

# CROSS-MODAL DESIGN RESEARCH

## BRIEF AND CONTEXT

This project is based on the idea that photographs are a form of visual memorabilia, which exist alongside other non-visual forms. To understand the use of non-visual memorabilia we examined the way visually impaired people save and share autobiographical memories. We then used this understanding to inspire the design of new kinds of memory artefacts and processes for both sighted and partially-sighted people. We refer to this as a form of cross-modal design research, in which behaviour in one modality or population is used to inspire design in another modality or population. The brief was set by the research partners for the project, Hewlett-Packard Laboratories, who were interested in breaking out of an image-centric view of photography, into one encompassing a range of multisensory 'rich media' memory triggers (sound, touch, smell, etc).

## APPROACH

The approach was to examine the use of non-visual memory artifacts in an 'expert' user group of people with sight loss. We also compared this use to that of a fully sighted group. Hence, six people were interviewed with a memorabilia enquiry box (contents illustrated) where we discussed and mapped responses to questions around memorabilia objects in their home. The six people consisted of two people who had been blind since birth, two people who had lost their sight with age and two fully sighted people. The contents of the completed boxes provided inspiration and insight into each groups specific user needs.

## FINDINGS

There were two sets of findings about multisensory memorabilia - those specifically relevant to visually impaired people, and those relevant to a mass market of visually impaired and fully sighted people.

- those visually impaired people who experienced gradual sight loss reported losing access to their existing photograph collections and related memories. This led to a need to bring existing photographs back to life in some other sensory modality or through residual sight. In addition, we found extensive use of physical (tactile) objects as memory triggers and some use of sound recordings, both of which might be extended with new technology.

- those people with full sight also made extensive use of physical objects as memorabilia. This seemed to us to be an untapped form of remembering which could be improved for the general population.





getting out the best china only happens on very special occasions, perhaps those occasions when you want to capture memories.



## DESIGN CONCEPTS

After being inspired by speaking to people during the interviews, concepts were developed that use taste, touch, smell, sound and scale as ways of capturing and accessing memories.

**Best China** (top left) incorporates a sound capture device in the best china. The teapot records conversations around the dinner table using a new lid for each special occasion. The conversations are recorded into the lid of the teapot and played back into body of teapot with the amplification of the sound depending on how much tea has been drunk. The concept relates back to the ritual of 'getting out best china' for a special occasion, when it is perhaps those occasions that are memorable.

**Memory shelf** (top right) is a memorabilia archive for the home where objects placed on the shelf are recognised by their weight. The shelf plays back the audio memories recorded for them each time the object is placed back on the shelf. Memory shelf is a database of memories.

**Embossed photos** (bottom right) are tactile representations of photographs. Offered as a service existing photographs have an embossed texture allowing the identification of light and dark areas of the photograph. Photographs can also change visually by becoming high contrast, black and white copies of the original. People gradually losing sight are able to apply these filters to existing photo collections to allow continued access to memories once collected visually.

