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Exploring Historical Cemeteries as a Site for Technological Augmentation

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ABSTRACT
Tangible and embodied technologies can enrich cultural heritage sites. Their design requires a solid understanding of the specific site, the needs and interests of user communities and stakeholders. Many types of heritage sites have been studied by HCI researchers, however our work focuses on a little-known one: historical cemeteries. Here we describe some early investigations of how the physical and socio-cultural contexts influence potential design solutions for two historic cemeteries, despite of a seemingly similar setting.

Categories and Subject Descriptors
H.5.m. Information Interfaces and presentation (e.g., HCI): Miscellaneous

General Terms
Design.

Keywords
Design, tangible, situated, cultural interfaces, cultural heritage.

1. INTRODUCTION
As part of a larger project, we investigate tangible and embodied technologies to enrich cultural heritage sites, using a co-design approach in order to understand and engage the user communities. Within the project, a number of different cultural heritage sites is being explored. Together with settings that are well-known to HCI, such as museums, historic buildings and outdoor sites [4; 6; 7; 8; 10], our work is also focusing on lesser-studied domains. In this paper we present our research taking place at two historical cemeteries situated in different countries. In order to understand how the concrete socio-cultural context and the unique features of the physical context influence potential design solutions despite of a seemingly similar setting, we decided to follow-up a study of the Sheffield General Cemetery (UK) which resulted in a set of design prototypes [1] with a second study of another historical cemetery, Weimar Historical Cemetery in Germany. The two sites are both historical cemeteries, but nevertheless differ in some characteristics, which, as we anticipated, might provide us with insights on which of the design prototypes might be transferable, or require adaption.

The comparison thus informs our work on two levels: firstly, in attaining a finer sense of how sites of seemingly similar denomination might differ, and what kinds of constraints or opportunities this entails; secondly, in identifying factors that determine how design prototypes would need to be adaptable in order to be useable across such contexts. The latter will become relevant at a later point during the overall research project, when we aim to develop templates for curators who want to develop their own tangible installations [12]. Here we present some initial findings from our parallel cemetery studies

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2. ENGAGING WITH TWO HISTORIC CEMETERIES
In the meSch Project [12] we explore the challenges of visitor access, interpretation and appreciation at heritage sites. We not only focus on museums, but include non-standard sites in this investigation, in particular open-air sites. Historical Cemeteries are an interesting example. They may contain celebrity graves, or the architectural site in itself is a part of heritage. Furthermore, such sites may play a role for local history, or may be of nationwide or global relevance. But unlike museums, they tend not to be curated. Cemeteries as open-air heritage sites have so far been the focus of relatively few examples of previous work in HCI and related disciplines [2, 11]. We saw the opportunity to complement the Sheffield General Cemetery study with a smaller study of another historical cemetery, Weimar Historical Cemetery, serving as contrast foil. We aimed to mirror some of the core activities and methodology of the team working in Sheffield.

2.1 The Sheffield General Cemetery
The Sheffield General Cemetery (http://www.gencem.org/) is a historic parkland cemetery opened in 1836 and closed for burials in 1978. It is now a free and open-access historical, architectural and natural conservation area. It is managed and maintained by a community group/trust, who also organize thematic tours of the

site (on architecture and landscape, local and social history, or bird watching and fungi). The cemetery was landscaped to be the burial place for people from all parts of society, from prominent upper-class families to people from workhouses, and has monuments, chapels, and catacombs (Fig. 1). It has also become a wildlife and nature reserve. Some of the newer graves have been cleared of headstones, and people now use part of the site as a peaceful park, for exercising, going for walks or relaxing. It is also utilized as a shortcut between neighbourhoods.

The meSch project team conducted several observational visits to the site, took part in guided tours, and interviewed eight volunteers from the trust that cares for the site, asking them to show their favourite places and other points of interest on-site. The team collaborated with the volunteers to document and understand the site as well as their practices, and to explore design ideas and discuss rapid prototypes developed by the research team that would fit with the site's materiality [3].

