



Design an integrated platform to record and retrieve travel memory



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1

PROJECT INTRODUCTION

1.1 Project Introduction

1.2 Project Aim and Approach



The content of this chapter includes:

- The current interaction and context of the project
- A structured overview of the project objective and methods applied

1.1 PROJECT INTRODUCTION

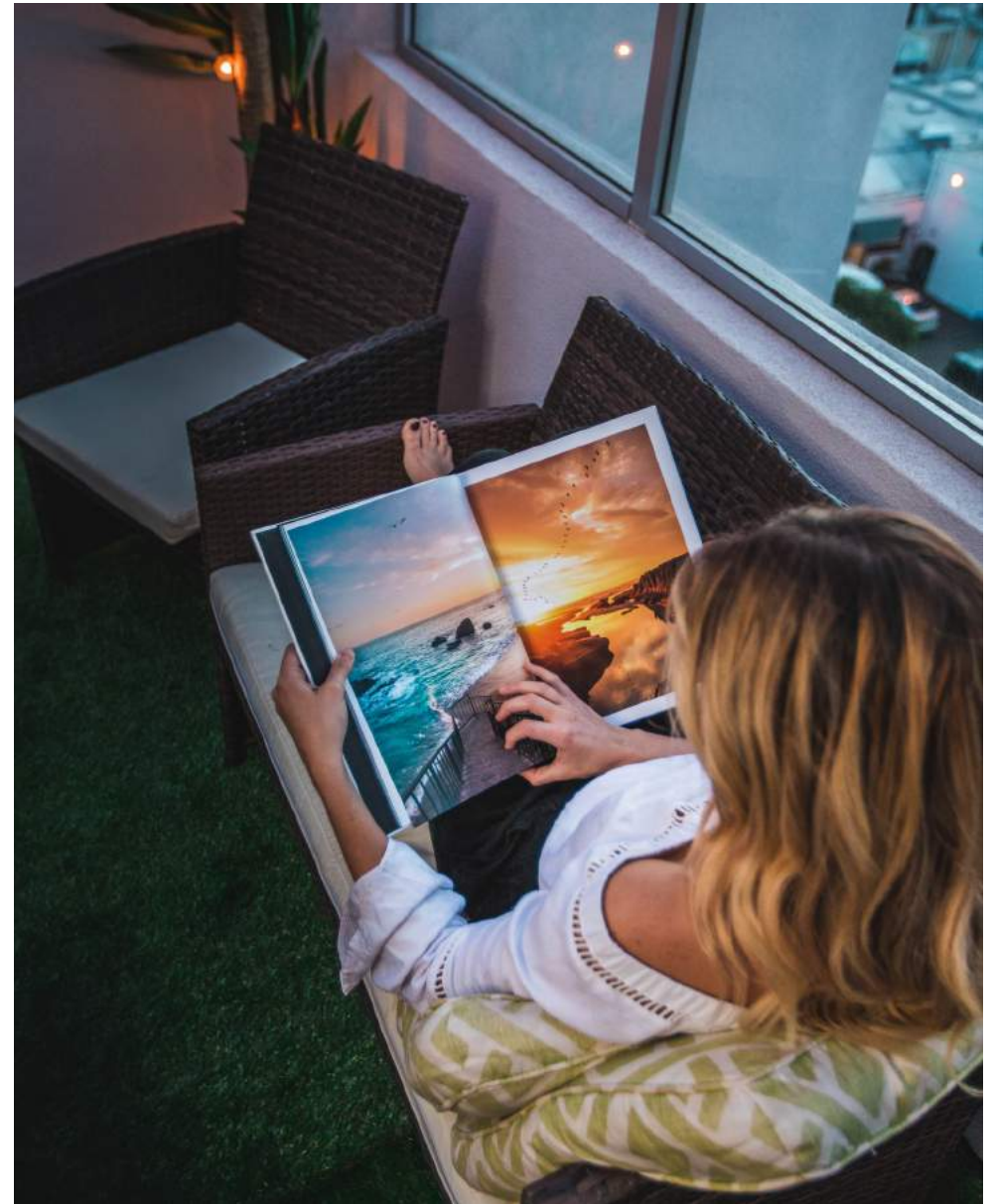
"Memories are the treasures that we keep locked deep within the storehouse of our souls, to keep our hearts warm when we are lonely." — Becky Aligada

For many travelers, not only is advanced planning and problems dealing important to them, but the “afterwards memory” is even an indispensable part of their journey. Travel is to experience new things, when they become a memory, people seek ways to preserve them because they believe they will remember these memories somewhere in the future.

Do you remember the old days when you sat on the couch together with your family flipping through a thick album with many yellowish photos, and listening to your parents tell stories of the past? How do you see this moment of remembering comparing to the way we recall memories nowadays?

Under the technology prevalence era, memories are mostly recorded with digital devices. Taking photos or shooting videos in a trip becomes a common behavior among public. When people want to recall the memory afterwards, it can be easily achieved by scrolling through the cell phone and simply read through the content. Despite the convenience, the sense of ritual for memory recalling no longer exist. Nevertheless, collecting souvenirs, writing diary or sending postcard still remains its popularity among certain group of people. Both digital memento and physical memento have its own irreplaceable value.

Imagine in a quiet night, you suddenly think of your trip to Finland one year ago. You have your souvenirs, handwritten diary and computer around you. What will you do with these mementos to recall your trip in Finland?



1.2 PROJECT AIM AND APPROACH

PROJECT AIM

It is generally acknowledged that digital and physical mementos has its own irreplaceable qualities for remembering.

The project aims to explore what these qualities are, how people usually interact with the mementos, and how people’s memories are influenced by these mementos.

Finally, by looking for a balance point between the qualities of digital and physical memento, a system for recording and relieving memory will be designed.

PROJECT STRUCTURE

The project is consist of two main cycles: research and design

In the **research cycle**, **literature study** about experience and memory will be presented; after a basic knowledge is formed, **platform analysis** will be carried out to understand the value proposition of digital travel memory platform; lastly, **user research** will be performed to explore the value of digital and physical mementos to a person, and how individual preserve and retrieve travel memory.

In the **design cycle**, **3 concepts** will be designed according to the research, and being evaluated among several travelers. The goal of the **concept test** is to identify the strong points and weak points of each concept. The **converged concept** will be modified based on the **evaluation** of concept test, mainly on its idea behind. Then, the **user test** will be performed to measure the usability of the interface itself, explore the value people obtain from the platform, and people’s experience when recalling their travel memory through the platform. Lastly, the **final concept** will be designed based on the evaluation.

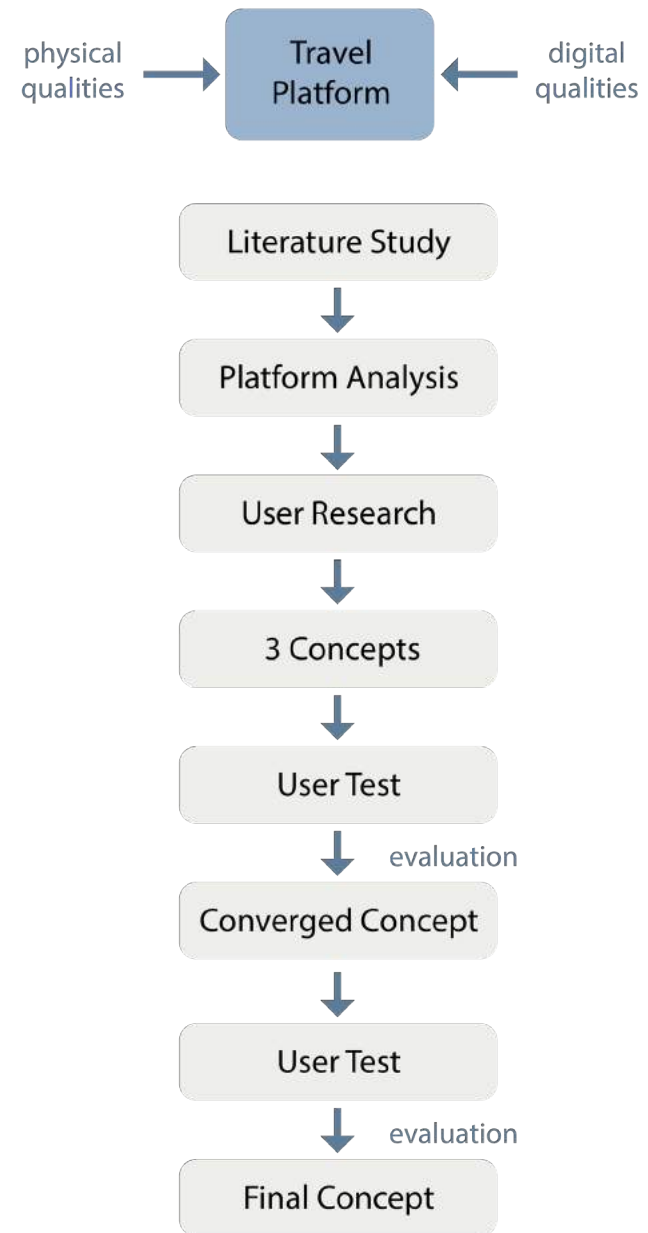


Figure 1. Project structure



2

LITERATURE STUDY

2.1 Experience Study

2.2 Memory Study

2.2.1 Understanding Memory

2.2.2 Autobiographical Memory

2.2.3 Memory and Identity

2.3 Memory Capturing and Preserving

2.3.1 Digital and Physical Mementos

2.3.2 Souvenirs as Memory

2.3.3 Collecting Behavior

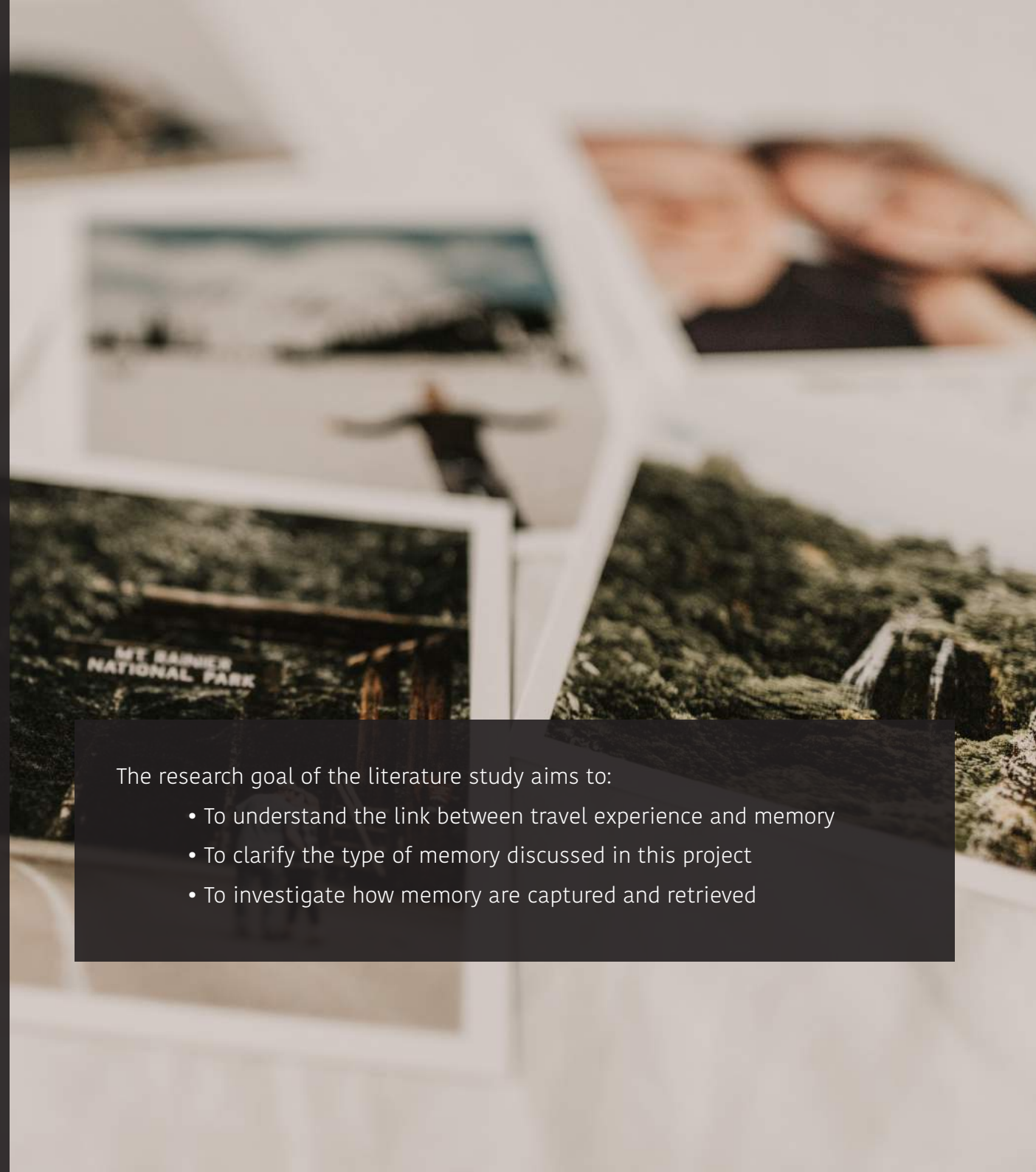
2.4 Memory Retrieval

2.4.1 Remembered Experience

2.5 Reflecting on the Platform

The research goal of the literature study aims to:

- To understand the link between travel experience and memory
- To clarify the type of memory discussed in this project
- To investigate how memory are captured and retrieved



2.1 EXPERIENCE STUDY

MEMORABLE EXPERIENCE

Many studies have examined memory as the reconstruction of past experiences. To understand the link between memory and tourism experience, it is important to first investigate what makes certain experiences special, spectacular, and fittingly memorable.

According to Tung & Ritchie (2011), a memorable experience is referred to an experience subjectively felt by an individual who is engaged with an event on an emotional, physical, spiritual, and/or intellectual level. Within the context of tourism, these memorable experiences are likely to come from abundant choices, moments of amazement, shared experiences, fringes at the heart, local distinctiveness, and positive values (Morgan, 2006).

To further understand why certain experience is particularly memorable, Tung & Ritchie (2011) identified four dimensions representing different aspects of a memorable experience:

- 1) **affect**, positive effect of the experience creates learning opportunities that confirms or correct one's expectations (Fredrickson, 2001);
- 2) **expectations**, understandings about the destination from several stories stirred one's imaginations and expectations toward the trip;
- 3) **consequentiality**, which includes sub-dimensions such as enhancing social relationship, intellectual development, self-discovery and overcoming physical challenge;
- 4) **recollection**, refers to people's action taken to remember the experience from the trip.

The interaction of all these dimensions deeply influenced the reconstruction of our memory. But before getting further to memory study, the concept of "two selves" should be first understood.

MEMORIES & EXPERIENCES

Kahneman and Riis (2005) conceptualised two selves in the evaluation of human experience: the **experiencing self** and the **remembering self**.

The experiencing self is about the present, which reveals how a person is being in that particular moment. The experiencing self lives its life continuously, having moments of experience, one after another. However, the ultimate state of these moments are lost forever; In contrast, the remembering self is the storyteller formed by memories, one that keeps score, and maintains the story of our life. The remembering self is the only perspective that we can adopt as we think about our life, and the one that make decisions.

In general, memories that people longed to remember are the ones that remembering self considered it positive and memorable.

Many studies have centered the links between memories and experiences on the concept of narratives. In addition to personal reminisce, remembering of past experience often occurs in social context, where individuals talk about the past and share their experiences with others in order to fulfill social goals (Alea & Bluck, 2003). The sharing practice is categorized into two kinds of social conversations by Frohlich et al. (2002): **Shared remembering** occurs when all individuals have been present at the original event; **storytelling** occurs if a person shares experiences of events that other did not attend.

In the context of shared remembering, memories were shared and reconstructed between the dialogue. Shared reminiscing reinforces shared past experiences, thus strengthening relationships in the present.

In the context of storytelling, according to Alea & Bluck (2003), memory sharing can be used to develop or maintain intimacy in relationship; to illustrate a point or give advice in order to teach and inform others; and to elicit empathy from others or provide empathy to others.

2.2 MEMORY STUDY

2.2.1 UNDERSTANDING MEMORY

Memory is our ability to encode, store, and retrieve past experiences in human brain, an indispensable element to life that helps make individual who they are. If we could not remember past events, we could not learn or develop language, relationships, or personal identity (Eysenck, 2012).

The memory processing system starts with sensory memory, which sensory information from the environment is stored for a very brief period of time, and only by paying attention to the sensory memory will certain aspects be able to be transferred to the short-term memory. Short-term memory, also known as working memory, consists of the information we are currently focusing on and thinking about. While many of our short-term memories are quickly forgotten, attending to this information allows it to continue to the long-term memory (Cherry, 2018). Long-term memory refers to the storage of information over an extended period. This information is largely outside of our awareness but can be called into working memory to be used when needed.

Anderson (1976) divides long-term memory into declarative (explicit) and procedural (implicit) memories. The declarative memory consists of information that is explicitly stored and retrieved, while the procedural memory is based on implicit learning. Again within the declarative memory, two categories are divided: Episodic memory is concerned with remembering, whereas semantic memory is concerned with knowing.

The view of memory in this project will be focused on autobiographical memory, a specialized subset of episodic memory due to the amount of self-referencing involved (Tung & Ritchie, 2011). In contrast to general episodic memory, which have a large proportion of referencing that involves others, autobiographical memory primarily concerns knowledge of the self in the past (Baumgartner, Sujan, & Bettman, 1992).

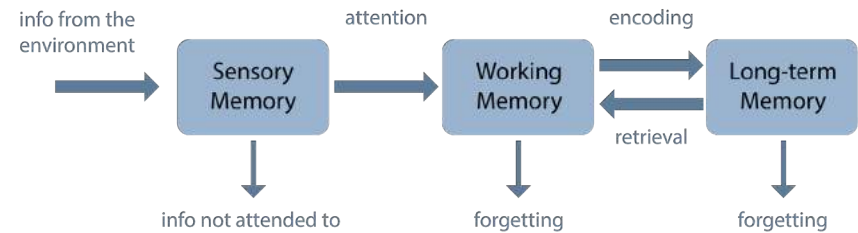


Figure 2. The memory processing system (Lopez, 2015)

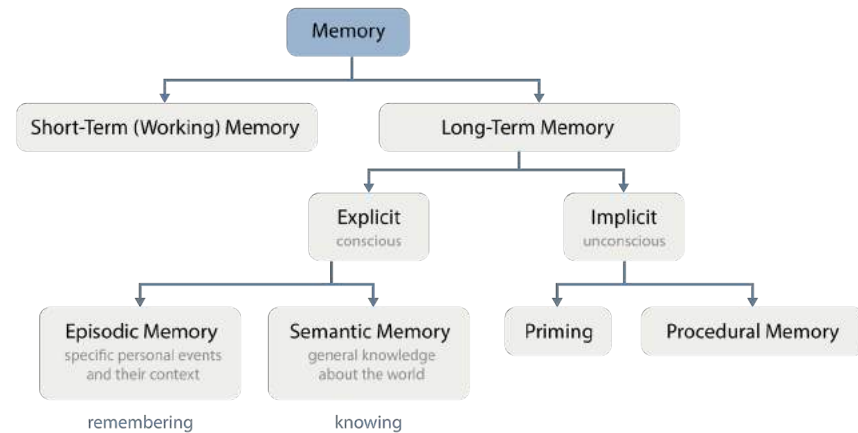


Figure 3. The structure of memory (Lopez, 2015)

2.2.2 AUTOBIOGRAPHICAL MEMORY

"**Autobiographical memory** is of fundamental significance for the self, for emotions, and for the experience of personhood, that is, for the experience of enduring as an individual, in a culture, over time." (Conway & Pleydell-Pearce, 2000)

Since the memory of "self" is considered the basis of travel recording platform, knowledge of autobiographical memory, whose purpose is to "support a consistent narrative of one's identity" (Conway & Pleydell-Pearce, 2000), is closely bonded.