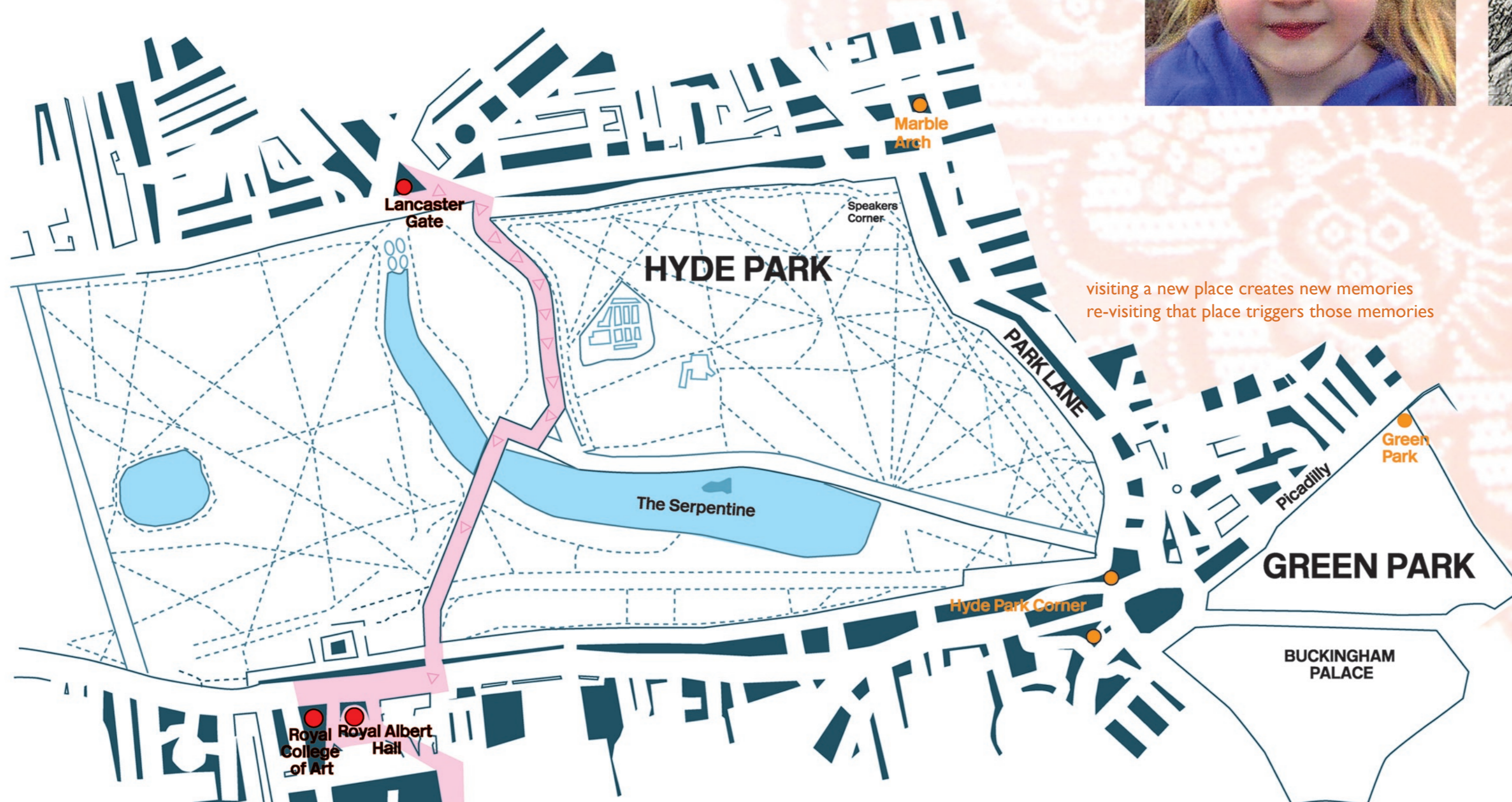
**Memory map** (bottom left) is a tactile map route taken during a special day / trip. The map shows where you visited, how you got there and speed of travel. The map is produced through using a camera equipped with a GPS sensor, and can also act as an index print for any photographs taken on the trip. The landmarks on the map are the photos taken during that trip, identified through symbols on the back of the photos.