Figure 1. Gravestones and memorials at Sheffield General Cemetery

2.2 The Weimar Historical Cemetery

The Weimar Historical Cemetery was opened in 1818. It consists of several sections, one of which is part of UNESCO world heritage, and hosts the graves of several famous writers and composers, as well as of persons of local relevance. It is visited by a lot of tourists to the city, usually wanting to see the grave of a famous author in the world heritage section. Unlike Sheffield, it is still in 'active use' as a burial site (bar the world heritage section). Many sections have a mix of patches of new and older graves (some quite elaborate or architectonically relevant, see figure 2). Starting from the city centre, one first enters its oldest part, reaches the main cemetery (with a mix of old and new graves) and finally comes to the contemporary section. A wall encloses the site, and all gates are shut at night. As the cemetery is in use, 'graveyard peace' is to be kept, and signs prohibit bicycling and dogs (albeit this is not fully obeyed). The cemetery is managed by the city, but funding for its upkeep is limited, considering the size of the site. We anticipated that Weimar being an 'active' cemetery as well as historic heritage would have subtle consequences for what design ideas might be viable. A larger part of our study thus consisted of extended observational tours as well as brief informal interviews with randomly selected people passing through the front gates of the cemetery. The latter aimed at understanding who uses the cemetery in which ways, and to probe into potential tensions between these uses.

A charity has begun to care for some of the historically and architecturally interesting graves outside of the world heritage section that are beginning to crumble and decay because nobody pays for their upkeep. They meet several times a year to clear such graves, and sometimes collaborate with official city workers to restore structures (e.g. re-erect a boundary). Their largest project is an attempt to find sponsors to pay for the upkeep of 'un-owned' graves and thereby earn the right to the grave. The volunteers also organise some guided tours for the annual 'day of the cemetery'.

Figure 2. Weimar Historical Cemetery, example of older grave

To get a better sense of the charity work and their inside knowledge and views, we took part in a charity meeting, and helped out at a work session, removing heaps of ivy. We also attended tours of different parts of the cemetery at the 'day of the cemetery'. This quickly revealed, that, differently from the Sheffield charity, the Weimar charity group has a more narrow focus, and many of its members seem to have a professional relationship to the topic (e.g. one is a renovator, another an art historian, one an undertaker). A few of the people who sometimes help out seem to do so in order to overcome their apprehension of graveyards.

From our observations, we could easily determine which parts of the cemetery were frequently visited to attend graves (presence of water bottles, fresh flowers, gardening tools). As the cemetery is in the middle of the city, its lower section is popular as a 'scenic route', although it is not a shortcut. From the 18 short interviews we conducted, we found a fairly equal distribution among what seem the main user groups: tourists, relatives/friends tending graves, and residents using it as a passageway. We also encountered a few residents using it for a walk or showing it to visitors, as well as ex-locals showing friends around, who emphasize that they consider the entire cemetery worth of a leisurely walk. Interviews further revealed overlaps between the shortcut/walk and grave-tender category. While we do not know how far into the main cemetery sections tourists and strollers go, these do not seem to enter the newest areas, which are furthest out.

Residents seem to tolerate the tourists, but there is a subtle tension exemplified by a lady telling how she responds to tourists asking 'where are the important graves' that 'everyone here is important'. One of the interviewees had a strong opinion: he wanted everything to remain as it is, and seemed to prefer the site to just be a cemetery, having no interest in its heritage aspects, and expressing displeasure about its use as a shortcut or for walks. While the majority thus seemed to have a neutral relationship to tourists on the site, these reactions indicate that any design intervention needs to take account of such sensitivities.