Autobiographical memory contains information of self that includes several domains: self-description, emotional memory and event memory. **Self-description** is one of the main source of a person's sense of identity. It contains information such as one's perspective and preference. **Emotional memory** contains one's memory of emotional experiences, and help a person control his/her mood.

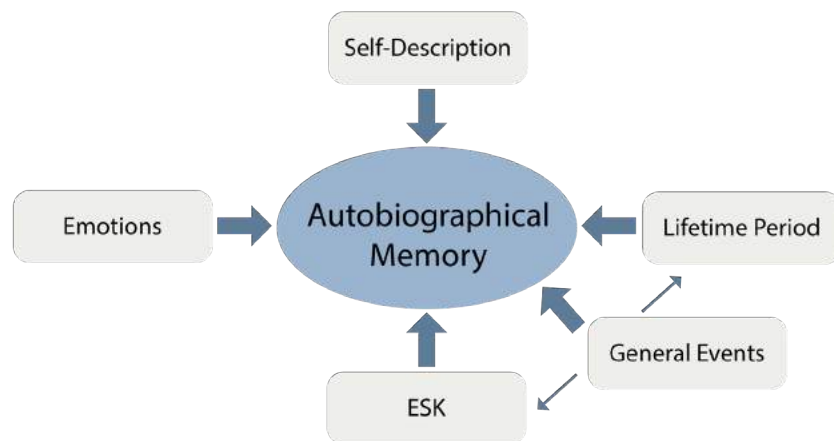


Figure 4. Information domain of autobiographical memory (McPherson, 2007)

Event memory is the largest component of one's autobiographical memory. According to Conway and Pleydell-Pearce, three broad levels of specificity have been identified within autobiographical memory: lifetime periods, general events, and event-specific knowledge (ESK).

1. Lifetime Periods

Lifetime periods are thematic knowledge about common features, including significant others, common locations, actions, activities, plans, and goals, characteristic of that period. Identifiable beginnings and endings can be named from distinct periods, while the time periods of different themes may overlap with each other.

2. General Events

General events are more specific than the broader category of lifetime periods. They represent a set of associated events, both repeated (e.g. evening walk with family) and single (e.g. my visit to London), and encompass a series of memories linked together by a theme. Unlike lifetime periods, which tend to be broken up into specific time periods, general events can be clustered together even if they occurred at completely different periods of time. (e.g. evening walk with family in childhood / adulthood)

3. Event-Specific Knowledge (ESK)

Event specific knowledge refers to particularly detailed information about specific, individual events which have been experienced during an individual's life. Its links to general event structures are fairly rapidly lost (within one week of encoding) unless these links are rehearsed.

Different level of autobiographical memory knowledge base is displayed in figure 2 (Conway, 1996). Knowledge stored at the level of a lifetime period provides cues that can be used to index a proscribed set of general events and knowledge at the level of general events indexes ESK. A specific autobiographical memory is a stable pattern of activation over the indexes of these knowledge structures.

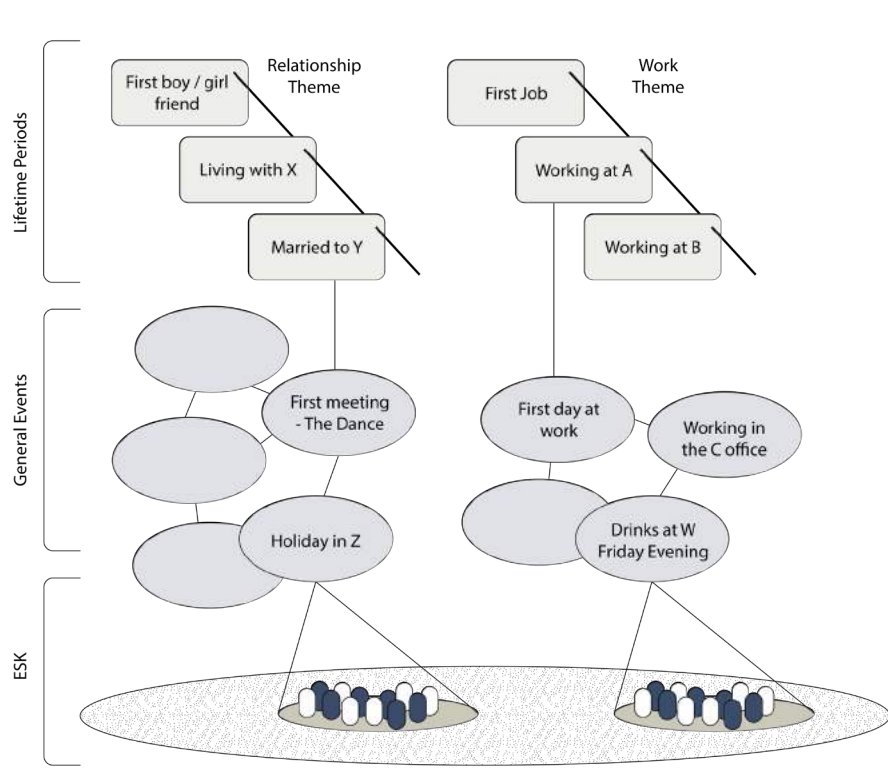


Figure 5. The autobiographical memory knowledge base (Conway, 1996)

The level of autobiographical memory knowledge base gives a clue of what possible structure of the platform would be like. Figure 6 displays the "travel theme", which will be the basis of thematic knowledge of the lifetime period, and so indexes the general events and ESK.

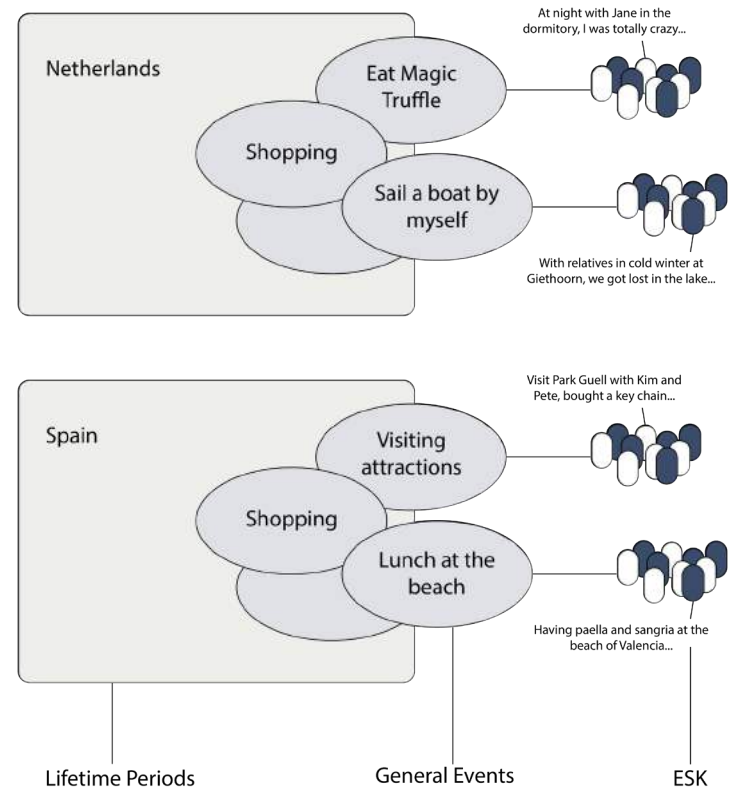


Figure 6. The possible structure of travel recording platform with the "travel theme" knowledge base

2.2.3 MEMORY & IDENTITY

"Memories were the markers of the journey through life. It was necessary to know where you had come from. Only then could you know where you were going." — William Shatner

Remembering the past experiences make up an important part of individual's identity. According to Locke, it is our individual consciousness that makes who we are -- "the sense that I am the same person as someone in the past" (Klein & Nichols, 2012).

Retrieval from episodic memory provides individuals with contents to construct his or her life stories, having the sense of who I am, what I do, what I like and what I've done.

To understand how important is memory to one's identity, it is worth to take a look at how amnesia patients live their lives. In some rare cases, the person may forget most or all of his personal information (name, personal history, friends), and may sometimes even travel to a different location and adopt a completely new identity.

Losing one's memory means the lost of "self", just like a wandering soul that does not know where to go. They suffer from loneliness, but have no clue how to make their life meaningful. Only by remembering the past, will the individual make clear with what they are after.

Although there is a debate between whether identity exists beyond merely memory, it is undeniable that memory is a vital part of personal identity.

2.3 MEMORY CAPTURING AND PRESERVING

2.3.1 DIGITAL & PHYSICAL MEMENTOS

With a view to prevent forgetting, or to make certain memory vivid or complete, people adjust several approaches to record memories. Examples include media capturing (photos, videos), recordings afterwards (writings), collecting (souvenirs) and keeping an object deliberately (tickets). Objects that people created or kept by means of recording memory can be seen as mementos. According to Xue (2017), we can picture human brain as a cabinet filled with drawers locked with memory separately, and the mementos are the keys that open each drawer. These mementos can be further divided into digital mementos and physical mementos.

DIGITAL MEMENTO

Under the era of digitalization, digital mementos, such as digital photos, videos and lifelogging, gained popularity among people. These imagery form stored in computer provides a sequence of vivid memory cues that helps people remember the moments.

Although certain memory is effectually recorded in details in order to provide a comprehensive remembering in the future, with the easy access of creating digital photos, videos, etc, people often do not critically think about how and why they capture. As many people considered “we should capture ‘as much as we can’ because we never know what we might need to remember in the future” (Sellen & Whittaker, 2010).

Having this in mind, high quantities of media is created as a result, and somehow people do not take time to go through all of them for remembering, despite their intention. The high quantity of media amplifies the discrepancy between capturing and relieving.

According to Petrelli et. al (2008), this “lifelogging” approach is “motivated by the view that memory is an archive, with a consequent emphasis on capture”, however, the focusing on capture “fails to address people’s motivations for remembering past experiences and what they value as mnemonic representations of their lives”.

In addition, Sellen and Whittaker (2010) suggested that “digital archives may be generally less valuable than people would hope” and evaluated this argument with an experiment that “users with collections of thousands of digital photos never access the majority of them”.

PHYSICAL MEMENTO

Unlike digital mementos, physical mementos are often given significant meanings to an individual. In addition, the actual touch of its shape and texture, as well as the tangible interaction evokes a completely different remembered experience from merely browsing through all digital media in the screen.

In an experiment of asking 10 families to create a time capsule, Petrelli et. al (2009) pointed out that “contrary to the lifelogging view, people are less interested in exhaustively digitally recording their past than in reconstructing it from carefully selected cues that are often physical objects.” While in another experiment of introducing mementos while giving tour guide in the house, Petrelli et. al (2008) indicated that only 1 out of 16 participants talked about digital mementos during the tour while the rest chose physical mementos. Although it is clear that “digital objects engendered strong feelings”, yet, “participants consciously selected other type of objects as the mementos they most relate to”.

Although digital memento is prevalence in the era of technology, physical mementos still play an irreplaceable role. It is worth to further integrate these currently different worlds and design physical objects with enhanced digital mnemonic properties (Petrelli et. al, 2008).

2.3.2 SOUVENIR AS MEMORY

Souvenirs can be seen as a subcategory of physical mementos, which is preserved or created within the context of travel. As defined by the Oxford English Dictionary, a souvenir is “a thing that is kept as a reminder of a person, place, or event.”

Based on the research of Lasusa (2007), the souvenir defined in this project refers to “anything that acts as a token of one’s experience, whether it is bought in a shop or not. It is any physical object that can be taken away from a place or experience that acts to represent that place or experience: a seashell from a beach, a photograph, or a ticket stub” during travel.

Souvenirs collected from travel can serve as several functions. Souvenir as “memory” will be the function discussed in the project. Lasusa (2007) mentioned that “souvenirs are usually perceived as tokens of memory during the moment of acquisition”. The role of souvenir in this purpose is the facilitator of memory, reminding people of special occasions. According to the research of Wilkins (2011), several respondents indicated that “I collect souvenirs so I can have memories”, “I really treasure the things which I can look at and remember where I’ve been and what I’ve done” and “having things around me reminds me I did have a life”.

Due to the easily accessed and frequently manipulated features of photographs, they are no longer considered reliable as “authentic,” or as truly originating in a certain place or capturing a “true” moment. As a result, tourists continue to collect physical souvenirs, because they believe that souvenirs continue to maintain their credibility as authentic pieces of empirical evidence that one has, in fact, traveled. (Lasusa, 2007)

In conclusion, souvenirs can be seen as important contributors to the memory and evidence of one’s travel experiences.

2.3.3 COLLECTING BEHAVIOR

Collecting refers to obtaining a set of interrelated set of possessions. Usually, the start of certain collections is without conscious intent (Johnston and Beddow, 1986).

According to Belk et. al (1988), items in a collection may be material objects, ideas, or experiences (e.g., travel, restaurant, or concert experiences). These collected items are considered to have additional significance to the collector more than only utilitarian or aesthetic appeals.

The act of putting time and effort in assembling a set of collection literally means the collector puts a part of self into the collection (Belk et. al ,1988). Lasusa (2007) suggest that “the act of collecting souvenirs gives a tourist, quite simply, something to do, and thereby helps the tourist maintain a sense of identity while in an unfamiliar location.”

In addition, collections are also used to express fantasies about the self, since these fantasies cannot be experienced on an everyday basis.

Within the context of travel, individual collects experiences such as countries or cities, or physical objects such as souvenirs. The collections convey one’s proud for goal accomplishment, indicate one’s footprints, knowledge, experience, and preserve one’s travel memory, moreover, it keeps alive one’s fantasies of traveling around the world.

In conclusion, the collecting behavior plays an important role in one’s definition of self, fulfillment of fantasy, and constructs the meaning and purpose in one’s life (Belk et. al ,1988).

2.5 REFLECTING ON THE PLATFORM

With a view of the memorable experience, the type of memory, discrepancy between digital and physical mementos, as well as why and how people capture and retrieve memory will be discussed in the project, further analysis is made to provide ideas of how these knowledge can be applied in the future travel recording platform.

DESIGN GOAL

To design a service that facilitates the interaction between physical and digital memento, to relieve one's remembered experience.

DEFINITION OF TRAVEL

- Frequency: at least once in a month
- Time span: one or more than one day
- Place: to new attraction of special meaning or feature that motivates people to record their memory

TARGET GROUP

Travelers are considered as target group of the service. Four conditions are set to define these travelers as target group:

1. They travel to new attractions at least once in a month.
2. They use digital devices to capture travel memory.
3. They collect souvenirs from travel.
4. They organize memories after travel (e.g., organize photos, write journals, etc).

SERVICE TYPE & DESCRIPTION

The travel recording platform is expected to be an app-based service which integrates the advantage of travel recording media and able to facilitate interaction between digital and physical mementos.

Among the interdependent media process: media capturing, content building and media relieving, the platform focus on the aspects of the latter two.

With a view that people might hardly browse through all of the high quantity media, the platform aims to support active selection, creativity and meaning building in an interesting way, while the interaction of the platform can bridge a gap between digital and physical mementos, that provides vivid memory cues for later remembrance.

PLATFORM ORIENTATION

Having an idea of people's motivation of preserving and recalling memory, I considered sharing, reminisce and accomplish & set goals the three main aspects of travel recording platform.

Sharing memories is to engage with each other socially. Our autobiographical memory system only exists because of its function in interpersonal communication (Broekhuijsen et. al, 2017). **Reminisce** happens either alone or in social context. "People can constantly reassess their past lives and reflect on what has been as well as what is and what will be" (Kahneman, 2010). **Accomplish & set goals** refers to success (or failure) in goal attainment (e.g. taking pictures with famous monuments of the place you have always wanted to go). It relates to people's characteristic of novelty seeking, and leave a record as evidence or remembrance. Aspect of accomplish & set goals can be combined with people's collecting behavior, which helps people construct the meaning of life, and fulfill their fantasy.

PLATFORM CONTENT

Memorable experiences are the main types of memory that people store in the platform. These memories are encoded with high levels of emotion and detail, or vividness.

They are mainly stored in the form of photos actively organized from high quantity of travel media, and writings that provoke memory cues and personal insights.

People, place, experience and the firsts are the theme people tend to record as part of their meaningful memories. Goal-attainment knowledge is especially significant that covers the theme. (e.g. meet a friend in Netherlands; trip to Finland where I always wanted to go; see the northern light which is in my pocket list)

The other type of memory are the knowledge one obtained from the trip, which may become a lasting personal resource that benefits his/her travel in the future, or become useful tips for others. (e.g. tips for transportation; how to deal with emergency)

PLATFORM VALUE

Despite the fact that the platform is expected to be a digital service, it strives to retake the "ritual" qualities in the past remembrance, which is now lost when viewing piles of digital archive. Nowadays, people live a hasty life, every activity strives for efficiency. In the race with time, people lose themselves a bit. The platform suggested people to slow down for a while, take a step back and contemplate, with regard to get back a moment of quality.

Rather than passive memory sharing in social media, or through private message, or have casual talk with friend, why don't people put aside their work on hand and nicely enjoy the special moment of personal reminisce or sharing travel memories together?

PLATFORM STRUCTURE

The knowledge level of autobiographical memory is an important reference for the platform structure. The trip one has taken with identifiable beginning and ending can be seen as a person's lifetime period. Places that the person has been to and experienced can be referred to general events (e.g. restaurants, nature, historical site), and details for each piece of memory can be considered event specific knowledge. The memory can be indexed from lifetime period layer, to general events, then to ESK, or from general events to either lifetime period or ESK.

SOCIAL & PRIVATE ASPECT OF THE PLATFORM

Characteristics of the person's memory, such as level of detail and amount of emotion are influenced by their relationship components between the listeners/readers. (Alea, 2003)

While sharing is listed as one of the aspects of the platform, it somehow influences the content people record, since most people tend to adjust the content in order to fit with the public. However, this is not the intent of the platform.

The platform aims to strike a balance between social sharing and personal reminiscence. The users can decide whether the content be viewed personally, or be shared with certain person.

In this view, people are able to record anything they like without worrying if the content is not suitable for sharing.

3 PLATFORM ANALYSIS

3.1 Platform Categories

3.2 General Pros and Cons for the Platform

3.3 Insights for the Platform

The research goal of the platform analysis aims to understand the types and features of current platforms in the market.

Marketing Overview

It is a process to follow an organization to find out what the growth opportunities to increase sales and reduce the expenses to be get. Marketing strategy is a plan that is used to achieve the organization's goals. It is a plan that is used to achieve the organization's goals. It is a plan that is used to achieve the organization's goals.

A marketing strategy is a plan that is used to achieve the organization's goals. It is a plan that is used to achieve the organization's goals. It is a plan that is used to achieve the organization's goals.

