

ThanatoFenestra: Photographic Family Altar Supporting a Ritual to Pray for the Deceased

Daisuke Uriu and Naohito Okude

Keio University Graduate School of Media Design
4-1-1, Hiyoshi, Kohoku-ku, Yokohama-city, Kanagawa, Japan
{uriu, okude}@kmd.keio.ac.jp

ABSTRACT

“*ThanatoFenestra*” is a family altar designed for people to remember the deceased and pray for them, which displays the images of the deceased depending on a candlelight’s movement by burning aroma oil for cleansing their spirits like using incense sticks. In this paper, we define why we made the *ThanatoFenestra* deriving from Japanese traditional Buddhist rituals, describe how it works technically, suppose how to use it by two scenarios, and discuss how it will be able to make a new Japanese ritual surrounding death.

Author Keywords

death, mortality, Buddhism, Buddhist altar, memory, design, interaction design, photography, digital photo frame

ACM Classification Keywords

H.5.m information interfaces and presentation (e.g., HCI): Miscellaneous

INTRODUCTION

Traditionally, Japanese families place the Buddhist (family) altar in each house in order to do physical rituals; lighting candles, burning incense sticks, chanting a Buddhist sutra, etc [3]. Even now, in the author’s parents’ house, there is a superb Buddhist family altar, in front of which they can pray for their passed family members without visiting the gravesite. Over long periods of time, the Buddhist altar has been received as one of important objects providing the people with spiritual supports. However, in recent decades, the altar is gradually disappearing within their living.

By advancement of urbanization, people living in the city have either chosen a small size altar or have not even placed the altars in their narrow apartments or houses, for the living spaces have changed from the traditional Japanese rooms to modern Western-style rooms, which is out of the traditional Buddhist altar proportion. Some companies selling Buddhist altars [1][2] are competing with each other to develop new

styles of family Buddhist altars; modern styled, small, or secular altars, etc., but do not sell well recently according to the Industry statistics in Japan.

While, many Japanese feel importance on photographs of the dead as well as (Buddhist) memorial rituals surrounding death. From our ethnographical studies and interviews, some people put photos of the deceased family in the family altar or next to it. Japanese Buddhist altar company “*Yagiken* [2],” producing some modern-looking Buddhist altars, sells photo frames to put in the altar. Originally, Buddhist altar is used for enshrining “*Ihai*,” the tablets with ancestors’ posthumous names, and is not for storing photo frames [3], but people prefer to place photo frames in the altar in their modern life, not adhering to Buddhist laws. Additionally, digital photographic tools such as digital cameras, photo management tools on PC, and digital photo frames have been accepted rapidly within the Japanese families.

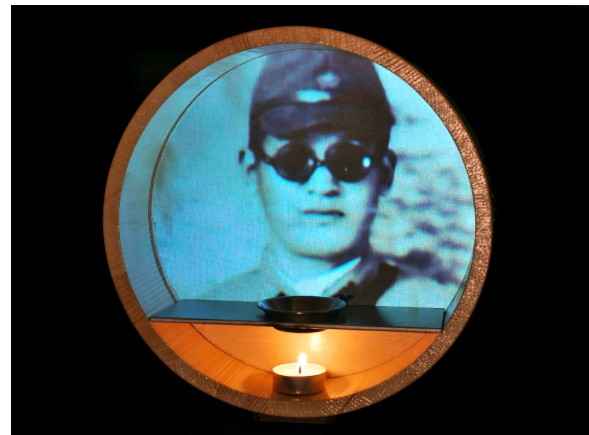


Figure 1. *ThanatoFenestra*

This paper presents “*ThanatoFenestra* (Figure 1),” a family altar designed for people to remember the deceased and pray for them, deriving from Japanese traditional Buddhist rituals. Designing this work is a trial approach to seek a new design replacing traditional Buddhist altars by applying interactive technologies, which combines traditional physical rituals and digital photography, one of modern Japanese people’s daily practices. In this paper, we argue that this work will be able to make a new Japanese ritual surrounding death.

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ThanatoFenestra displays the photos of the deceased depending on a candlelight's movement and cleanses their spirits by burning aroma oil as if burning incense sticks. A first prototype of this work shown in Figure 1 archives 10 photos of the author's grandfather taken from the young to the aged. After the user puts a candle into the ThanatoFenestra, the photos gradually appear on the screen according to the temperature of a tray (See, Figure 2) and may flutter in response to the candle flame's flickering as if puffed. If the flicker is bigger, the photo currently shown on the screen is changed to the other image. Smoke reeks up from aroma oil on the tray, which goes up to the top of the screen. In addition, when the candle flame is put off, the photos gently disappear while showing other images like a quick slideshow.