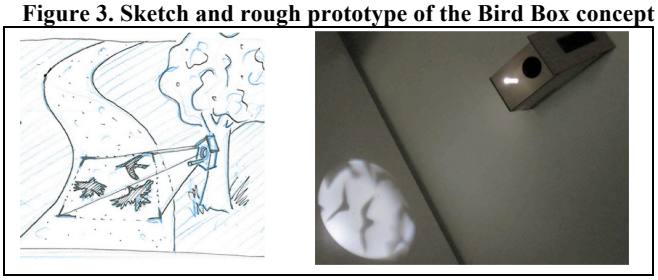
An issue that turned up a lot in discussions with the volunteers and with locals interviewed on-site was theft, with vases, flowers,

decorations and, in particular, metal lettering being stolen from graves. This was not quite as large an issue in Sheffield as the graves are not tended to anymore, however pieces of sculptures and decorations are sometimes stolen there as well.

3. TRANSFERRING DESIGN IDEAS

The Sheffield team developed several design ideas (for an extended description see [1]) and turned these into prototypes. The first is the "Bird Box" (figure 3), meant to grab the visitors' attention without demanding direct interaction: it simply hints that there is more to be discovered and encourages people to move in a particular direction around the Cemetery. The Bird Box is a standalone, solar powered box that projects an animation of birds in flight to attract the visitor's attention towards certain paths.

Figure 3. Sketch and rough prototype of the Bird Box concept

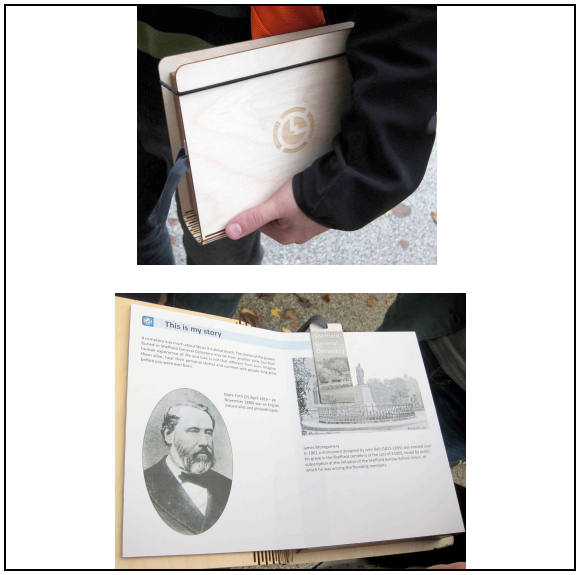


It would probably often be too bright for projections in a much less overgrown site such as Weimar, also as the cemetery closes overnight. Also, the metaphor of the Bird Box, to follow the flight of birds, might be specific to the Sheffield cemetery as a nature reserve. On the other hand, Weimar Historical Cemetery is not being associated with wildlife, and the Bird Box image thus does not resonate with people's expectations. While the Sheffield volunteers loved the concept, the Weimar charity volunteers, on the explanation of the Bird Box, did not see any sense for it in their cemetery.

The second idea addresses visitors who want to engage more deeply, exploring more information during a prolonged visit. This device has been further developed and tested. The Companion Novel (figure 4) is a book-like device that is carried during a visit. A different narrative theme is selected by placing a magnetic bookmark on a page of the book. This is complemented by Bluetooth speakers located at points of interest, which play the according auditory information for that theme when the visitors come close. The distributed and localized audio adds a new sensory layer to the site, allows visitors to focus on the site, and avoids the problem of social isolation commonly found with audio guides [4]. The form factor of a book is meant to support intuitive handling and to fit in with the environment in an unobtrusive way. The themes accessible by placing the bookmark on a page correspond to topics revealed in the engagement with charity volunteers such as, nature in the city, stories of people buried, 'weird and wonderful' anecdotes, 'favourite spots'. Initial evaluation sessions showed that notification sounds attracting visitor attention when nearing a 'hot spot' need to be loud and unexpected in order to be noticed within the environment as birdsong can be very loud and lush vegetation can also deaden sound.