Product Categories	Profit per Year				
	2013	2014	2015	2016	2017
General bank	+809.82	-13.8	+810.81	+707.75	+85.82
Health & Medical	-12.9	+82.84	-238.74	-205.00	-13.8
Art Supply	+82.84	+82.82	+82.84	+238.74	-12.94
Kids & Baby	+828.00	-228.00	+707.75	+9.8	+800.00
Kitchen wear	-197.75	+808.00	-13.8	+808.00	-238.00
Fashion	+238.74	-238.74	-238.74	+238.74	+238.74
Flowers	+238.74	-238.74	-238.74	+238.74	+238.74

Growth Percentage

3.1 PLATFORM CATEGORIES

In order to have a view of how travel recording platform may look like, a competitive matrix is made (see appendix 1) to further understand the types and features of current platforms in the market that serve as a means of recording travel memory.

13 platforms were analyzed in total (Goaway, Wishtrip, Journi Blog, Polarsteps, Oyster X, Penzu, Daybook, Card Diary, Medium, Wordpress, Leap Second, Google Photo, Instagram), which are in the form of either website or application or both. The platforms are further divided into 7 categories by its purpose and functions:

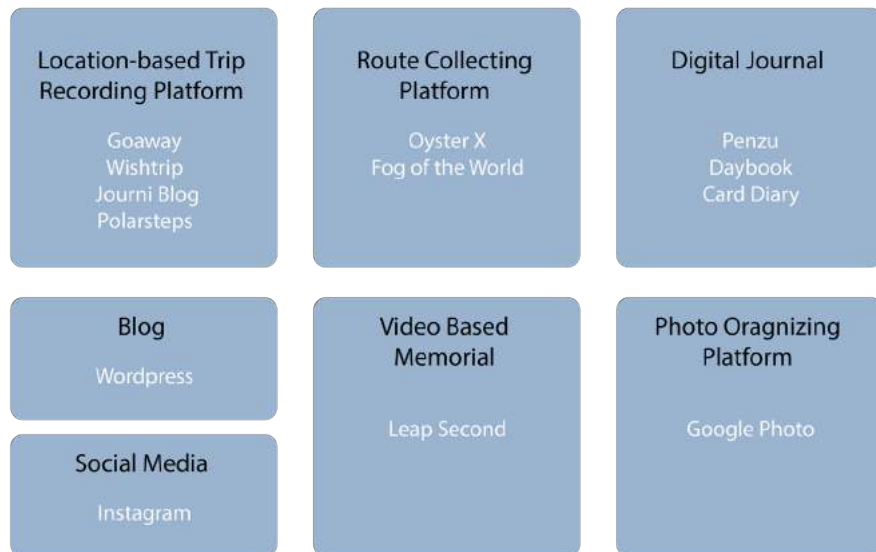


Figure 7. Seven categories of the platform

LOCATION-BASED TRIP RECORDING PLATFORM

Platform: Goaway, Wishtrip, Journi Blog, Polarsteps

The main purpose of the platform in this category is to record the trail or location of one's trip, and write down and add photos of what they have experienced. The basic elements consist of map, route, timeline, writings, photos and social community.

One of its main content building feature is to create each post based on certain location, which means you must add a location point on the map first in order to create one post.

This way of content building somehow limited people to write a post about a certain "point", while some experience or knowledge people record may be based on a specific "area" that includes numerous points (e.g., to write post about one's experience of the day, or even the whole trip), thus, it is not suitable for simply expressing feelings about the travel.

Nevertheless, these platform share a common feature which is very impressive: When looking at certain post, the corresponding location will be marked and moved automatically to the center of the map, which allows people to immediately notice the relation between the post and its location.

In addition, most of the app in this category combines collecting systems, for example, the amount of total trip, total distance, total travel time, etc. This is a good way to fulfill people's satisfaction and encourage people to travel more.

The main interface in this category is consist of a map marked with routes or locations, each of the post is location-based and arranged in the order of timeline. Features of each platform is analyzed in the next page:



Figure 8. Interface of Polarsteps

Polarsteps:

1. Personal page displays a map marked with places you have been, and a list of your trip with numeric data.
2. The page of your trip is consist of map and timeline. Corresponding location is marked when viewing certain selection.
3. View your posts from the selection with a part of map showing its location



Figure 9. Interface of GOAWAY

GOAWAY:

1. Displaying the route and location on the map. Swipe up the avatar to read the post.
2. The posts are based on location and timeline. Touch the tab bar to switch to different content.
3. Photos of the whole trip are gathered into an album.
4. Statics are collected from the trip, including the time you spend, total distance, height and speed.



Figure 10. Interface of Journi Blog

Journi Blog:

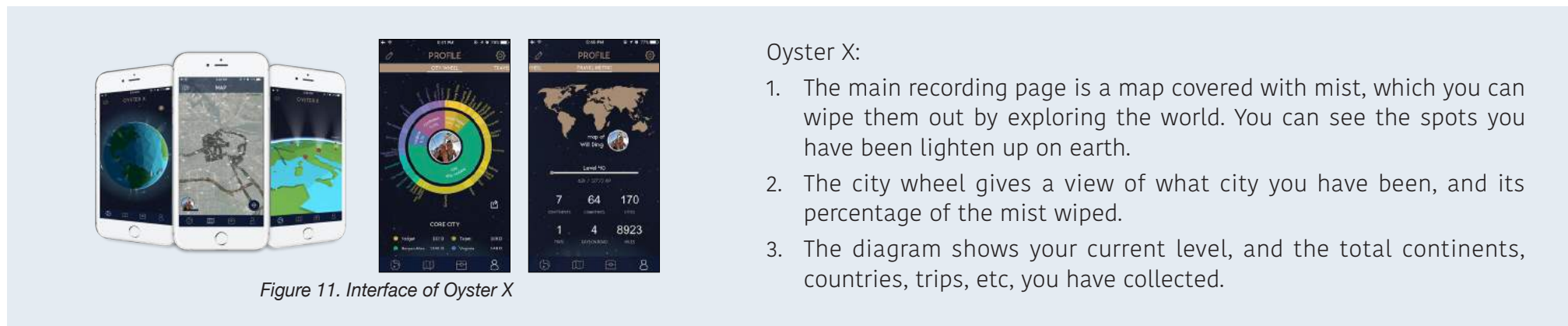
1. The journey page is consist of a map and several small posts following the timeline. The location is marked with different icons to indicate its main activity. Button at the up right corner is an action button that indicates people to print out this journey.
2. Photos within a post are displayed as collage. Location of the post will be shown when clicking on the icon.

ROUTE COLLECTING PLATFORM

Platform: Oyster X, Fog of the World

The platform in this category aims to collect every places you have been to. The main interface is usually displayed with a map covered with mist, and the users should remove the fog by exploring the world. The basic elements include map, diagrams (e.g., the percentage of continents you have visited) and the countries you have collected.

The platform in this category is a gamified interface mainly focused on collecting and less on recollecting memory. These collections give people a sense of achievement and an evidence that they have once been present. The level or award systems even motivates people more to explore places they have never been to. This gamified feature of the collecting system may be interesting if we integrate it into the travel memory recollecting system.



Oyster X:

1. The main recording page is a map covered with mist, which you can wipe them out by exploring the world. You can see the spots you have been lighten up on earth.
2. The city wheel gives a view of what city you have been, and its percentage of the mist wiped.
3. The diagram shows your current level, and the total continents, countries, trips, etc, you have collected.

DIGITAL JOURNAL

Platform: Penzu, Daybook, Card Diary

The platform in this category aims to motivate people to find the meanings for each day, write down the moment and treasure their memory. The basic elements include calendars, writings, photos and private settings.

Unlike general travel recording platform that focused on map and timeline, the digital journal lays emphasis on text editing, which people record their memory based on text, with the support of photos.

Comparing to the location based trip recording platform in the first category, which many users only upload photos without writing anything, the digital journal requires people to retrieve the memory

and construct them into writings. Thus, people are motivated to rethink about the past experience, which results in a more comprehensive and detailed memory. The main function of trip recording platform and digital journal is believed to supplement each other.

Regarding to the social and privacy aspect of the digital journal, most people view it as private usage. Accordingly, pin lock function is designed to maintain one's privacy. While it is possible to share the writings to a particular person, there is little chance to share with the public. It will be important to find a balancing point between the social and private aspect for the later design.

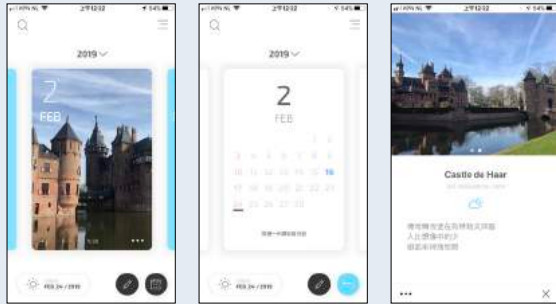


Figure 12. Interface of Card Diary

Card Diary:

1. The journal is calendar based, user can select a day and write down their memory.
2. The weather of each day is automatically shown on the card of the selected day.

VIDEO-BASED MEMORIAL

Platform: Leap Second

The purpose of this platform is to record a one-second highlighted clip for each day, and then trim these finest moment into a short video. The elements are simply consist of videos and calendar. People are likely to go through the whole video because it represents the highlight moment in one's life.

With the sequence of imagery cues that evokes vivid memory, people are able to retrieve these memorable experience within short period of time. The platform is suitable for efficient browsing, while still objects or media are suitable for pondering over some specific moment.

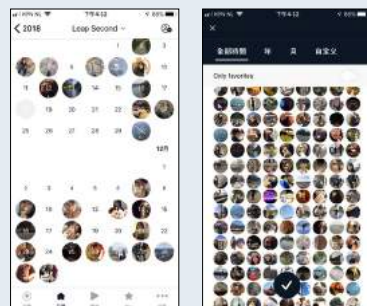


Figure 13. Interface of Leap Second

Leap Second:

1. Every one-second video is the highlight moment of the day.
2. Provides a new way to reflect on all your short memories in the past with short and vivid memory cues.

BLOG

Platform: Wordpress

Blogs offer people a web space to freely create their writings. The way of editing is similar to digital journal, which focus on writing and supported by photos. The process of writing helps people recall their past experience, to reconstruct memories into clear thoughts, some people even share tips they learn from travel. Comparing to the trip recording platform, travel blogs have higher practicality, and are more useful as one's travel reference.

The backstage system offers users an effective way to manage and categorize their posts. Users are able to customize the theme, editing the text style, add hyperlink and tags, and even combine several social media including facebook, instagram and youtube. Sharing of the posts is not limited to a specific social community, instead, it can be seen by almost anyone who entered the keyword.

However, blogs are often associated with business purpose. The intention of one's writing is not as simple as merely recalling one's memory and expressing feelings.

PHOTO ORGANIZING PLATFORM

Platform: Google Photo

The platform organized photos from multiple devices into chronological order, automatically categorized photos based on its location or subject, and enables quick searching from high quantity of photos. Basic elements consist of photos, videos, timeline, location, albums and recalling features (e.g., time capsule).

Series of photos in the album allows people to piece out a more vivid and comprehensive memory, yet on the other hand, the album is of high quantity and low quality that people may not be willing to go through all of them.

Nevertheless, the platform features several memory recalling function, for instance, the time capsule notification (e.g., reviewing the day one year ago), and the function that automatically make a series of photos into video or photo collage.

SOCIAL MEDIA

Platform: Instagram

People post media and writings on social platform for sharing purpose. Basic elements consist of photos, writings and social community. Social media such as Instagram is commonly used to record and recall travel memory: the posts allow people to select some satisfying photos, edit them, write down short descriptions about the experience, and share; story allows people to share the moment and interact with others. Reading the posts or stories of someone you follow is an enjoyable experience

Looking back at your personal profile with highlighted photos may also provide a nice remembered experience. However, sharing is the main purpose of this platform, thus people tend to post contents they want others to see, the rest of personal memories will be stored in other platform.

From the analysis above, value proposition of digital platform can be inferred as **precise, convenient, high efficiency, wide variety, high quantity, low cost, high flexibility, intangible, and data-like.**

3.2 GENERAL PROS AND CONS FOR THE PLATFORM

Location-based Trip Recording Platform

- The timeline, post and map clearly correspond with each other. They are important elements for recording travel memory.
- ✗ Every writings should be based on a specific location, which limited the content of recording. Content that does not relate to a specific place has nowhere to be recorded.

Route Collecting Platform

- The world map gives a clear overview of where people have been.
- ✗ The route can only be recorded during the trip. Previous recordings cannot be added to the app.

Digital Journal

- Clean interface, organized the post by date. It provides a free blank space for people to write without limitation.
- ✗ The digital journal not only focused on travel recording but can also be used for other purpose, thus, there is a lack of assisting function such as a map and timeline.

Video-based Memorial

- People can go through all of the highlight moments in a wide time span.
- ✗ It records the daily moments but not really ideal for recording a particular trip, since there are many highlight moments within a trip, and the highlight moment may not only last for one second.

Blog

- Very customised with a free blank space to write articles and edit the text styles of the content.
- ✗ The aim of writing a blog is often for sharing, thus, the content may be less personal.

Photo Organizing Platform

- It serves as an assembly point for all of your photos from any devices and automatically organize your photos.
- ✗ People may put all of their photos in the platform, the high quantity of photos make people less willing to access them.

Social Media

- The highlight moments can be selected and shared with friends. They will be kept in the user's profile, so the user can have a clear overview of their memory.
- ✗ Most people tend to use social media to show themselves to the others instead of recording the moment for later personal remembrance.

3.3 INSIGHTS FOR THE PLATFORM

Based on the insights from previous travel experience and memory study, the design is expected to be an app-based service (with the support from website), which has strong relevance with souvenirs and are able to interact with each other.

Several insights from the platform analysis can be applied to the app-based service regarding to its function and interface.

INSPIRATIONS FOR THE INTERFACE

1. A retractable map can be presented for users to easily switch between content and the map.
2. Locations on the map can be marked with icons to suggest what activity the user has undertaken.
3. Within the page for a particular trip, all the photos can be collected in that particular album.
4. Calendar can be considered an important element to list out the trips.
5. The statistic from the trip (e.g., trip count, total distance, total travel time, total place) is collected and made into diagrams.
6. The design of the interface should encourage user to write, which is helpful for memory recalling.
7. Design an outline format for each trip in order to give users a quick overview.

INSPIRATIONS FOR EDITING

1. Users are able to add transportation details and emoji-like feature for the trip.
2. Adding location is not compulsory for each post, and the user can add locations after building up content.
3. It would be ideal if the app can automatically organize one's trip according to the photos in one's cell phone album.
4. Mark the locations in chronological order on the map to provide a clear view of one's trip.
5. The system support collaborative editing, considering that people may like to have collective memory with their travel companion.
6. The content must be able to edit on website, since it takes more effort to type on cell phone than on computer.

INSPIRATIONS FOR VIEWING

1. Locations on the map can be highlighted when viewing its correspondent content.
2. Design a timeline indication for each post, so the users know which day they are currently viewing within the trip.

INSPIRATIONS FOR ADDITIONAL FUNCTION

1. The time capsule function can be designed to give users some surprise from their past travel.
2. Functions regarding to privacy should be take into account, so the users can decide what memory should be private and what memory can be shared.
3. Reminders for adding travel memory encourage users to actively record their travel memory.
4. Travel recordings from the app can be exported to print out as physical memoirs.
5. Free text editing function such as adding hyperlink, highlights and tags can be taken into account.

4

USER RESEARCH

4.1 First User Research

4.1.1 Global Approach

4.1.2 User Group

4.1.3 User Research Analysis

4.1.4 Inspiration for the platform

4.2 Second User Research

4.2.1 User Group

4.2.2 Travel Diary Analysis

4.2.3 User Research Analysis --

Value of Digital and Physical Mementos

4.2.4 User Research Analysis --

The Unfulfilled Needs

The goal of the user research aims to:

- To understand values of digital and physical mementos to a person
- To understand how people preserve and retrieve travel memory
- To understand people's collecting behavior
- To explore what an ideal / satisfying remembered experience is

4.1 FIRST USER RESEARCH

4.1.1 GLOBAL APPROACH

To further understand how travel memory and mementos are perceived among different people, a qualitative research is conducted on seven interviewees, aged between 22 to 27. The time span of each interview ranges from 30 minutes to 1 hour per person.

RESEARCH GOAL

The goal of the user research is to:

1. To understand values of digital and physical mementos to a person.
2. To understand how people preserve and retrieve travel memory.
3. To understand people's collecting behavior.
4. To explore what an ideal / satisfying remembered experience is.

RESEARCH QUESTION

1. What aspects of remembering can be achieved by digital/physical memento, and what can't?
2. In what circumstances do people go back to these memories? What step do people usually take when remembering? What do they miss in this process of remembering?
3. What do people collect while travelling? What is their value and how do they work as later reminisce?
4. How do people feel when remembering? Do they enjoy this feeling of remembering?

RESEARCH METHOD

It is hypothesized that an ideal / satisfying remembered experience is how well respondents can see and immerse themselves in the memory of a past event. This experience is likely to happen when they have sufficient memory cues in hand, both digital and physical.

In addition, people present the act of collecting because the collections can serve as evidence that they have travelled to the place, as remembrance for experience, as an identity, and as fantasy that motivates them to travel more.

Interviews are carried out in order to clarify what are the general contents of memorable experiences as well as how remembered experience is like. The participants are asked to share and tell stories of a digital memento and physical memento they selected regarding to travel, at the beginning of the interview. The process of storytelling bring them back to the particular moment in the past, then other related questions were asked afterwards.

4.1.2 USER GROUP

It is observed that 7 interviewees have different behaviors toward the travel memory, thus, they are divided into 3 categories with distinguishing features for later analysis.

Chicken Soup for the Soul



They make effort to record travel memories. Things they create, capture or preserve for later remembrance include sketchings, writings, series photos, meaningful objects, etc. They can easily come up with philosophical insight within the journeys, for example, what they have learned about the world, what perspectives have been expanded in life, and how social development is facilitated. They are very sentimental that they can quickly immerse themselves into the memories upon seeing a very simple memory cue.

Travelholic



They are fond of travel. Things they used to record travel memories includes photos, videos, souvenirs and writings. They often dream about traveling to other countries and frequently recall their travel memories. When certain memory is triggered, they can immediately come up with a series of related memories from different places. While chatting, they often lead the topic to travel experiences and share their stories with others. They like dreaming, and often bring back souvenirs that they consider representative for the place.

Run-of-the-Mill



They are general travelers that do not have distinguished features. They sometimes travel, buy souvenirs if they are really fond of it, and take photos or videos to capture the moment, but do not always organize the recordings. They may not come up with a wide range of memory when seeing the souvenirs, but consider photos provide more vivid memory cues for them to recall. When encountering memory cues, they sometimes look back at the photos and come up with nostalgic feelings.