RELATED STUDIES

Death and Mortality in HCI

ThanatoFenestra deals with some issues related to mortality, dying, and death, which will be an important topic in HCI research. Massimi [10] discusses this topic as a highly sensitive problem when designers or developers apply HCI technologies to personal services or artifacts. He suggested a concept "thanatosensitivity" that stresses the necessity of protecting individual's personal data after his/her death in the age of smart environments, archiving personal information without the users' consciousness. While thanatosensitivity includes serious problems about ethical, emotional, and moral issues, the meaning of it may be widely different within each region, religion, or personality. Japanese way of perception about death, deriving from Buddhist rituals, is especially characteristic, for they prefer to place the deceased's "spirit" nearby their daily living rather than to set a boundary between life and death [3]. Odom [12] revealed how bereaved persons treat the objects the deceased person left, especially digital artifacts, by interviewing users on online bereavement forums. From these reports, many persons keep the dead's digital artifacts such as mobile phone, PC, e-mail, or digital photographs to remember him/her. Our vision is to apply digital memories the deceased left as materials of interactive work based on Japanese cultural backgrounds for the living people to remember or pray for them.

Foong [5] argued how to apply Reflective Design [13] to digital memorials. She reviewed the works related to death and mortality reflecting on the dead's memories, and specified the difficulties, 'what to do with a person's digital remains.' ThanatoFenestra reflects private photographs of the dead to designing interactive systems, for this work respects commemoration rituals for bereaved persons compared with some previous works respecting on the deceased's wishes. In other words, our approach focus on individual's death itself and also mortalities as cultural practices, communication between relatives, or social behaviors.

The Deceased's Memory on Digital Archive

At the early age of PCs, Meyer [11] created a digital artwork out of photographs of his dying parents. At the time, this work was valued as a novel style of human's archive, which makes us consider what human's death is and how to reserve

or erase our personal memories for our posterity. At first, his work was published as a CD-ROM. Twenty years later, ThanatoFenestra attempts to add the physical interaction to this work's concept.

Death and Physical Interaction Design

Malkin's "Cemetery 2.0 [9]" is an attempt of his grandfather's gravestone to be connected with the web archiving the deceased's personal information such as Flickr, Facebook Memorial Profile, GEDCOM [15], an acronym for genealogical data communication, and so on. This work enables the user to access to the digital archives and understand the ancestors' memories when visiting real cemetery. Gauler's "Digital Remains [7]" are personal access keys for seeing the deceased's memories such as photos, musics, or literatures archived on the network. This work aims to provide a physical artifact to the living for remembering the deceased. ThanatoFenestra also attempts to connect physical objects with the deceased's memories. Our contribution to the previous works is to add a novel interactivity of the connection between the candle and the photographs, design the artifact for accessing the memories, and support the user's praying with meditative practices.

Death and Biotechnology

Fukuhara and Tremmel's "Biopresence" project [6], which creates Human DNA trees by transcoding the essence of a human being within the DNA as physically living memorials or transgenic tombstones, and Burton's "Memento Mori In Vitro [4]," which grows the deceased's hairs in order to reserve his/her biological object, attempt to realize that the deceased stays alive. These works are different from our purpose, aiming to physically save a human as living individual. We focus on how technologies support the living to communicate with the deceased in spirit.

Supporting Meditation

As a prior work of supporting prayers and meditation using a candle, Hlubinka [8] offered a small altar named "AltarNation" virtually connecting the users belonging to an online religious community within each other. The user can enter the online community by physically lighting on the candle on the altar, and can log out by putting it off. A screen attached with the altar artificially displays other users' presence on the system with the user's him/herself as star-shaped graphics. This work supports people's meditative practice as a new type of spiritual ritual at home. ThanatoFenestra also applies the candle as an interface supporting meditation or a praying practice. AltarNation system uses the candle as a user ID, while our work senses the candle flame's movement and applies it an interface to effect the photos. In addition, our work supports personal praying so that it is different from AltarNation supporting the virtual connection for the community.

IMPLEMENTATION ARCHITECTURE

ThanatoFenestra works, integrating a physical architecture, which includes sensors, micro controller, a physical package, and a PC, with softwares worked on each function (See Figure 2.)

