HOMEinTOUCH
Designing Two-Way Ambient Communication

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Abstract. Digital Picture Frames has received attention both research wise and by consumers, who are increasingly buying existing solutions. In this paper we investigate how to design improved picture frames through providing means for two-way communication and through exploring the potential in providing automatically generated context information. We report on the design and trial use of a HOMEinTOUCH, an experience prototype of a picture frame for domestic environment, supporting two-way communication and context-information around pictures. We tested this prototype, as well as two other commercial products during a journey and interviewed both the people traveling and the ones at home after the completion of the journey. Based on this material we provide design indications for future generation of such products.

Keywords: Digital Picture Frames, Extended family members, context-information, two-way ambient communication, and interaction design.

1 Introduction

“joy which we cannot share with others is only half enjoyed”
- The Old Street Lamp by H.C. Andersen

The potential for Digital Picture Frames in connecting people who are apart has been pointed out in a number of designs and studies [6][14]. In addition, digital picture frames have become a commercial success over the past years, and are expected to become even more in the years to come. In this paper we investigate the potential in supporting sharing of experiences between extended family members with HOMEin TOUCH a new type of digital picture frame, which explores the potential in
- Supporting better two-way communication than are offered in most commercial picture frames
- Integrating the communication mechanism in the physical home and in everyday life
- Exploring the role of context-data for supporting the communication

Thus while these aspects have been investigated separately, in this study we explore them in conjunction. Our investigation consists of the design of a prototype of a new type of picture frame HOMEinTOUCH, an experience prototype we have developed to explore the above themes. We set up a field trial where three different means of communication were explored on the same trip. One of the communication channels was HOMEinTOUCH. In addition an iGoogle site and a commercial Picture frame (Seeframe) were used. These three communication mechanisms were set up in three different households. After the trip all the parties involved were interviewed to investigate the strengths and weaknesses of existing solutions and to point towards potential future solutions.

This paper outlines the rationale and experiences from designing the frame and report on the experiences from the use of this frame and other related communication means during a travel.

The experiences from the design and trial use lead to reflections about the experience prototype. This paper is a roundup on some of the outcome and discussions concerning two-way ambient awareness. One theme is concerning the two-way communication in this specific case with one part being away and the other part being home, another theme is the obligations that the infected have towards each other when communicating and a last theme is the connectedness through this prototype. This paper outlines related work and puts the work in the context of a larger project investigating new means for people to make home where they are. It describes and motivated the designed experience prototype and outlines experiences from a trial use. Finally design indications are synthesized from the experiment.

2 Related Work

A range of research has investigated how to support connections between people who are apart.

Various devices supporting one-way communication have been suggested for the home. Examples include picture frames such as the Digital Family Portrait [14], which connects elderly people to their extended family members. Both the digital family portrait [ibid] and Tollmar and Persson’s 6th sense [16] conveys activity awareness from one home to another home and thus allows for the awareness between people in different homes. Both these concepts support one-way communication. These concepts concentrate primarily on the ambient awareness and not on the sharing of experiences and contents.

Examples of two-way communication systems include InTouch, which allows for synchronous and tangible connections between individuals. This is an early concept, which is not developed in particular for a home and does not hold considerations on how such a concept would fit into a home and everyday life.