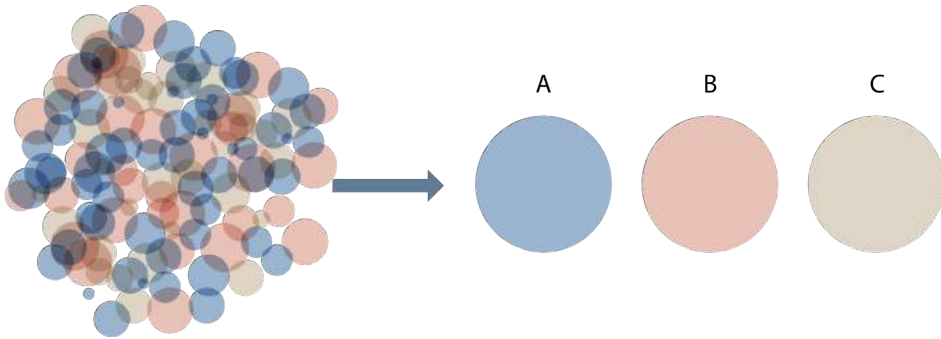


Figure 14. Defining different types of user group into 3 categories

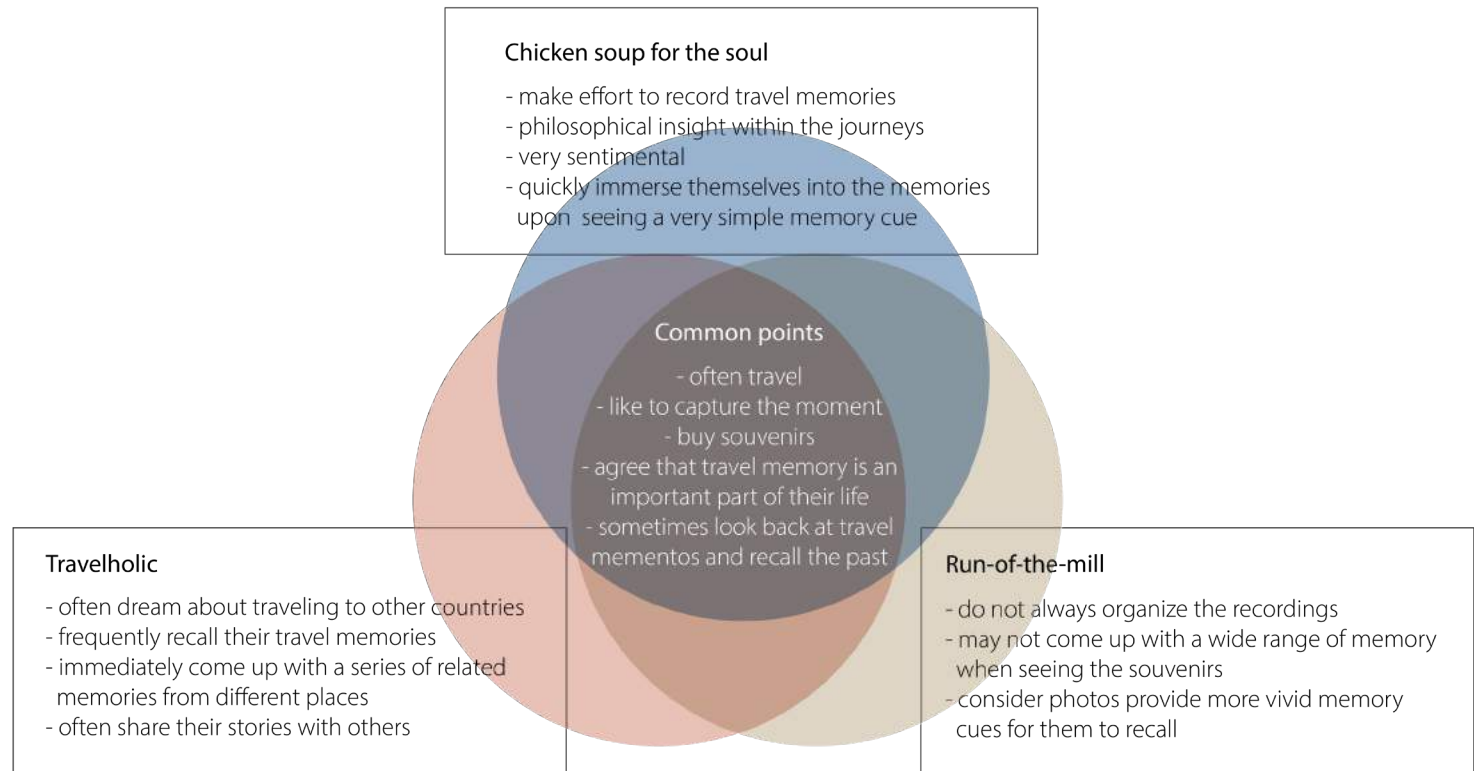


Figure 15. Distinguish the features between 3 categories and look for the common points

4.1.3 USER RESEARCH ANALYSIS

The user research result is recorded in appendix 2. Based on the result, analysis is made including how people consider the memorable experience, the value of digital and physical mementos, people's collecting behavior and remembered experience.

MEMORABLE EXPERIENCE

It is interesting that when asking people to share their memorable experience from a trip, several scenarios pop up in their mind within a short period of time, thus, they often need some time to think about which experience they want to share.

Van den Hoven et. al (2009) listed several types of memory that people long to remember, including people, experience, place. I further apply these types of memory into the context of travel, adding "the first" as one of its category, and analyze them based on interview result. Memory types that people want to remember includes:

1. People

Among the ones that have involved in the certain past. People that a person wants to remember include those who involves in positive and impressive interaction with the person. In the context of travel, it can be your travel companions, acquaintances you met during the trip, or nice hosts who welcome you in their lovely house.

2. Experience

Positive experiences considered by the remembering self are the ones people generally want to remember. People especially make effort to record their travel experiences, since travel provides an ongoing supply of new and novel experiences, it is an almost perfect memory-making activity (Murray, 2012).

Within the category of memorable experience, Tung and Ritchie (2011) suggest that memorable experience is once-in-a-lifetime experience that is purely unique and cannot be replicated, because memory adds fantasy to it. The memory itself is exotic. The recalling of memorable experience is especially positive and ideal.

3. Place

Newly discovered place during the travel can be memorable due to its distinctive view, special experience, or the presence of significant other. They were especially cherished because people may only go there once in a lifetime.

4. The Firsts

"The firsts" refers to the general event category of the many "first times" that people experience throughout their lives. These "first times" are a major example of successfully completing a goal and can provide an excellent amount of information about the self to an individual (Carroll, 2012). They were a particularly important category of general events and served to determine the nature of the self.

This goal-attainment knowledge (both positive and negative) conveys significant information for the self. It is considered one of the meaningful memory that covers three types of memory above. (e.g. the first time travel alone; the first experience on plane; the first country you have been)

During the interview, people mentioned their experiences like, "this is the first time I go skiing", "this is the first time I traveled alone for a month", "this is the first trip I took photos with my newly bought camera", etc, indicating "the firsts" is an important type of memory that people remember from a trip.

COMPARISON OF DIGITAL AND PHYSICAL MEMENTO

Categories



DIGITAL

- People do not come up with other digital memento besides photo and video.
- Most people use digital photo album such as Google Photo for remembering. People have different usage toward instagram post, some select meaningful moment and post on Instagram for remembering, categorize stories into several core value island that represents one's identity; some perceive instagram is more like a tool to show yourself to others, rather than personal remembrance.



PHYSICAL

- With the reference of physical memento categories by Petrelli et. al (2008), I divided souvenirs into 3 categories: craftworks, memorabilia and idiosyncratic. Craftworks refer to drawings, paintings, quick sketchings, models or handicrafts made by either people themselves, from their friends or family, or some already owned collection by artists; memorabilia are objects with a specific function, which may or may not be in habitual use (e.g. magnets, pins, clothes); idiosyncratic are objects important for deeply personal reasons, often intentionally created or become mementos by chance because of what they symbolized (e.g. ticket, brochure, stamps, stone, shell); photos, refer to pieces of printed photos (e.g. polaroid)
- Many people collect postcard because of its size specification, which is easy to store or to decorate

Value



DIGITAL

- The digital photo has less value itself, since it can be duplicated and deleted, but more value in its story behind. It represents the “self” in that particular moment. Individual can look back to how he/she was at that moment, and notice the change between the present self and the self in that particular moment.
- You can work and create something based on the digital media, for example, edit them or use filter, in this case you create a new value for the original media.



PHYSICAL

- Most people do not buy souvenirs without specific reasons, unless it is meaningful and special; one even indicate that she tends to give souls to an object, so the object should be meaningful enough to build connection with her
- Many of them do not buy souvenirs for themselves but as a gift, considering that souvenirs are more meaningful to act as gift than personal remembrance

How it works for memory



DIGITAL

- The high quantity of digital photo makes people do not want to go through all the photos, unless some highlight photos are selected and stored somewhere else or even printed out.
- It stirs one's memory, which is often vivid. You can also share it easily with friend at anywhere anytime.
- While remembering, all of them remember alone; some will share photos or videos with close friends; few of them write post about their feelings and upload to social media.
- Many of them mentioned that they miss other sense for the memory (e.g, smell, touch, taste, sounds) during digital remembering; one considered words should accompany with photos to bring her back to the moment; another one considered it would be nice to record one's emotion at that moment.



PHYSICAL

- The insufficiency of physical souvenirs is that you may not have souvenirs for all the places, but you can have photos for every place; 6 of 7 people indicate that souvenirs do not serve much memory compare to photos, they only come up with memories about how they obtain the souvenir; only 1 indicates that she can come up with wide range of memory when seeing the souvenir.
- One suggested the printed photo (polaroid) has the most authenticity. It goes through the process of selection, which represents the particular moment and it can often be seen (hang on the wall); the normal souvenir has a lot to imagine, which is less "authentic" to memory.
- Although the decorated souvenir can be seen everyday, they become part of the person's life, the person do not often look back to his/her memory from the souvenir, unless others ask about it; some indicate when they see the souvenirs unexpectedly, they are motivated strongly to recall its memory.

A short activity in the interview is to fill out the form with value propositions regarding to mementos. The interviewees were asked to select whether it is the digital, physical or both that fits the description of value proposition the most.

	digital	physical	both
authentic	+	++++	++
vivid	+++	++	++
immersive	+	+	+++++
significant	++	+++	++
representative	+	++	++++
emotive	+++	+	+++
frequent	++++	++	+
impressive	+++	+++	+
preference	+++	++	++

Figure 16. Result of the value proposition questionnaire

In figure 16, the result is scattered between digital memento, physical memento and both. It is hard to define which kind of memento fits the description most. How a person sees the memento is far more perceptual than rational. It depends on one's personality, and there isn't an "average" for the form.

Nevertheless, according to the overall user interview result, value proposition of the souvenirs can be inferred as **scarce**, **imaginable**, **tangible** and **spatial**.

RELATION BETWEEN DIGITAL & PHYSICAL MEMENTO

According to the interview results, digital and physical memento have positive relation with each other. First, they are at the same level of importance, with their own pros and cons that are irreplaceable. These pros and cons of digital and physical memento can complement each other, for example, you can have a meaningful souvenir in hand, at the same time, looking at photos that have meaningful stories behind. It will be nice to recall travel memory with both of them together. Second, they can be transformable. They can interact with each other, with no exact boundary between. For example, the printers can transfer the digital photos in to physical photos; people can also take picture of their physical sketches and turn them into digital photos.

COLLECTING BEHAVIOR

Objects people collect includes postcard, tickets, key chains, magnet, stamp, own sketchings, etc. Still, many of them indicate they do not buy souvenirs without specific reasons, unless they are meaningful to a person. Among them, postcard is the most common collection because of its standard size, which gives people a sense of unity. Postcards are also easy to preserve, which do not take up too much space. In addition, they can write down their travel experience at the back of the postcard that help them remember their past experience in the future.

Experiences (or digital object) people collect includes places and food. One indicated she collects travel stories with strangers and series photos in different places.

People do not start these collections intentionally, but as same series of objects accumulated, it becomes a collection; when looking back at several same series of stuff being well organized, they feel a sense of achievement. Some of these collections leave a trace for travel memory (e.g, postcards). People can often look at the physical collections if they are decorated somewhere in the room, but rarely go through the digital collections.

One of an interesting discovery is that all of the interviewees collect pins on google map, but most of them do not collect intentionally. They pinned the places on map while planning the trip instead of recording afterwards. Viewing at all these pins on the map gives them a sense of achievement, but they don't consider it meaningful, nor do they go through past memories upon seeing the collections.

REMEMBERED EXPERIENCE

People recall memory under different circumstance. Sometimes it just happened by chance, when people occasionally encountered some memory cue that motivates them to recall; it can also be related to one's mood, which people indicated they go back to memory when they are bored, or in bad mood; some people suggested they recall past memory when they are planning the next trip.

When recalling, it is hard to define "good" or "bad" in one's remembered experience. People tend to relate to how they feel at that particular moment from the past, for example, if they felt happy and excited at that moment in the past, people also feel happy and excited while remembering. Interestingly, if someone have a bad experience in the past, however, they may not consider it as bad when remembering. Some negative experiences can actually become interesting when recalling them afterwards.

4.1.4 INSPIRATION FOR THE PLATFORM

According to the interview analysis, some inspirations for the platform are listed as below:

Interaction Between Physical and Digital Memento

According to the interview, people perceive the meaning of digital and physical memento itself and their own travel memory subjectively. From the statistic of value proposition questionnaire, it is hard to categorize the features to a certain form of memento, and we cannot define which one is better. It is indicated that both digital and physical mementos are at the same level of importance, and individuals can be triggered by memory cues from either digital or physical mementos, thus, the platform should have access between these two forms of mementos. For instance, after one's memory be triggered by physical memento, they can index the related digital mementos to look for a more precise memory, and further come up with other physical mementos afterwards. In other words, one's memory can be freely transferred between digital and physical mementos.

Active Selection and Content Building

Most people perceive that digital photos can bring them back to the certain moment in the past and arouse a more comprehensive travel memory. Some also indicate contents that have been selected or edited with effort contains greater value than those simply captured with camera. Thus, the platform should support active selection and content building, so the content of the platform only consist of selected highlight moment.

In addition, the reason people preserve these highlight moment is different from Instagram, which is more about showing oneself to others. The highlight moments are more about personal remembrance, and sharing with close friends, which is more connected with our souls, recording the most sincere self.

Notification for Remembrance

People either place their souvenirs somewhere in the box or decorated in the room. Souvenirs hidden in the box are rarely taken out for remembrance, while souvenirs decorated in the room have become part of the individual's life, which people do not actively recall the memory when seeing the souvenirs. Some indicated that they are more motivated to enjoy the remembering when the memory cue appears by chance. Thus, the platform notifications can pop up by chance to arouse people's interest of remembering certain travel memory.

Building Digital Story Behind the Souvenir

According to the interviewees, not all of them take souvenir as a carrier of memory, since they do not come up with a vivid or comprehensive memory upon seeing the object. Some people see souvenir as “evidence of the travel destination and experience”, while some others “identified the importance of the gift giving rituals associated with vacations and souvenir purchase” (Wilkins, 2011). Will it be more enjoyable and meaningful if a souvenir as a gift carried some hidden digital stories behind? If digital stories were hidden behind a souvenir, will people only see them as an evidence or a gift?

Combine Planning

Some interviewees indicate they intended to record something after the trip, yet, they gave up because it requires too much effort. Some also mentioned that they tend to put more effort in the planning of the trip.

For instance, they pinned the locations on Google map or made schedule in advance. The schedule and map also become part of the reference in later remembrance. If the platform supports planning function, user can first build up a structure of their travel plan, and then “fill in the blank” after the trip. In this way, it is expected to build up a complete, yet effortless travel recordings.

Positive Design

The interview result infers that one’s thought toward the travel memory is subjective and perceptual. We cannot define whether one’s remembered experience is good or bad, but should focus on how memories can be presented to an individual.

Positive design, which intend to increase people’s subjective well-being and, hence, “increase an enduring appreciation of their lives” (Desmet & Pohlmeier, 2013), will be adopted in the project.

“Design for pleasure”, one of the ingredients of positive design, can be seen as the scope for future design. It addressed that subjective well-being can be achieved by the sum of a person’s momentary pleasures (Desmet & Pohlmeier, 2013), for example, to design a system that evoke positive feelings by maximizing one’s pleasure and comfort.

4.2 SECOND USER RESEARCH

According to the result from the first interview, several types of user group can be categorized. Among several groups, “chicken soup for the soul” is especially suitable for the design. Thus, another interview is performed with interviewees from the group of “chicken soup for the soul”.

4.2.1 USER GROUP

The result of the first round interview indicated that people have different perspectives toward travel memory recording. Although people generally record and recall their memory from travel, the degree of the action is profoundly influenced by one’s personality and preference. Among 7 interviewees, a particular type of people “chicken soup for the soul” was found to be especially suitable for the design. Reasons for choosing “chicken soup for the soul” as target group are listed as follows:

- They are willing to make effort to record travel memory
- in addition to digital recordings, they also consider physical writings or drawings an important way of recording memory
- They treasure and recall travel memories more than others, because they believe every travel provides a chance of self discovery
- They are sentimental, which they can quickly immerse themselves into the memory when encountering just a small memory cue.

The platform will be designed for the sentimental ones who value their travel memory and are willing to make effort to preserve them for later remembrance.



Chicken Soup for the Soul

- ✓ make effort to record travel memory
- ✓ habit of physical recording
- ✓ treasure and recall travel memory
- ✓ very sentimental to their memory

The second user research is performed with interviewees from the group “chicken soup for the soul”. To integrate into the group, I myself started a handwritten diary during travel, in order to have a better understanding about the thoughts and needs from the group.

Within the user research, I analysed the pros and cons of physical diary, the value of digital and physical mementos people perceived, as well as the unfulfilled needs while recording and retrieving travel memory. The design direction of the platform will be formulated based on the research.

4.2.2 TRAVEL DIARY ANALYSIS

PROS

- People can select a diary they like, including its cover, thickness, size, design and texture. In addition, people can create anything they like and make beautiful design for their travel diary. Every diary is unique, and has a strong personal style.
- Other physical mementos such as ticket and postcard can be preserved in the diary.
- Finishing the diary gives people a sense of achievement, and these travel memories become especially meaningful because they make much effort for it.
- Comparing to digital memento, handwritten diary gives people a feeling that it is something that really belongs to them, due to its authenticity and tangibility. In addition, it preserves people's own handwritings and sketchings.
- The writing itself is enjoyable, so does the reading. People are especially happy to look back at their own handwritten text and sketchings, because they can feel the warmth and emotion of their own handwritings.
- Comparing to the small screen on the cell phone and the heavy weight of computer, diary is convenient to bring and easy to write on during the travel.
- The handwritten diary is not only used for simple recording, but also a way of living, a place for emotional and spiritual sustenance. They are not merely objects, but are lives given with souls.

It is observed that many people shifted their ways of recording travel memory from handwritten diary to photos, videos and blog, with the existence of digital recordings. Despite its convenience, the digital recordings can never replace physical recordings. There is still a large group of people who keep their habit of handwritten diary, and use digital recordings at the same time. From the second user research, I interviewed people who record their travel memory with handwritten diary and analysed the pros and cons of the handwritten travel diary.

CONS

- Writing and drawing on the diary requires much time and effort.
- Although writings may provide a comprehensive memory, people missed the photos and videos from the trip while reading the diary.
- Physical diary gets old. Its paper become yellowish, may be bitten by the bug, or the ink may spread through paper.
- When travel, people may have to bring lots of things with them for writing and drawing.
- The content of the diary cannot be shared easily. People may have to type out their handwritings, which requires two times effort.
- Lack of searching function. People have to flip through pages to search for a particular topic.
- Less organized. Hard to have a clear overview of time and location. Writings may not always be arranged in chronological order.
- Less flexible for afterwards editing or adding additional content.

According to the pros and cons of travel diary, its value proposition can be inferred as **personal, authentic, tangible, customize, unique, freestyle** and **private**.