An issue with the companion novel at Weimar cemetery would be that, unlike a human guide, it would not be sensitive to what else is going on in the direct vicinity. For example, a visitor might be close to a neighbouring grave that is being attended by a relative/mourner. A guide can hush his/her voice, skip the location, or wait for an appropriate moment. This means that open audio would only be permissible where there are *only* historic graves. Loud and 'unexpected' notification sounds would aggravate this issue. Outside of these areas earphones would need to be worn, resulting in individualized audio instead of open shared sound.

Figure 4. The Companion Novel closed (top) and with example thematic pages (bookmarked) (bottom)



Another design concept is 'Mourning Jewellery', inspired by the Victorian tradition of mourning jewellery to be worn to remember someone who has passed away: visitors wear a jewellery piece that is linked to a particular person buried in the cemetery (fig. 5). It gives increasing haptic and/or visual feedback the closer you get to that grave. Once you reach it, a simple gesture quietens the jewellery piece as acknowledgement.

Figure 5. The Mourning Jewellery concept: the jewellery piece grows warmer as it approaches a grave. The user acknowledges reaching it.

This is for a scenario where people do not want a lot of information during the visit and want to focus on the peaceful and reflective atmosphere of the site. It could also encourage visitors to discover interesting and important people that have been buried in the cemetery and to find out more about them after the visit. This could be used in Weimar to lead people to some of the important graves outside of the world heritage section (which are

in sections that have newer burials), but in a quiet and reflective way. Given that some parts of the cemetery are not easy to navigate, thus creating a need for guidance, this could also be a useful tool for subtle guidance. As we would like people to retain a sense of exploration [9], such a design could serve both goals. Moreover, this might enable ways to deliver guidance in a way that leads tourists *away* from areas with very recent burial activity. This could be a useful mechanism for the Weimar cemetery with its mixed usage, but would not be as relevant for the Sheffield site.

4. CONCLUSIONS

Similar to how requirements for museum exhibits tend to differ although their overall design might follow certain general principles, outdoor heritage sites have very individual requirements and constraints. As we saw, even sites that at first might appear to be very similar, can differ in subtle ways. The socio-cultural context here is more than just that of 'a historical cemetery', but has to consider the various uses and user groups, with potentially conflicting interests. The physical context also matters as one site has been unchanged for decades, whereas the other is constantly being added to. Truly embedded technology not just needs to be embedded in physical contexts, but also has to be sensitive to the specific socio-cultural setting.

In our case, some of the prototypes could be modified. The Companion novel, for example, might only provide open audio in some areas, and require headphones elsewhere. Similar issues with open audio might arise in other settings. A template to create such a tool for visitor engagement should thus be adaptable to allow for a mix of open audio and personal audio delivery. In contrast, the Mourning Jewellery appears to be highly suitable to the Weimar context, and could even serve additional goals, such as subtly discouraging visitors from moving into an area with recent burials or without historic elements. This could be also useful for the Sheffield site as the jewellery could steer visitors away from unsafe or very overgrown areas. It could also be relevant for themed events: for example, to direct visitors to war memorials for remembrance days. These considerations extend the functionality that needs to be considered for the software architecture of such a device, and might require the ability for curators to define which areas on a map of the site are to be sought or avoided. While the Bird Box concept does not translate well to the Weimar context in its current form, there might be other designs based on its core ideas of providing subtle guidance, triggering curiosity and, in a poetic and atmospheric way, indicating there is more to discover: for example, musical notes could be projected on the ground, directing towards composers' graves. In conclusion, this shows how any template that our meSch project might provide for curators, need to be open-ended enough to work at different sites, but has to be equally adaptable, allowing the addition of other content delivery mechanisms, or the definition of physical areas where a device might display different behaviour.

While tangible and embedded forms of digital engagement may be preferred for open-air heritage sites in order to support and augment a visitor experience that is physically and sensorially rich, each individual deployment must be conscious of the unique physical and socio-cultural characteristics of sites that are apparently similar in order to provide an appropriate and mindful type of interaction.

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