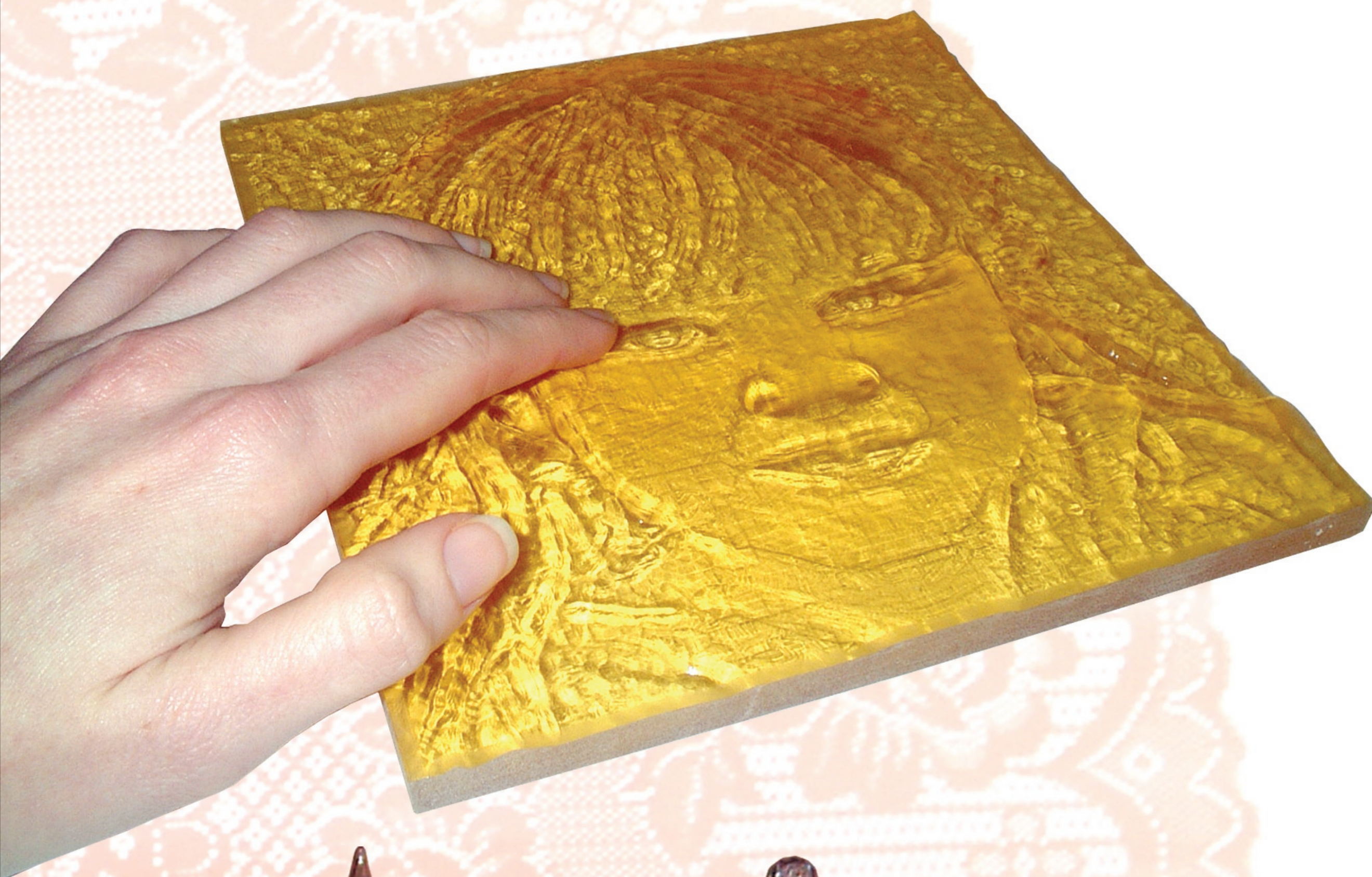
shelves in a home are used to display ornaments and personal memorabilia items with their own unique history, memories and physical characteristics



taking a photograph captures and preserves a moment in time, and traditionally relying on vision to access the contents

visiting a new place creates new memories re-visiting that place triggers those memories





## NEW WAYS OF THINKING ABOUT PHOTOGRAPHY

There is a large market of visually impaired people for imaging and photographic technology (previously unidentified by Hewlett-Packard).

- to enhance any remaining sight
- to render old photographs through other senses (embossed photos, top left)
- to capture new photographs for sharing with sighted people

There is also the non-visual memorabilia and experiences we collect which are useful memory triggers for sighted as well as visually impaired people. In particular the world of objects (displayed memorabilia, left) trigger memories and stories yet are largely unsupported by technology.

## INCLUSIVE DESIGN LESSONS

People with impairment in one sensory modality can be seen as expert users in other modalities. This model for user recruitment can be applied to other senses and other modalities. By understanding the needs and requirements of someone with an impairment it can lead to inspirational thought in other ways of seeing and other ways of doing, questioning the way things were done in the past and suggesting other ways they can be done in the future.

## NEXT STEPS

Further investigation is being done of the role of objects in storytelling for everyone (visually impaired people and fully sighted people). This new 4-year research project called 'biographical objects' evolved as a result of this study. One year in to this study has seen concepts evolving around how objects can influence the retelling of memories, calling for new ways by which to capture and remember memories. The concept sketches (left) illustrate the plinths that curate and narrate memories associated with objects. From left, the inheritance bid plinth which allows potential inheritees to bid for an objects affections through leaving recorded messages, the patina plinth (middle) for inherited objects which shows the time you have to wait until you hear a memory about the object and the growing history plinth (right) which captures images of the environment