4.2.3 USER RESEARCH ANALYSIS -- VALUE OF DIGITAL & PHYSICAL MEMENTO

The user research result is recorded in appendix 3. Analysis about the value of digital and physical memento, as well as the unfulfilled needs are made based on the result.

Considering the preference of handwriting and drawing, the physical memento in the interview is mainly about handwritten diary.

In addition to digital and physical memento, the participants also mentioned the usage of text, which can be in both digital and physical form. Texts can be used to convey one's thought, to describe something that cannot be presented by photos or videos. It tells stories, which is an important way for them to record travel memory.

Value of digital memento

- Photos and videos provide precious memory, people can immediately go back to the moment upon seeing them.
- Digital recordings lack authenticity. They may be deleted by accident.
- Videos can only be watched in digital devices. Extra efforts are often made on editing, because most people may not be patient to watch all of the raw videos.
- Digital recordings are convenient, do not take up physical space, do not have weight, do not get old, and are easy to bring with.
- Digital mementos often have some premade settings and layout. It is convenient, but on the other hand, people can't freely design what they like.
- High quantity photos do not have much value itself. The selected ones contain more value.
- Digital mementos can be easily organized with its time and location.

"Although I keep a diary, but digital photos and videos are also important recordings for memory. They provide vivid memories."
-female, 25

Value of physical memento

- Handwritten diaries give people a feeling that they really belong to a person, something that people keep aside, comparing to the digital mementos.
- One's emotion, effort and the warmth of handwriting can be seen in the physical diary.
- Handwritten diaries are more personal. People write whatever they come up with. The content is especially interesting and meaningful when looking back at them. Public blogs and writings can also serve as one's travel memory, but less personal, People feel more connected when reading the handwritten diary.
- Handwritten diaries are unique and cannot be duplicated.
- Other physical souvenir can also be stucked into the diary, such as tickets and stickers.

"I don't feel like the digital stuff really belongs to me. For instance, I write report with computer but write diary with hands. They are just totally different."
-female, 23

4.2.4 USER RESEARCH ANALYSIS -- THE UNFULFILLED NEEDS

Three main unfulfilled needs were analysed from the interview. These needs give an idea to the later development of the concept.

1. STORIES BEHIND THE SOUVENIRS

Problem

Souvenirs bought from travel are often scattered around the room, some are even gradually forgotten. People would like to have them gather around somewhere, to have a clear overview of what they have brought back from travel. This gives them a sense of satisfaction.

“I put my souvenirs somewhere in the box because they take up too much space, but I like to make a list of things I have bought from travel. If I have a digital collection of these souvenirs that I can easily have an overview of them anytime, it would be great. I feel satisfied when seeing all of them together.”

-female, 23



Figure 17. The unfulfilled need of the target group.

Solution

Digitalize the physical souvenirs, make a collection of them. When having a physical souvenir in hand, users are able to look for more stories behind it with the digital platform. When using a digital platform, users will be reminded of the physical souvenirs. They can take out the souvenirs and enjoy the remembered experience between digital and physical mementos.

2. LIMITED CONTENT OF DIGITAL AND PHYSICAL RECORDING

Problem

According to the participants, digital mementos lack authenticity. They like to keep a handwritten diary aside to record travel memory. However, digital photos and videos are also important recordings that can only be seen with digital devices. Physical photos that people put into the diary are very limited. In this way, people's travel memory are scattered between digital and physical devices that are not connected with each other. The participants point out that it is quite troubled for them to look for the corresponding memory from both devices at the same time, which make their remembered experience less satisfying.

"I like handwritten diary, but I can't put the digital photos into the diary. Sometimes I was quite troubled that when reading handwritten diary, I have to make effort to search for related photos; when seeing photos, I have to flip through the diary to look for the related writings." *-female, 23*

"Digital stuff lacks authenticity, you can easily delete them with a button. Using digital app is like someone offers you a space, you write something on it, but they do not really belong to you, only your physical objects belong to you" *-female, 24*



Figure 18. The unfulfilled need of the target group.

Solution

To build a bridge between digital and physical recordings that allows people to quickly search for corresponding content. Users can quickly look for related digital recordings while reading the physical diary, as well as look for related content from the physical diary when scrolling on digital recordings. Although the contents are stored in different carriers, digital and physical recordings are closely connected, making the process of remembering convenient and enjoyable.

3. SHARING TRAVEL MEMORIES WITH OTHERS

Problem

Most people from the target group send postcards to those who are special or of good relationship with them. They write to show concern to the others, talk about what have happened recently and share their travel memory. The thing they are not satisfied with is that digital content cannot be shared by postcards. It is true that sharing digital content is extremely easy nowadays, yet, people point out that sometimes they are not willing to share certain content to the public. If the postcards are able to carry some hidden digital message, this way of sharing will be novel and meaningful to strengthen the bond between each other. In addition, it gives people a surprise when they receive the postcard, expecting to see the hidden message behind it.

"I send postcards to those who have good relationship with me but less contact in daily life. It is kind of pity that when reading the postcard, my friends are only able to imagine my trip through text, not by photos or videos. It will be interesting and surprising if they see the hidden digital content from the postcard."
-female, 23

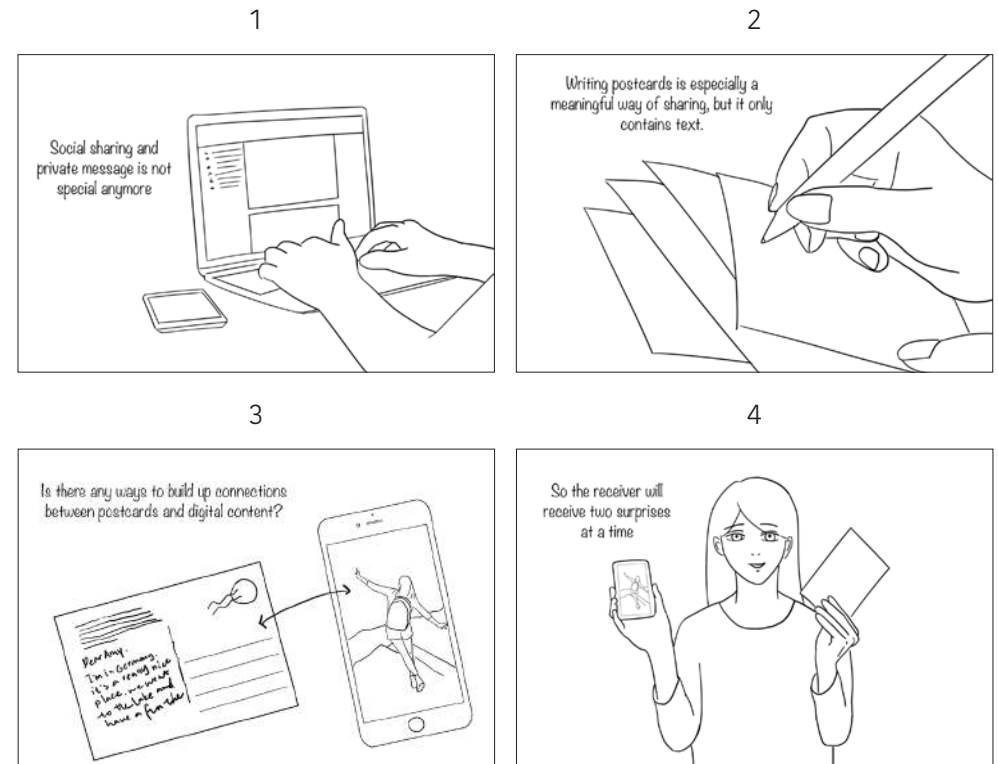


Figure 19. The unfulfilled need of the target group.

Solution

To make a connection between physical postcard and digital content. People who receive the postcard are able to see the hidden digital content through cell phone application.



Photographs



5

CONCEPT DESIGN

5.1 Concept Introduction

5.2 Concept 1 -- The Key to Memory

5.2.1 Concept Introduction

5.2.2 User Flow

5.2.3 User Journey Mapping

5.3 Concept 2 -- The Hyperlink

5.3.1 Concept Introduction

5.3.2 User Flow

5.3.3 User Journey Mapping

5.4 Concept 3 -- The Entrance Ticket

5.4.1 Concept Introduction

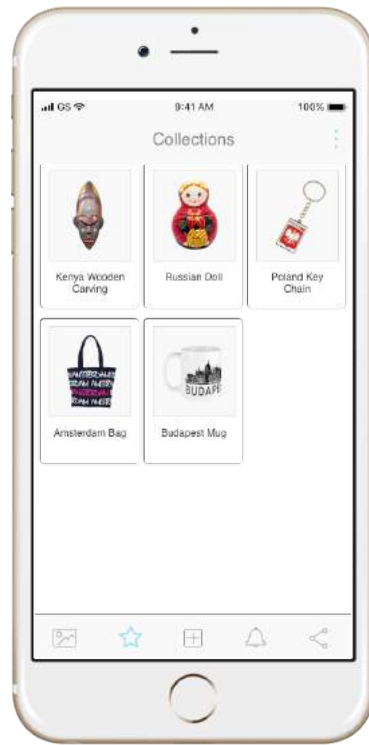
5.4.2 User Flow

5.4.3 User Journey Mapping

3 concepts with different features, including "the key to memory", "the hyperlink" and "the entrance ticket" were designed according to the insights from the literature study and the second user research.

5.1 CONCEPT INTRODUCTION

3 main unfulfilled needs were analysed from the user research. According to the needs, 3 concepts were designed, each of them deals with a specific need. Each concept features a different way of interaction and diverse technique to connect the digital and physical memento together.



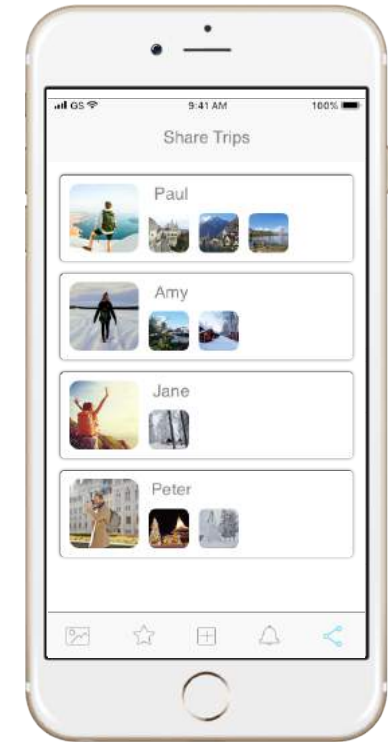
Concept 1: The Key to Memory

The concept aims to fulfill the need of “story behind the souvenir”. It allows users to see the related content of the souvenir by simply scanning on the souvenir.



Concept 2: Hyperlink

The concept deals with the problem of “limited content of digital and physical recordings”. Users can add additional digital content to a physical diary. “Hyperlink” is the bridge to connect the digital and physical content together.



Concept 3: An Entrance Ticket to Memory

The concept is designed for the need of “sharing travel memory with others”. It offers a new experience to postcard senders and receivers. The nfc technique is adopted, which operates the data transmission between the cell phone and postcard.

Figure 20. 3 concepts

5.2 CONCEPT 1 -- THE KEY TO MEMORY

"Souvenirs are the key to memory"

5.2.1 CONCEPT INTRODUCTION

Considering the equal importance of both digital and physical memento, the concept collects information of physical memento and build up digital stories behind them. Although the concept is an app-based platform, it lays emphasis on the physical mementos, considering them the 'key' to memory. When people access their travel memories with their 'keys', they can see vivid stories behind.

The user can build up content by taking photo of the physical memento, add them into collections, and add tags to the related posts. When recalling the memories, the user can easily scan on the memento or simply tap on the collected item to read the stories behind.

- ✓ physical mementos are the key to memory
- ✓ take pictures of physical mementos to collect them digitally
- ✓ see the related posts by scanning on physical mementos or tapping on the collected item
- ✓ main technique of the concept: object detection

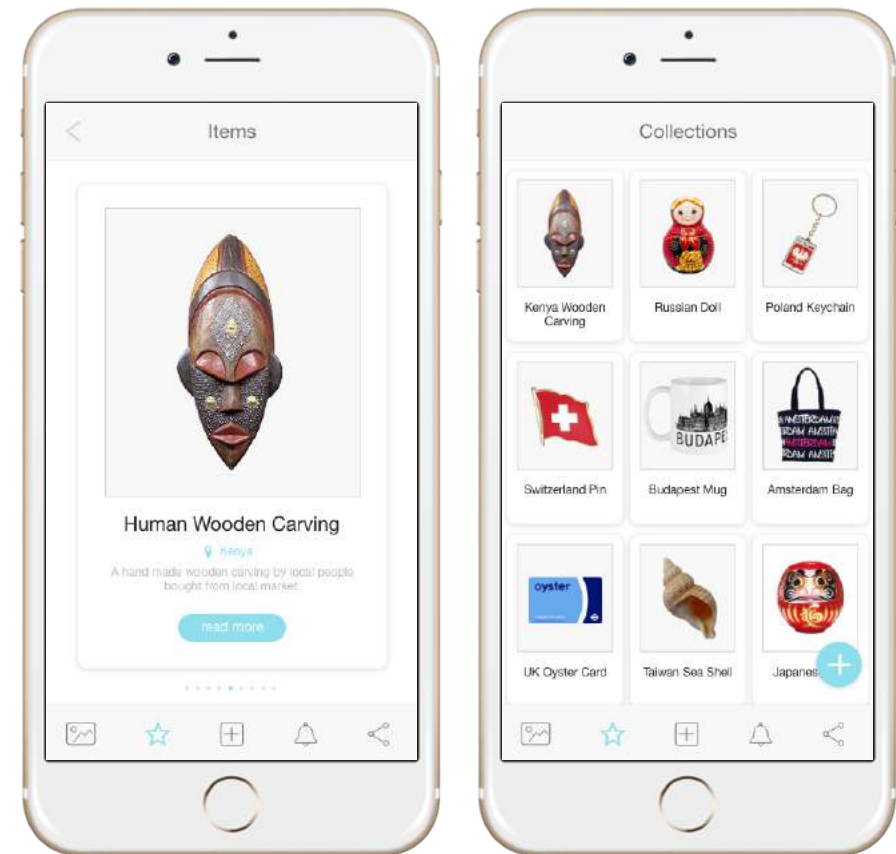


Figure 21. The interface of the collection page (concept 1)

5.2.2 USER FLOW

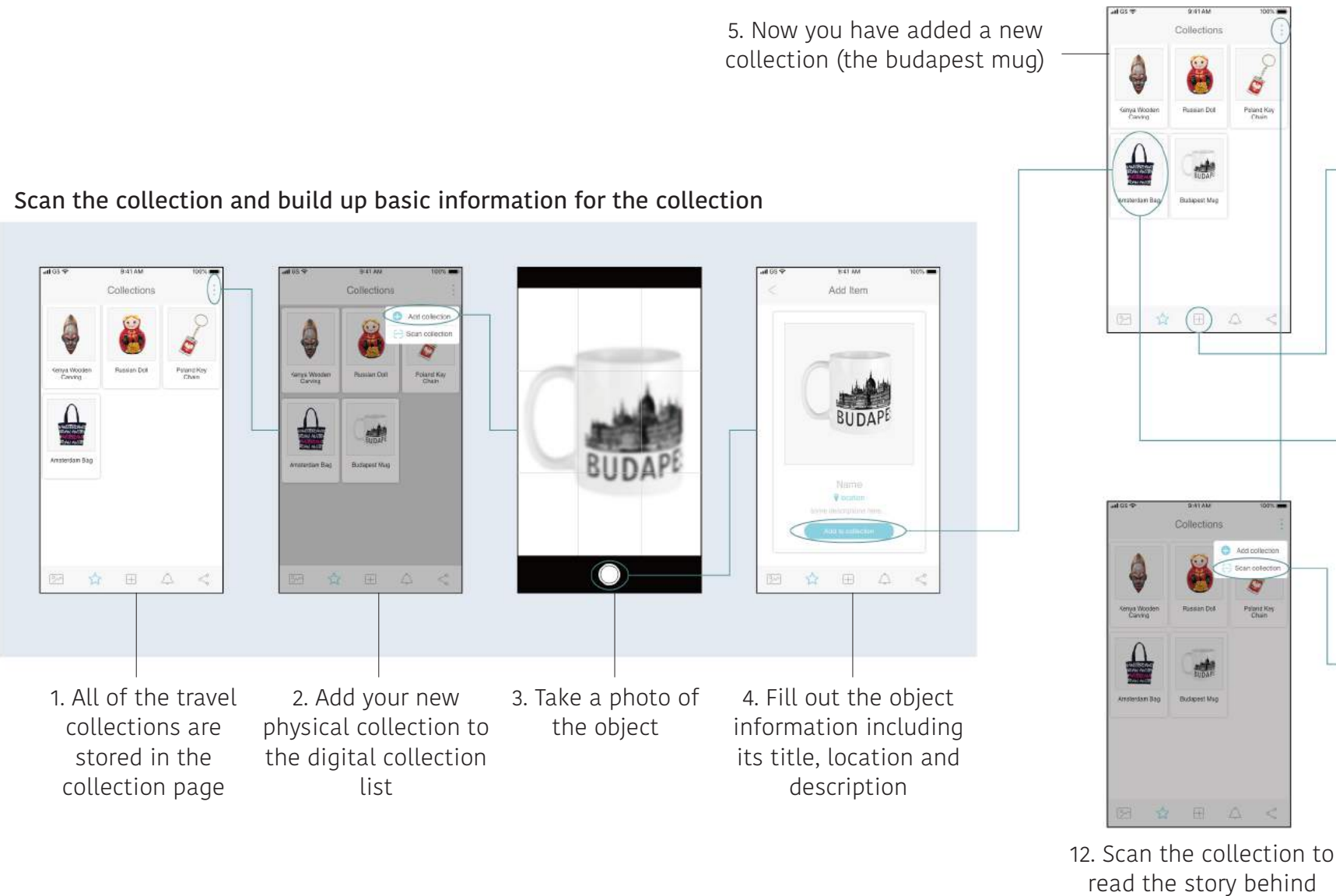


Figure 22. Concept 1 user flow

6. Create a trip and write posts about your travel

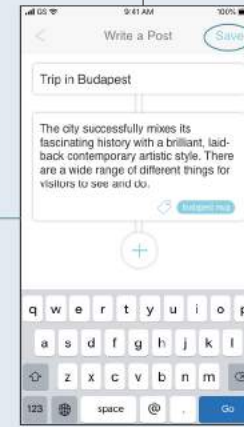
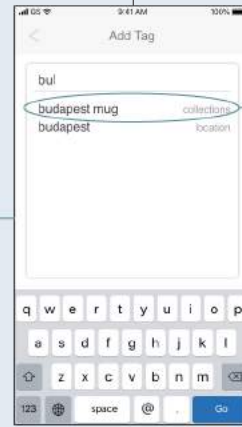
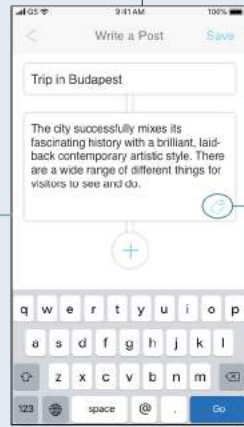
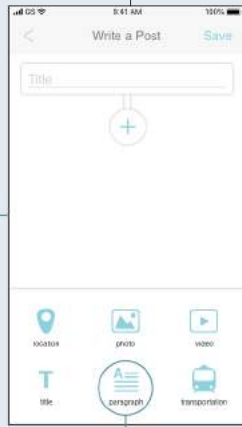
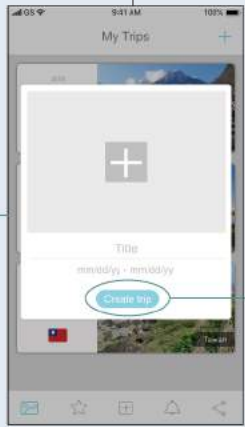
7. Select the media type you want to add for the post