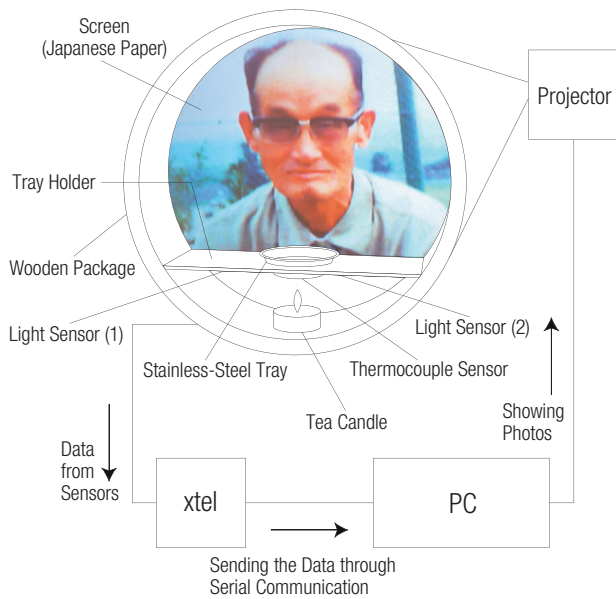


Figure 2. Implementation of Thantofenestra

Physical Architecture

Sensors: This work senses the candle flame's movement by two light sensors, and its' temperature by the thermocouple sensor as well. Each light sensor, the CDS type sensor, is put under the tray holder. The light sensor (1) is located between the stainless-steel tray's edged and the tray holder's edged. The light sensor (2) is close to the tray's edge. The thermocouple sensor is placed under the bottom of the tray, very close to the candle flame.

Micro Controller: All of the sensors cable-connected with the xtel board [14], a physical prototyping circuit, which is also connected with the PC by USB. The xtel board receives the data of the sensor degrees and sends it to the PC.

Package: The package is mostly made of wood. The Japanese paper placed behind the package is translucent to display the projection image. The form of the package is irrelevant to technical terms except the tray holder having a function to hide the sensors set on the candle flame. Any candle marketed anywhere can be used.

Software

The software of this work, Adobe Flash application, integrates mainly three functions; archiving photographs, data analyzing, and showing photographs on the main PC.

Archiving Photographs: Before experiencing this work, the user must select and save the photos on this application. On the current prototype, we prepared 10 photographs of the author's grandfather and embedded them on it.

Data Analyzing and Showing Photographs: The sensor data is analyzed by this application to judge the condition of the candle flame. See, Table 1. The thermocouple sensor's degree, reading current temperature of the candle's

sensor's \ degree condition	temperature	difference between light (1) & light (2)
high	photos are appeared	changing the photo
middle	photos are translucent	shaking the photo
low	photos are disappeared	nothing happens

Table 1. Relationship between sensor's degree and processing

flame, is applied to change the transparency degree of the photographs. For example, if the temperature is under 100°C, the photos do not appear on the screen. If it is from 100°C to 250°C, the transparency changes from 0 to 100%. When it is over 250°C, the photo is displayed clearly without translucence effects. This structure enables the system to use the effect for the photograph appearing or disappearing increasingly, or ambiguously as if synchronizing with the candlelight.

Two light sensors' degrees are applied to cause the photos movements. This system continuously monitors the difference of the degrees between the light sensor (1) and (2). If the difference is negligible, nothing happens, which indicates the candle flame is not swinging. If it is slightly higher, the photos will be fluttering in response to the range of the difference. In this situation, the light sensor (1)'s degree effects a change of X-axis position of the photos, and also the light sensor (2)'s degree effects a change of Y-axis position. This structure corresponds to tiny difference of the candle flame's motion. In addition, if the difference is very high, the system changes the photo to the next one by sensing large movements. The light sensors' degrees are strongly influenced by lighting the candle on or off. These configurations are supposed on the condition when the candle is lighted. Hence, if the candle is put out, the system cannot recognize the candle flame's movements and starts to rapidly repeat the action of changing the images like a nonstop slideshow until being completely disappeared.

ENVISIONED USER EXPERIENCES

This section describes how ThanatoFenestra may be used as two types of scenarios. First one describes a daily life of an elderly person, having a strong Buddhist faith or respecting the traditional Buddhist practices. Second one describes a situation when a person, losing their member(s) in recent years, must organize Japanese traditional Buddhist memorial services.

Scenario 1: Memorial Rituals in Everyday Life

Background: The person, having a strong Buddhist faith or respecting the traditional Buddhist practices, prays for his/her ancestors in front of the altar in every morning. Buddhist altars are not only used in special religious events, and also in their daily customs in many houses.

Persona: Persona A, a 80-year-old woman who lost her husband recently, has been living alone in small apartments since his death. When he was alive, they lived in a large Japanese house where a solemn Buddhist altar was placed.

But she transferred the house and the altar to her son, because she has been suffering a backache for a long time and is too tough for her to live alone in the large house. She decided to buy a ThanatoFenestra archiving his memories instead of the altar.

