) and is triggered by depressing the magnet's surface or by moving it from one location on the fridge to another. The glow gradually fades over some predefined period, e.g., 24 hours (Fig. 1a).

This concept is designed to exploit the inherent simplicity of magnets and how they can be moved, fluidly, across a surface (along with any content). Emphasis is added to an existing property of the fridge in that attention is drawn to objects that have just been moved or added to its surfaces. The concept also addresses the positive and negative consequences of the fridge surface's persistent quality. On the positive side, it adds to the "always-on" nature of the surface so that items can be arranged to capture people's peripheral awareness. Tackling the negative side, the magnet overcomes how items can become virtually invisible as household members habituate to their continuous presence.

Figure 1. Illustrations of magnet modules.



Planning and organizing

This second concept is designed for when a reminder might want to be triggered at some time in the future. Different dials with preconfigured intervals provide a method for setting a countdown timer in, e.g., hours or days, or for marking an upcoming event on a specific day, e.g., “Tuesday”. When adjoined to the concept above, the timer can be used to configure when the glowing begins. It is imagined that other combinations could also work, such as the timer connected to a bell-like magnet to emit a sound.

Like the reminding concept, the timer draws attention to specific items placed on a fridge. In both cases, similar properties of the fridge and magnets are exploited. The key difference is that the timers are designed to augment the ways in which artifacts, such as calendars and lists, are used as prospective memory aids [3].

Ownership/activity regions

Finally, three magnet concepts are presented that take the ownership/activity regions on fridges into consideration. One of the concepts allows a person’s cell phone number and a chosen image to be assigned to it, with the image shown on a small display on the magnet (Fig. 1d). Both image and number are set using a cell phone via short-range wireless connectivity (e.g., Bluetooth). This ‘ownership’ concept can be adjoined to a camera magnet (Fig. 1c) and ‘communications’ magnet (not shown)—the latter containing a GPRS modem. When combined, these magnets offer two possibilities. One, they allow an image of a selected region of the fridge to be captured and sent to the assigned cell phone by depressing the button on the communications module. Two, they allow an image of a preset region of the fridge to be remotely captured and retrieved by dialing a designated telephone number for the communications magnet from a multi-media enabled cell phone.

As a collection, these concepts attempt to either overcome some of the limitations of existing magnet/fridge use or

augment them. The ownership concept goes some way towards replicating the iconographic quality magnets can have by allowing the personalization of augmented magnets. This could be used to indicate a magnet’s association with either a person or activity. The three-way combination of the ownership, camera and communications modules gives people the novel capability to remotely view items on the fridge. This allows important items such as lists or correspondence to be at hand even when away from home.

FUTURE RESEARCH

At this early stage, the technical features of the above concepts have been partially specified and we are currently at a stage where some of the required electronic and mechanical components are being fabricated. Future work includes various stages of prototype testing. Paper-based prototyping is planned to test users’ understandings of the modular approach and to fine-tune the design affordances of the concepts. The testing of working prototypes, *in situ*, will also be undertaken. We will report the results of this work in the near future.

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