8. Add a tag to the post that is related to the souvenir

9. Tags can be easily searched and selected

10. Add tags of the collection easily

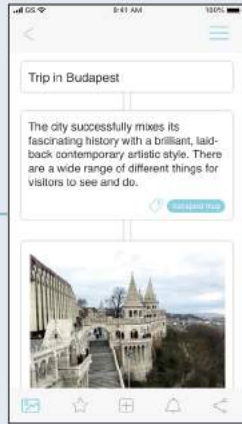
11. Trip and content have been created



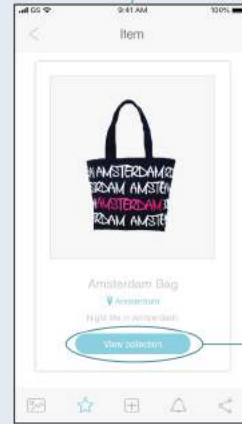
Build up digital content and tag the collection to the related post

Scan the collection to read the story behind

Read the story by also touching the collection in the collection list



15. You can also see the description of the object by tapping on the collection card itself



13. Short description about the collection pops up, tap "view collection" to read more story behind

14. Related post with the tag pops up on the screen

16. See the story behind by tapping "view collection"

17. The post with the tag shows up on the screen

5.2.3 USER JOURNEY MAPPING

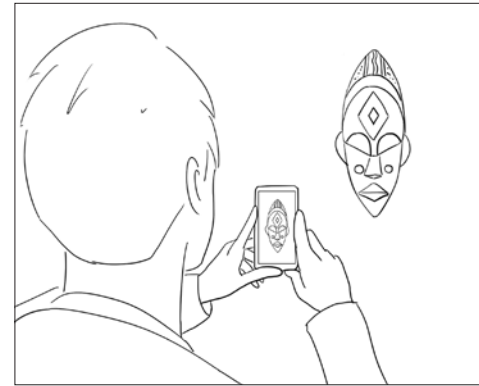
CONTENT BUILDING



1 Paul goes on a trip to Africa.



2 He buys a human carving in a local shop.



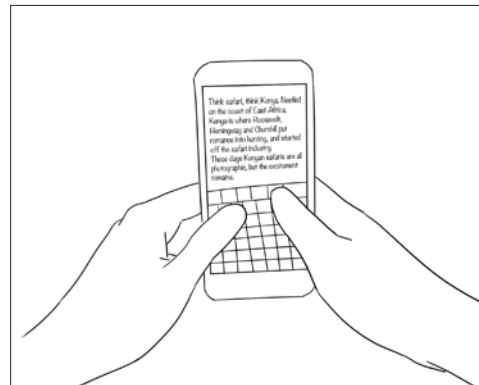
3 He takes a picture of the carving.



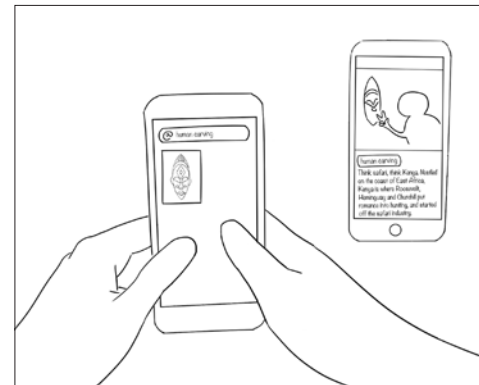
4 He adds the carving into his collections.



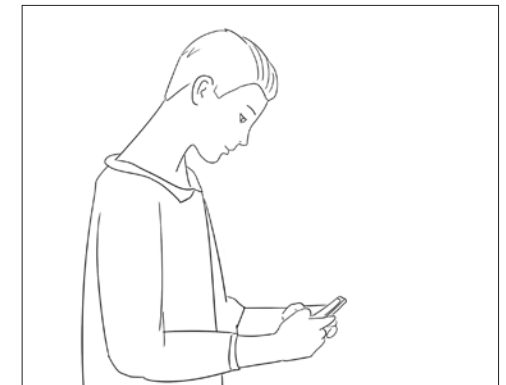
5 Paul is back home from the trip.



6 He writes posts about his trip.



7 He tags the carving in the post.



8 Paul saves his memory of the trip in the app.

Figure 23. Storyboard -- Concept1 content building

MEMORY RETRIEVING



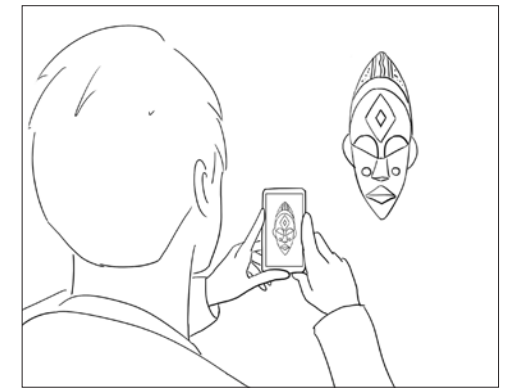
1 Paul's friend arrive at his house for short visit.



2 One of the friend is curious with the human carving on the wall, it reminds Paul of his trip in Africa.



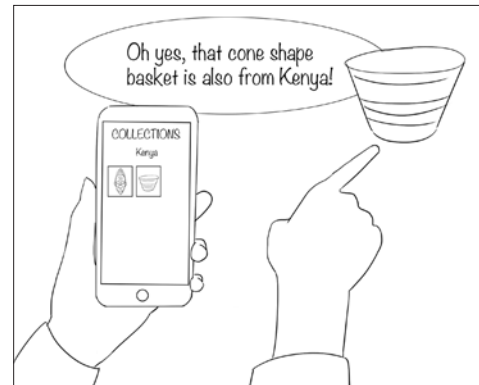
3 His friends are interested with Paul's trip in Africa.



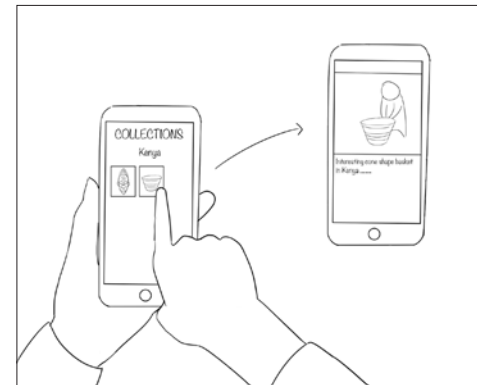
4 Paul scans the carving with his cell phone.



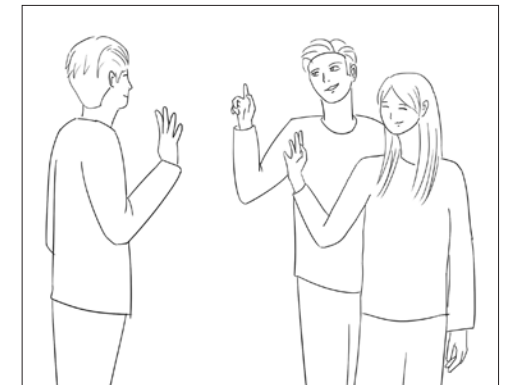
5 Paul and his friends look at the trip in Africa.



6 When seeing the collections on the map, Paul is reminded that the cone shaped basket is also from Africa.



7 He taps on the collection to see more stories behind.



8 Paul and his friends say goodbye to each other.

Figure 24. Storyboard -- Concept 1 memory retrieving

During the content building phase, the user can either take photo of the souvenir on the spot or afterwards. If the photo was taken on the spot, its location will be automatically filled in according to the photo's information; if the photo was taken afterwards, the user can manually filled in its location. After the souvenir information was added to the collection, the user can tag the name of collection while writing the related post.

The feature of the concept is “souvenir is the key to memory”. During the memory retrieval, users can read the stories behind the souvenir by simply scanning on the object. The related posts with the tagged collection will pop up immediately. The overview of the collections also reminds users of the souvenirs' existence, no matter they were decorated in the room or hidden somewhere else in the box.



Figure 25. User journey mapping of content building and memory relieving

5.3 CONCEPT 2 -- THE HYPERLINK

"Hyperlink is the bridge between digital and physical content"

5.3.1 CONCEPT INTRODUCTION

The concept lays emphasis on the combination of handwritten recordings and digital recordings. According to the second interview, the participants are willing to have both handwritten recordings and its digital version in hand since both of them have its own irreplaceable value.

The concept is inspired by the hyperlink from the website, which people can click on certain element and link to other pages that provides more information behind.

Handwritten diaries are considered the epitome of travel memory, which stories are compacted in a few pages. In the view that the content of handwritten diaries are limited with text, drawings and few printed photos, the concept suggests that some hyperlinks can be added to the diary, so the user can look into other form of digital recordings (eg, digital photos, videos, maps, etc.) that the handwritten diary cannot provide.

- ✓ suitable for people who keep handwritten recordings
- ✓ hyperlink can be placed anywhere on the diary
- ✓ read more stories behind by touching the hyperlink
- ✓ main technique of the concept: scanning and hyperlink

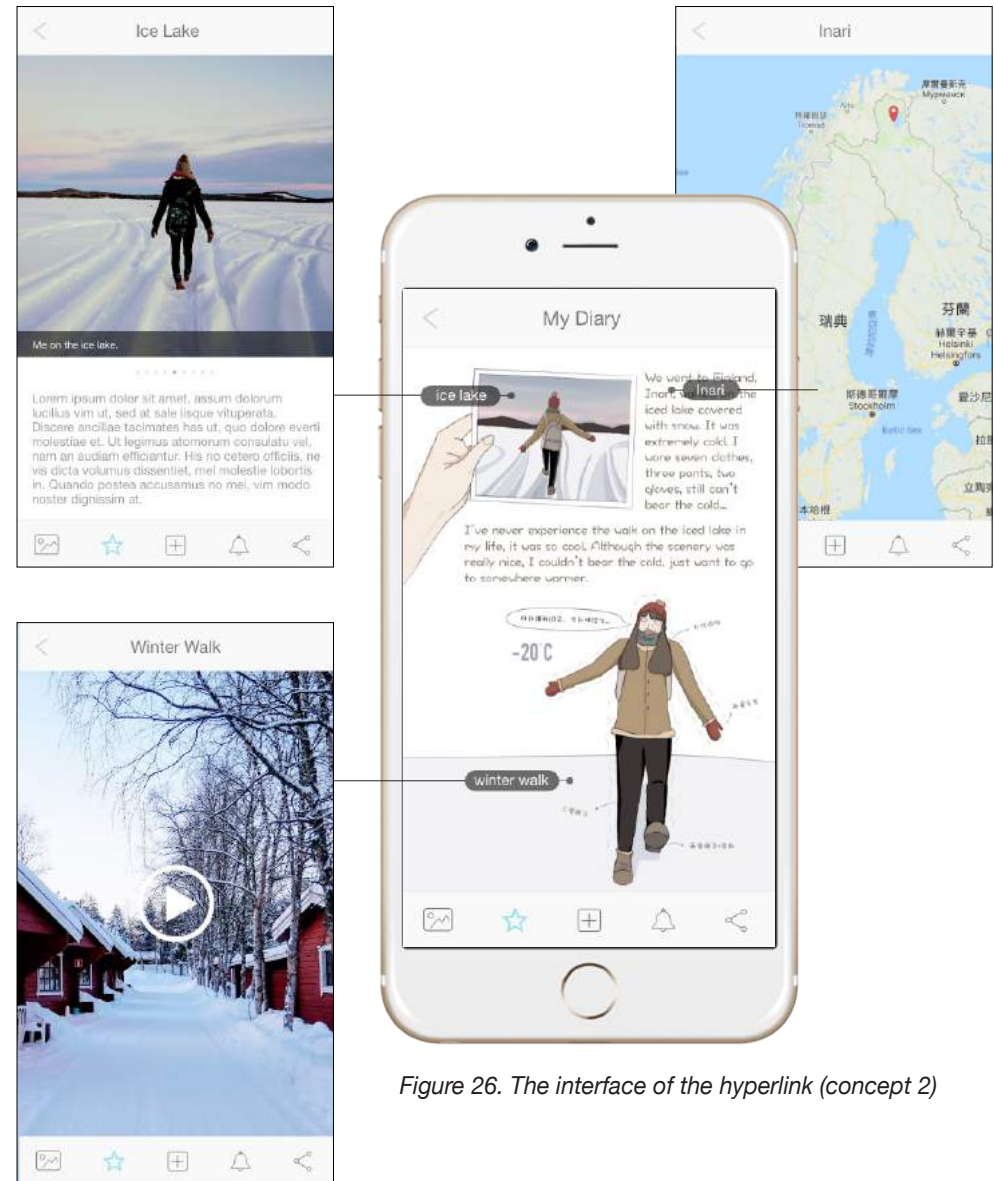


Figure 26. The interface of the hyperlink (concept 2)

5.3.2 USER FLOW

Create a digital version diary

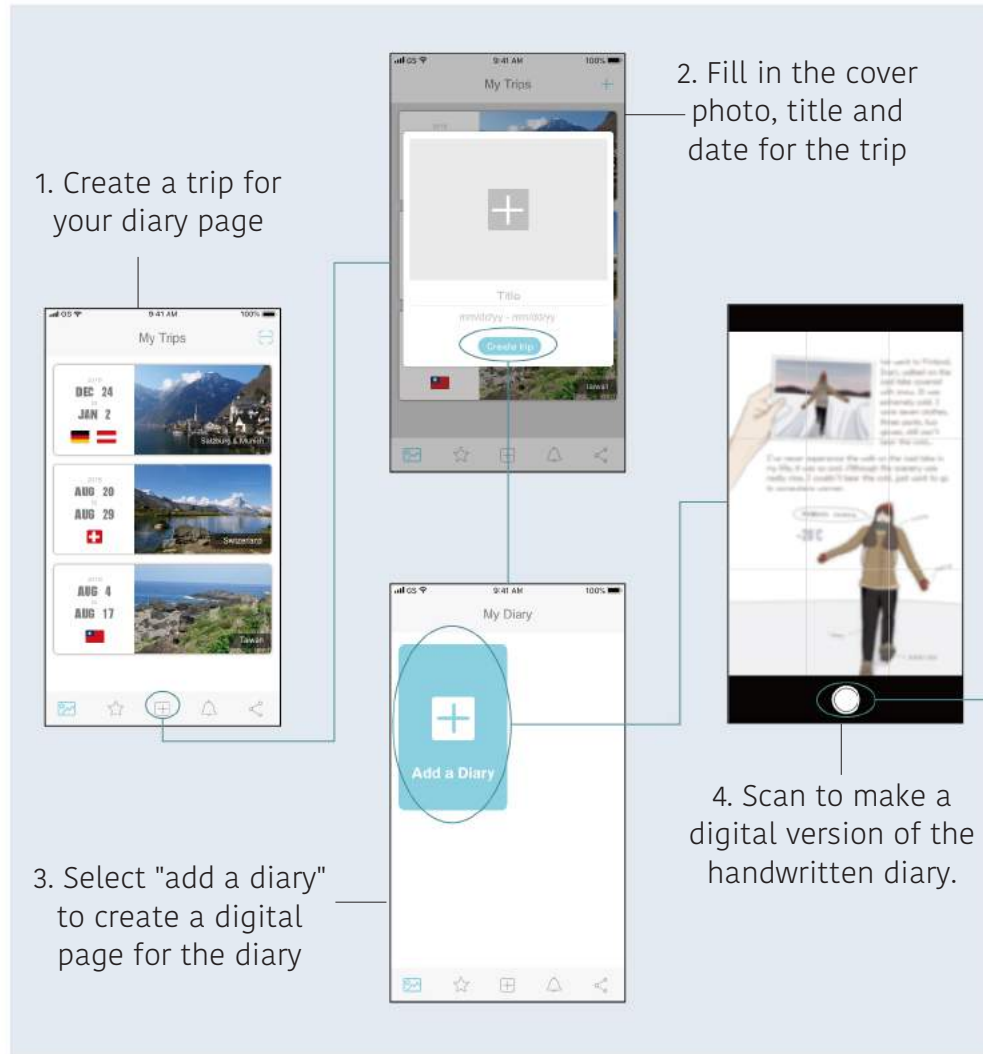
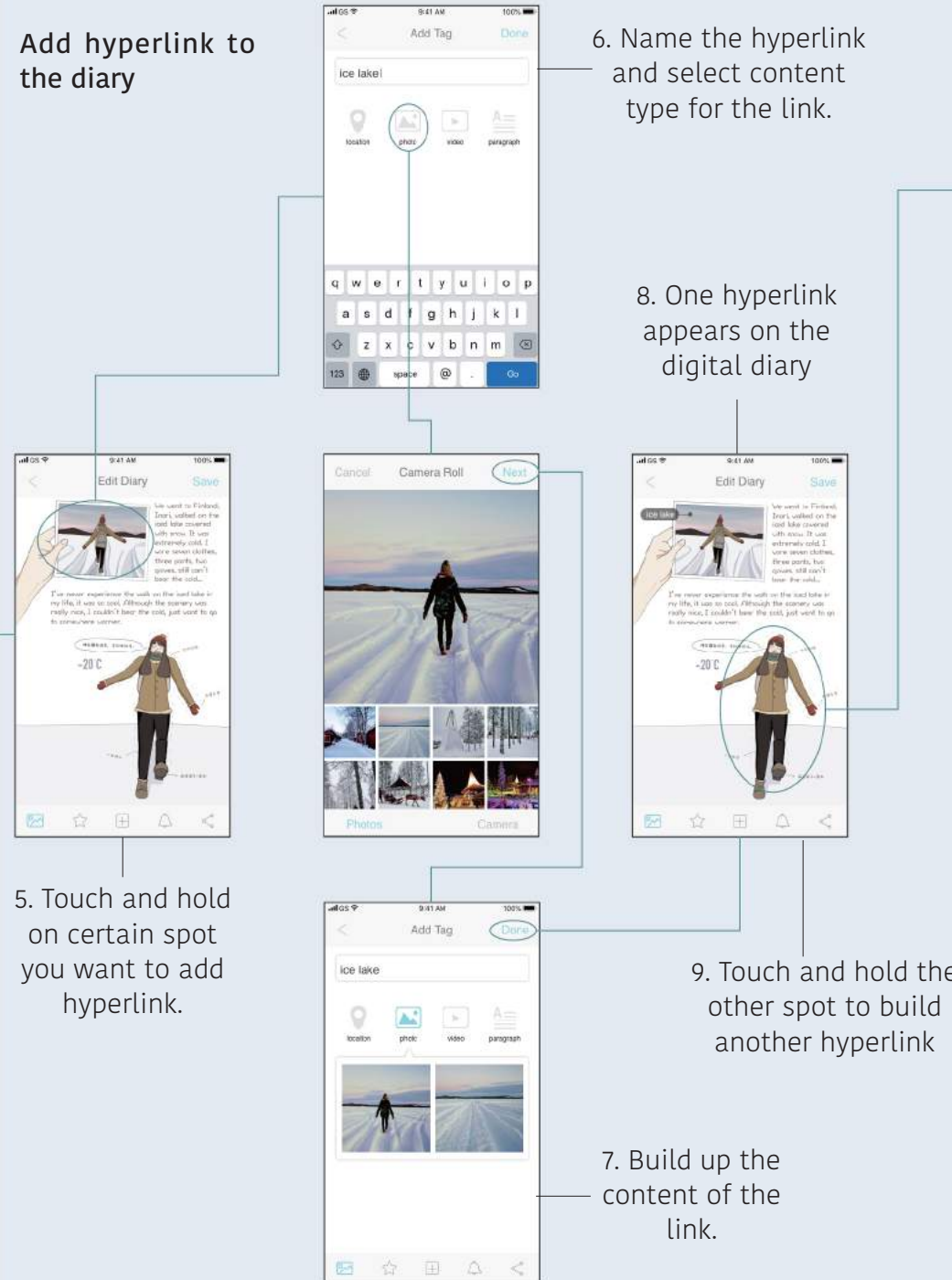