Narrative 1: *On the moving day, she put the ThanatoFenestra on the small table. Her son set it up to be able to display the photos of her husband she chose from many of old photographs. She put a vase next to it and offered flowers. After the day, she lights a candle and prays for him with a minute of meditation every morning, having her room filled with the aroma like an incense. When the aroma runs out, she put off the candle flame and starts a day.*

Scenario 2: Buddhist Memorial Service

Background: In Japan, the family losing their member(s) within recent years holds Buddhist memorial services at fixed intervals. In this event, the family and their relatives come together, do some rituals such as visiting the grave, and hold a small dining party talking about the departed. Ordinary, these events are not filled with a sad atmosphere like the funeral ceremony, and also gets warmer each time although it is a serious event. In the party, the participants sometimes bring a photo of him/her to use for a conversation. They remember the past by appreciating the photo as one of the important routines to hold the events.

Persona: *Persona B, a 40-year-old man who lost his father one year ago, has to hold a Buddhist memorial service bringing his family members and relatives together this weekend. He has two children, a 8-year-old boy and a 6-year-old girl. At the funeral ceremony held a year ago, the children felt very sad and stayed quiet over the time. However, he is afraid that the children may be bored and make troubles for the participants this time.*

Narrative 2: *Arranging the Buddhist memorial service, he used a ThanatoFenestra as an artifact supporting the events. In the morning, the participants went to the deceased's gravesite, cleaned the site, left offerings of flowers and food, and lighted a candle in the ThanatoFenestra put in front of the grave stone. After each participant prayed for his father with hands clasped in meditation, he put out the fire, took the ThanatoFenestra, and began a move to the party place. At the site, a Japanese style room arranged for the party, his children put the ThanatoFenestra on the edge of a long table and lighted a fire again. He talked about his father's old stories from when he was young to at the last referring to the photos shown on its screen. His son said "What a magic place, it seems as if we were staying with grandpa!" His daughter gently blew on a candle flame, and swung or changed the images with wondering eyes.*

CONCLUSION AND FUTURE WORK

This paper described ThanatoFenestra, a family altar designed for people to remember the deceased and pray for them, which applies Japanese traditional Buddhist rituals to its interaction. This work conceptually combines traditional physical rituals and modern photographic activities, also in-

tegrating this concept with interactive technologies for making a new Japanese ritual surrounding death. Additionally, we described the scenarios showing user experiences with this work based on Japanese people's situation swing between traditional heritages and modern livings.

As a future work, ThanatoFenestra organizes real user's context on mortality, as the current prototype is only designed for the author's grandfather and his relatives. We will seek a chance that this work is to be used in actual, and evaluate how it might be applied as an artifact making a new memorial event. We believe this work reflects on one of an important potential in HCI, Ubicomp, and other interactive technologies, supporting the human who faces mortality.

REFERENCES

1. Hasegawa inc. , <http://www.kuyou.com/> (Japanese).
2. Yagiken inc. , <http://www.yagiken.co.jp/> (Japanese).
3. Andreasen, E. *Popular Buddhism in Japan: Buddhist Religion & Culture*. Routledge, 1998.
4. Burton, M. Memento mori in vitro (2005), <http://ornamism.com/2010/memento-mori-in-vitro-michael-burton/>.
5. Foong, P. S. and Kera, D. Applying reflective design to digital memorials. *SIMTech'08*.
6. Fukuhara, S. and Tremmel, G. Biopresence , <http://www.biopresence.com/>.
7. Gauler, M. Digital remains (2006), <http://www.michelegauler.net/projects/digitalremains>.
8. Hlubinka, M., Beaudin, J., Tapia, E. M., and An, J. S. Altarnation: interface design for meditative communities. *CHI '02 extended abstracts* , 612–613.
9. Malkin, E. Cemetery 2.0 (2006), <http://www.dziga.com/hyman-victor/>.
10. Massimi, M. and Charise, A. Dying, death, and mortality: towards thanatosensitivity in hci. *CHI '09 extended abstracts* (2009), 2459–2468.
11. Meyer, P. I photograph to remember. <http://www.zonezero.com/exposiciones/fotografos/fotografia/>.
12. Odom, W., Harper, R., Sellen, A., Kirk, D., and Banks, R. Passing on & putting to rest: understanding bereavement in the context of interactive technologies. *CHI '10* (2010), 1831–1840.
13. Sengers, P., Boehner, K., David, S., and Kaye, J. J. Reflective design. *CC '05* (2005), 49–58.
14. Tokuhisa, S., Ishizawa, T., Niwa, Y., Kasuya, K., Ueki, A., Hashimoto, S., Koriyama, K., and Inakage, M. xtel: a development environment to support rapid prototyping of "ubiquitous content. *TEI '09* (2009), 323–330.
15. Wikipedia. Gedcom , <http://en.wikipedia.org/wiki/GEDCOM>.