Figure 27. Concept 2 user flow

Add hyperlink to the diary





10. Select a location for the hyperlink



11. Store your digital version diary with hyperlink in the trip.



12. You can also add another page of the diary in the trip



13. You have built up a trip and digital diary page



15. All the hyperlinks appear automatically on the screen.



14. You can see all the hyperlinks by either opening the digital diary or scan the physical diary.



16. Touch on the hyperlink to read more story behind.



5.3.3 USER JOURNEY MAPPING

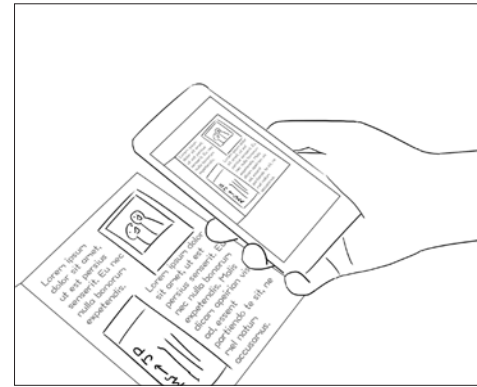
CONTENT BUILDING



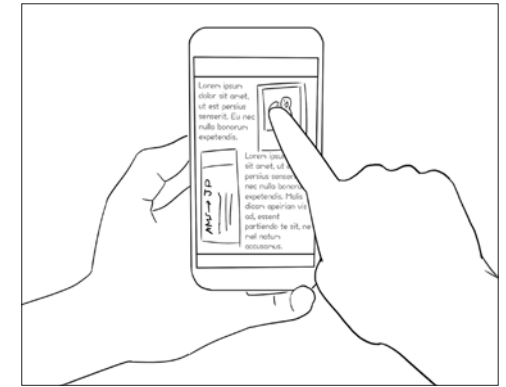
1 Amy takes photos, videos and make short notes during her trip in Japan.



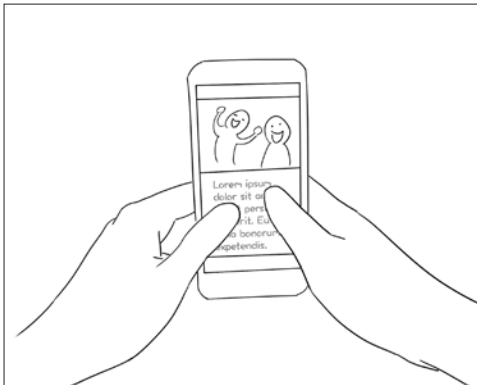
2 During the trip, she writes a diary.



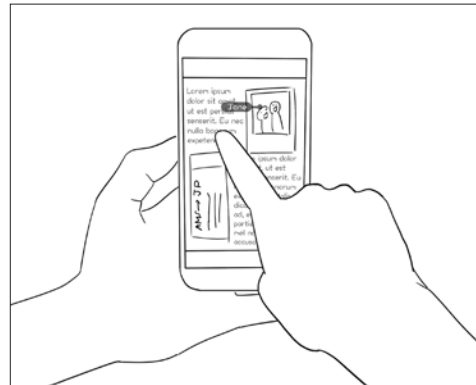
3 After returning home from the trip, Amy scans the diary to make a digital version.



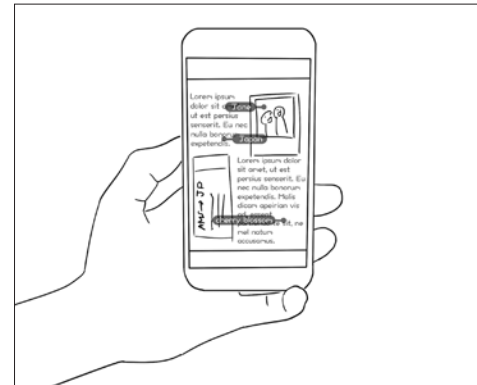
4 She adds hyperlink to a photo in the digital diary.



5 She builds up content about the photo.



6 She adds another hyperlink to a text and builds up content behind.



7 She builds up all the content behind the hyperlink.



8 She stores her digital diary in the "trip" page.

Figure 28. Storyboard -- Concept 2 content building

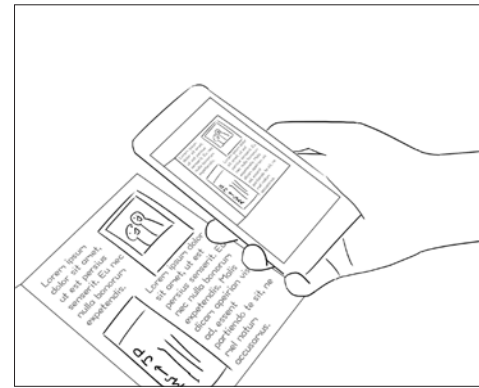
MEMORY RETRIEVING



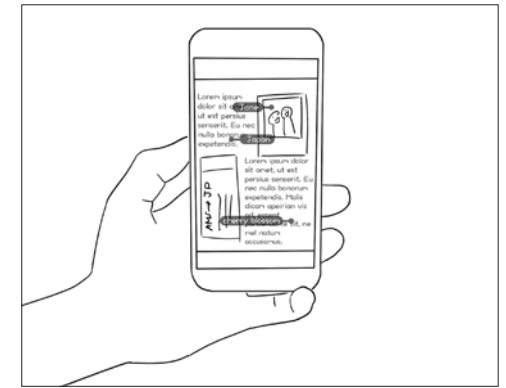
1 One day, Amy watched a travel video of Japan. It reminds her of her trip in Japan.



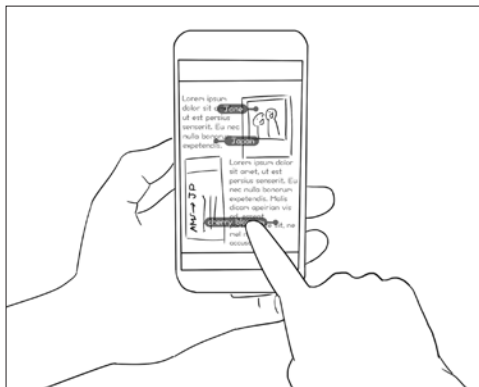
2 Amy opens her diary book to recall the memory.



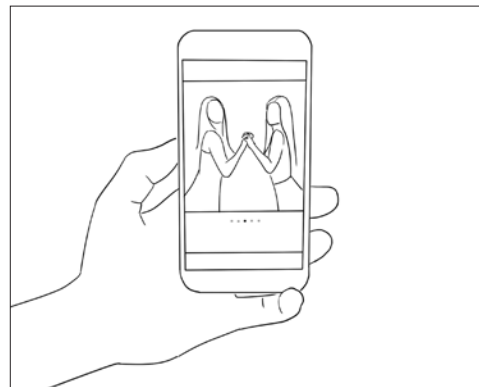
3 To see more content behind, Amy scans the diary with her app.



4 The hyperlinks appear on the screen.



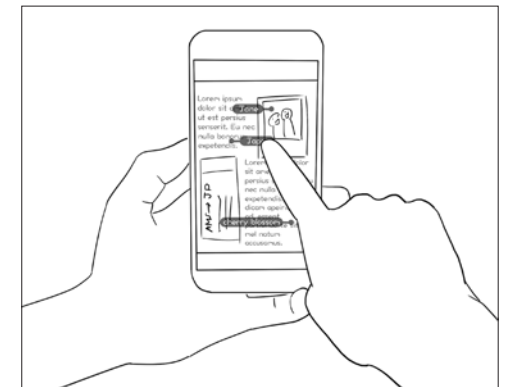
5 Amy touches one of the hyperlink she is interested with.



6 She sees other photos she took during travel.



7 Having both writings and photos in hand, Amy quickly immerses herself into that special moment.



8 Amy touches other hyperlink to enjoy her memory in Japan.

Figure 29. Storyboard -- Concept 2 memory retrieving

During the content building phase, users will first scan the physical diary and make it into a digital version. Next, the hyperlinks will be added to the digital version diary. Hyperlinks can be added anywhere just by simply touching and holding on the spot users feel like.

During the memory retrieving phase, hyperlinks can be shown by either scanning on the physical diary or touching the screen of the digital version diary. Touch the hyperlink to see additional contents behind the diary.

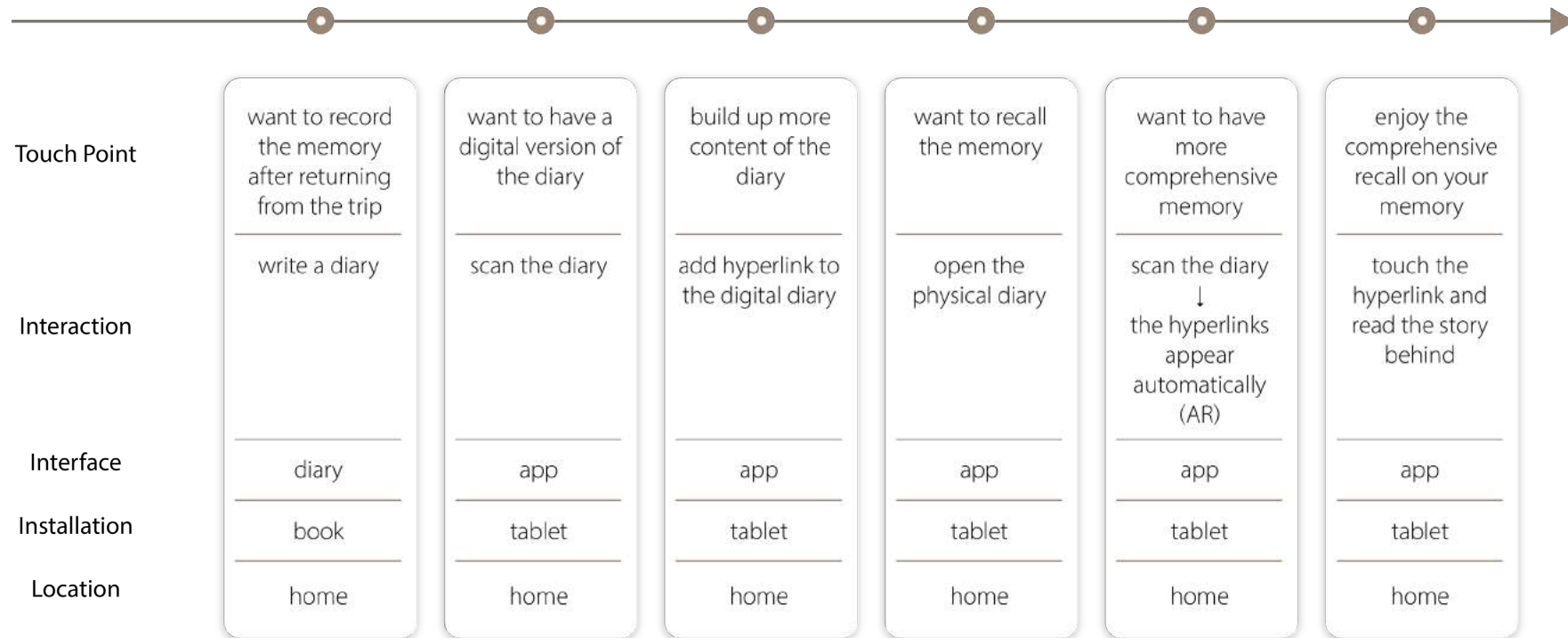


Figure 30. User journey mapping of content building and memory relieving

5.4 CONCEPT 3 -- AN ENTRANCE TICKET TO MEMORY

"Postcards are the entrance ticket to one's memory"

5.4.1 CONCEPT INTRODUCTION

The concept focused on sharing. Many people send postcards while travel, because it represents the greetings and memories from a foreign place. It is no longer special to share digital contents through social media, private message or through other cell phone application. The sharing can become more meaningful if the digital content is merged into the physical postcard. The postcard is like an entrance ticket to view one's memory. Comparing to normal social sharing, the social sharing seems "cheap" because they can be easily viewed by anyone, while the digital sharing through postcard is more "privileged", which can only be viewed by those who have received the postcard. It shows one's sincerity of sharing and gives a surprise to the receiver.

NFC technique will be applied to the concept. The sender can connect the NFC tag with digital content they build up, and stick it to the postcard. As long as the receiver has the application installed in the cell phone, they can easily see the hidden digital content on the screen by simply place the cell phone on the NFC tag.

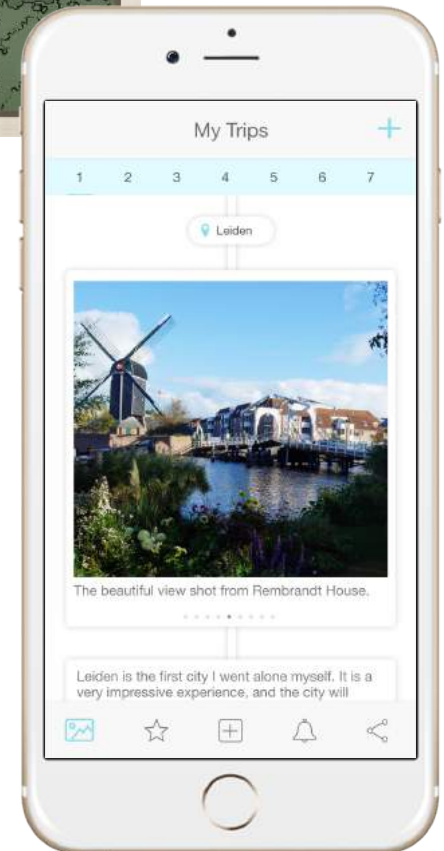
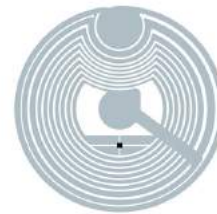


Figure 31. The interface of concept 3, postcard, and nfc tag

- ✓ postcards are the entrance ticket for the privileged ones to view one's memory
- ✓ build up digital content, store them in the nfc tag, stick them to the postcard
- ✓ view the memory by placing the cell phone on the nfc tag
- ✓ main technique of the concept: nfc data transmission

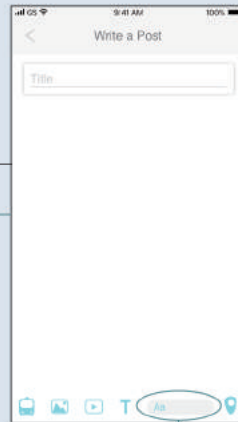
5.4.2 USER FLOW

Build up digital content behind the postcard

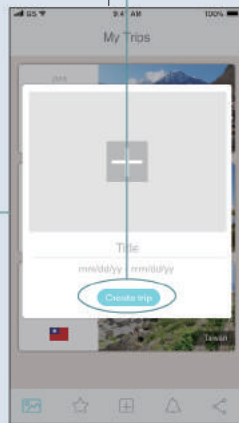
1. Create a trip and write posts for your trip



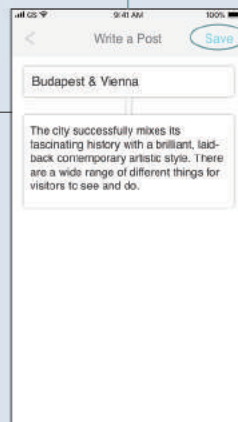
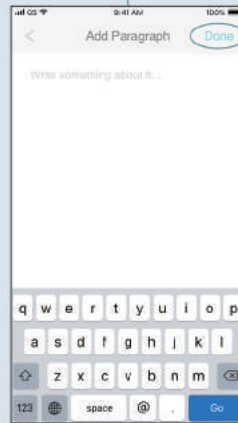
3. Build up the digital content, select the content type you want to add



2. Add cover photo, title and date to create a trip

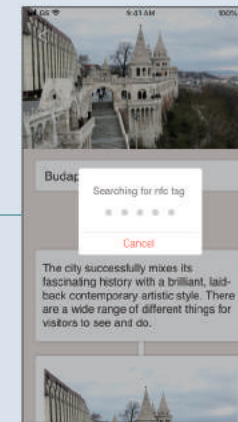
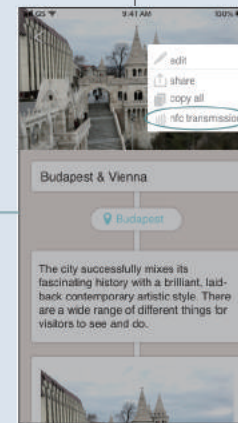


4. You have written the title and paragraph for the post

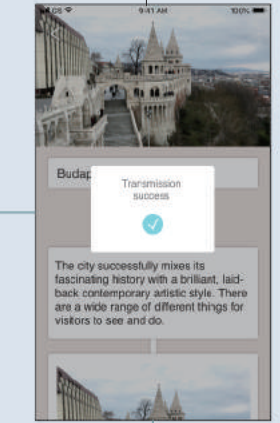
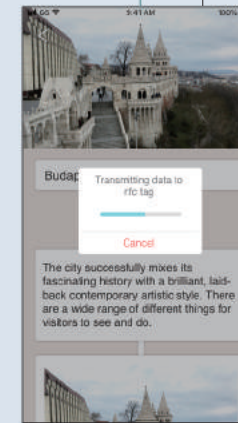


Transmit data to nfc tag

5. Select the action you are going to do with the content. In this case, nfc transmission



6. Place your phone on the nfc tag, the phone transmits data to the nfc tag.



7. After successful transmission, the screen jumps back to the content

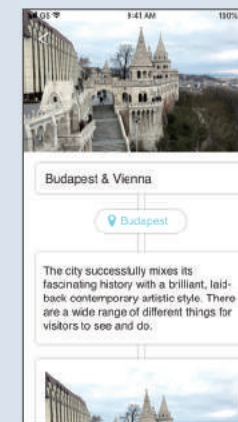


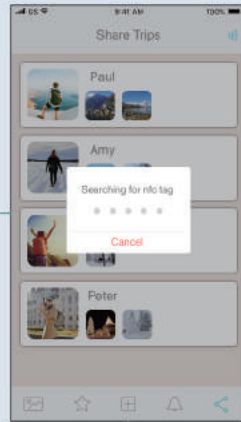
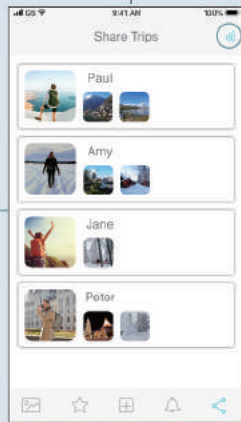
Figure 32. Concept 3 user flow

8. Go to "share" page

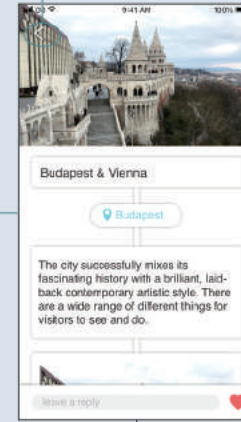
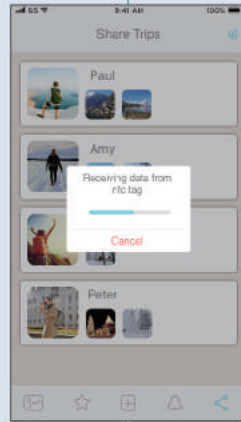


Receive data from nfc tag

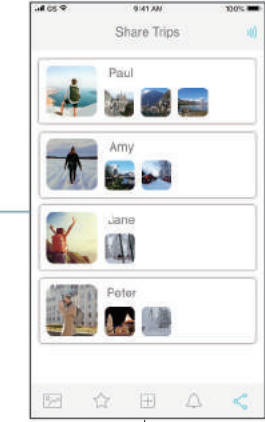
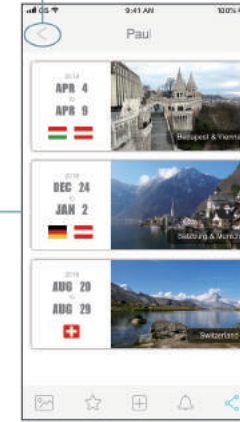
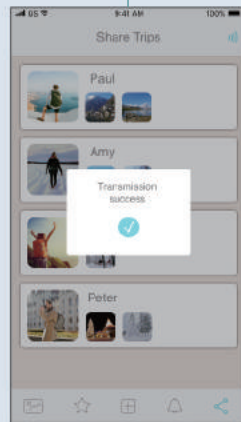
9. Turn on the receiving mode to receive the digital content from the nfc tag



10. Data transmitting from nfc tag to the cell phone.



11. The content page pops up on the screen. You can reply the content to the sender.



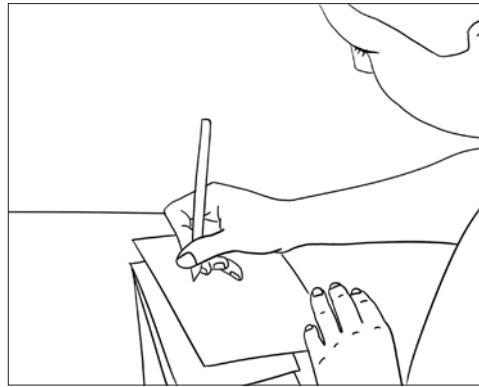
12. Back to the sharing page. The shared content appears in the dialogue with Paul

5.4.3 USER JOURNEY MAPPING

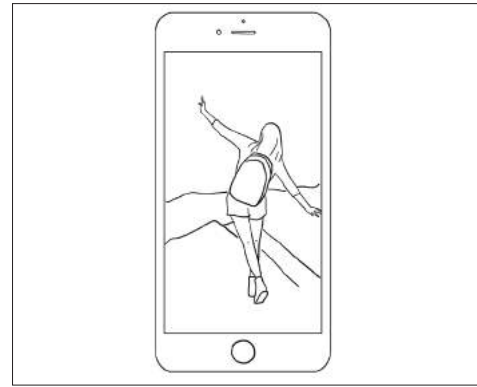
CONTENT BUILDING



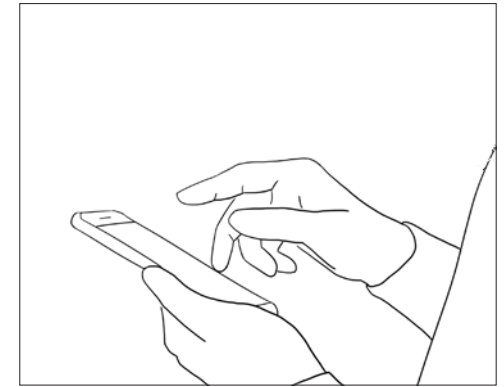
1 Paul makes his trip to Australia, he wants to send his greetings to friends.



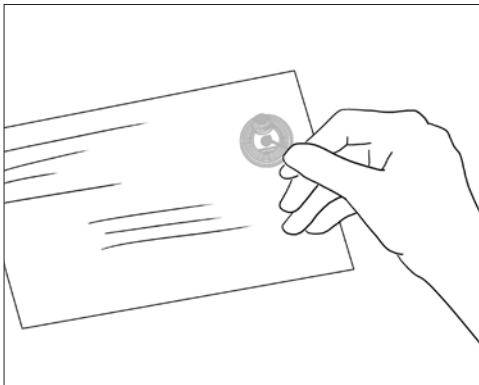
2 Paul buys several postcards and writes his greetings.



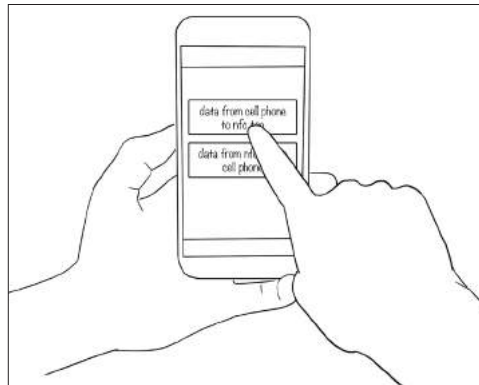
3 Paul thinks of some interesting photos and videos he took during travel and wants to share them with friends.



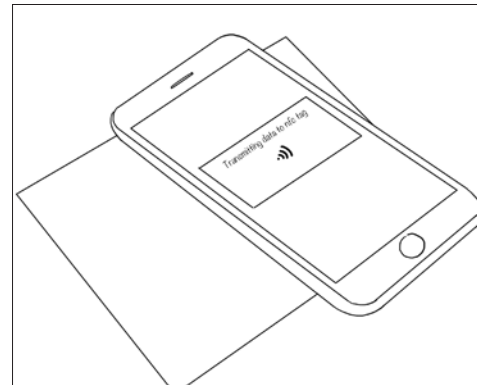
4 Paul builds up the digital contents in the app.



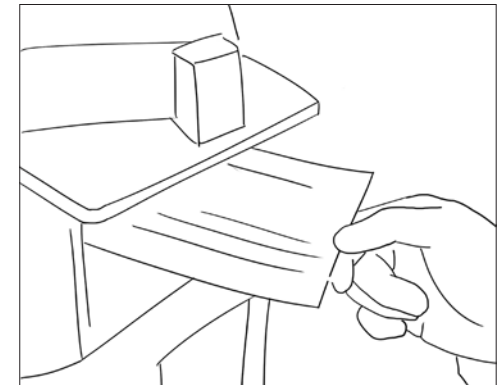
5 Paul sticks the nfc tag to the postcard.



6 Paul selects “data transmission to nfc tag” in his cell phone.



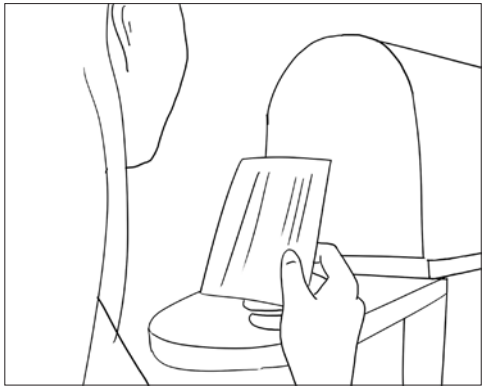
7 Paul transmits the digital content to the nfc tag.



8 Paul drops the postcard into the mailbox.

Figure 33. Storyboard -- Concept 3 content building

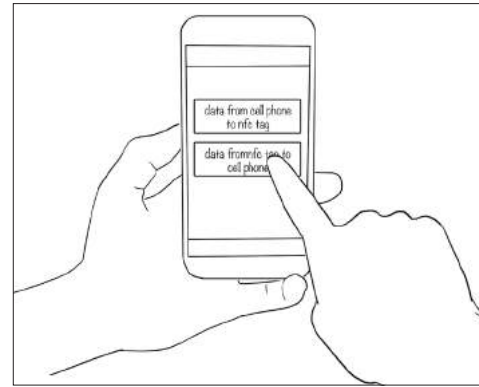
MEMORY RETRIEVING



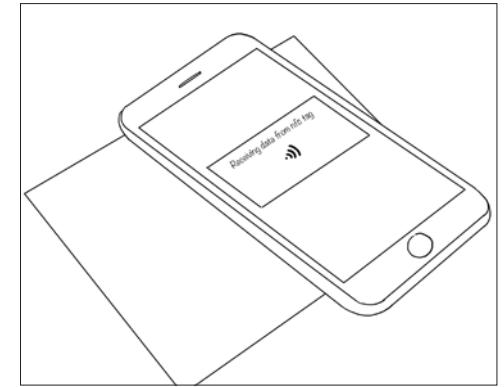
1 Amy receives the postcard from Paul.



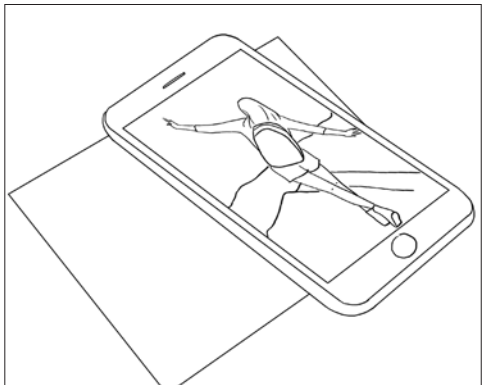
2 She reads the writings on the postcard and noticed there is a hidden message.



3 Amy opens her app and select "receive data from nfc tag".



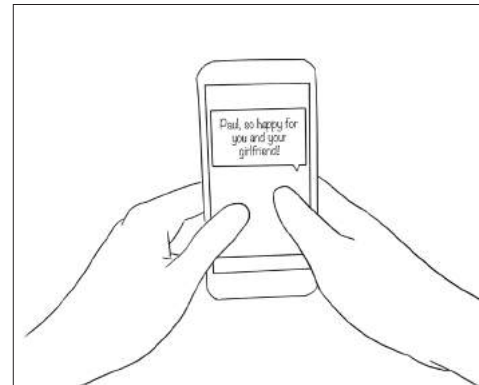
4 Amy places her cell phone on the postcard.



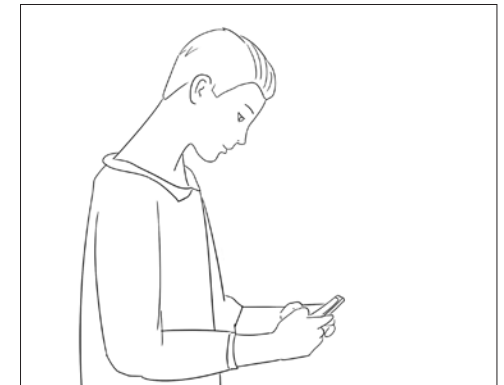
5 Amy sees the content pops up on her screen.



6 Amy enjoys the hidden content from Paul.



7 Amy replies Paul's hidden content.



8 Paul reads the message with a smile.

Figure 34. Storyboard -- Concept 3 memory retrieving

During the content building phase, the user can first build up some posts in the application, then transmit the content to the nfc tag.

When the receiver receives the postcard, he or she can turn on the receiving mode in the application to receive the hidden message. After reading, they can either add a comment to the content, save it, or close it.



Figure 35. User journey mapping of content building and memory relieving

6 CONCEPT TEST

6.1 Global Approach

6.2 Prototype Build-up

6.3 Walk Through

6.4 Participants

6.5 Concept Test Results

6.5.1 The Key to Memory

6.5.2 The Hyperlink

6.5.3 The Entrance Ticket

6.5.4 Strong & Weak Points

6.5.5 Overall Comparison



A concept test was executed with 6 participants to identify the strong points and weak points of each concept based on the overall interaction and experience. In addition, the participants were asked to compare 3 concepts on several aspects. A converged concept will be designed afterwards, based on the evaluation of the concept test result.

6.1 GLOBAL APPROACH

From the concept test, we are able to understand the strong and weak points of each concept, and further develop the converged concept based on the evaluation afterwards. The concept test is conducted on 6 participants, aged between 24 and 25. The time span of each interview ranges from half to one hour per person.

RESEARCH GOAL

The goal of the concept test is to:

1. To identify the strong and weak points of 3 concepts based on the interaction and overall experience.
2. To have an understanding of what should be included or excluded in the later converged concept.

RESEARCH QUESTION

1. What concept is experienced best?
2. What is the strong and weak point of each concept?
3. What functions should be included in the converged concept?
4. Which concept will be the main focus in the converged concept?

RESEARCH METHOD

Each concept is operated under different scenarios. The concept test focused not on the usability but on the concept itself, including the main idea, the flow and the featured technique. Adopting storytelling along with interface operating allows the participants to clearly understand how each concept works.

6.2 Prototype Build-up

The prototype is a mobile interface made with Sketch. Elements within a page can be connected to other different pages. The design in Sketch can be previewed on the cell phone, thus, the participants can operate the cell phone to perform the tasks.

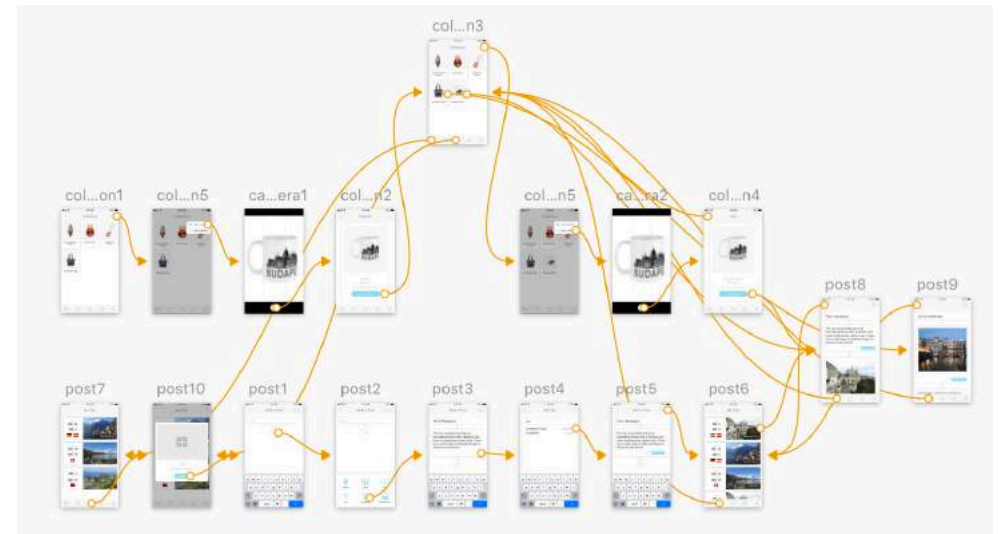


Figure 36. Concept 1 prototype made with sketch

6.3 Walk Through

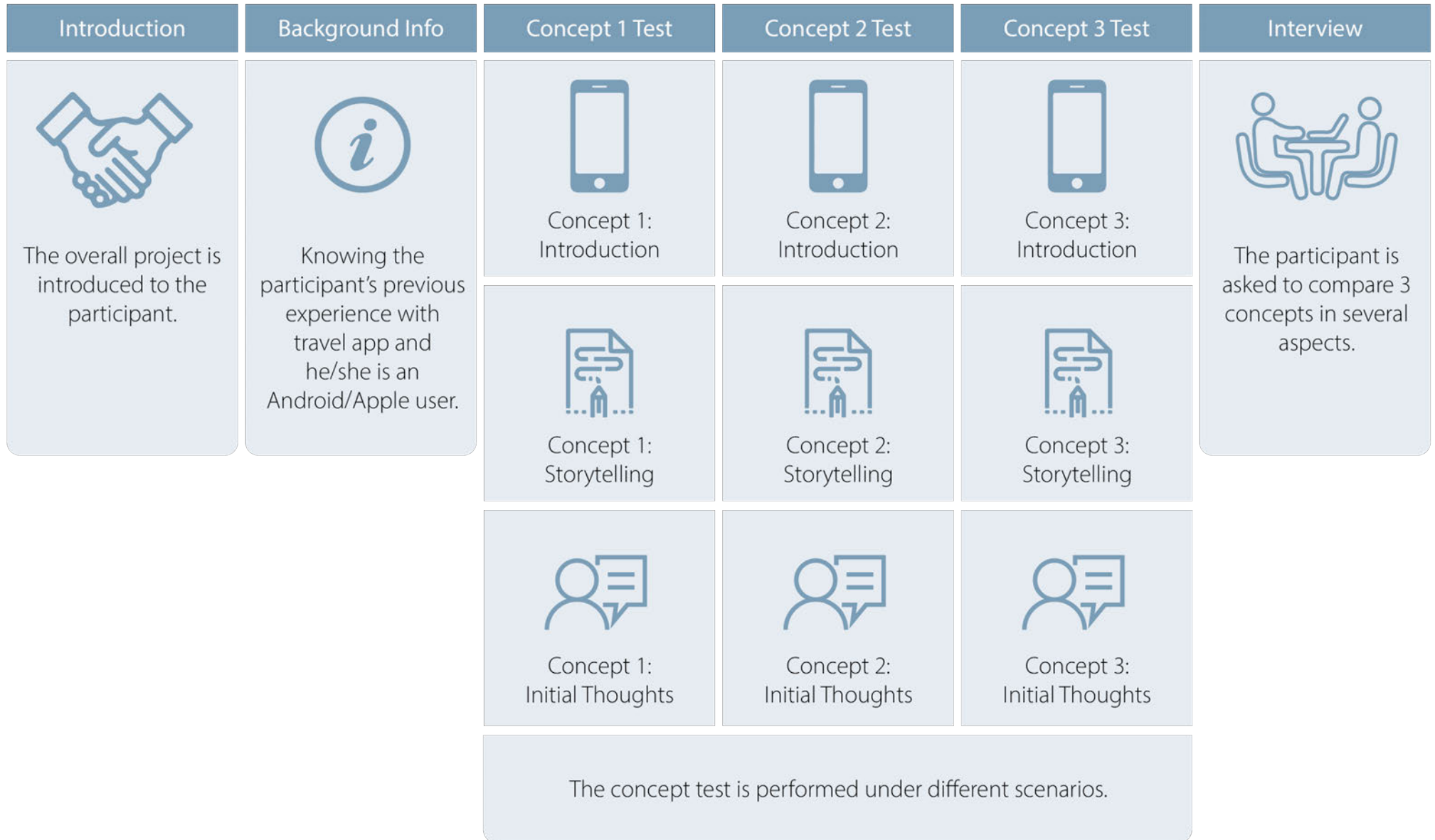


Figure 37. User test walk through

Introduction & Background Information

During the introduction phase, the participant is given a general view of what the project is about, and what they will be doing afterwards.

During the phase of background information, the participant will be asked if they have previous experience on travel recording application, and if he/she is an Android or Apple user. It is important to know whether the participant has previous experience on the related travel application and the familiarization of the cell phone interface, because it may influence how a person understands and operate the concept.

Concept: Introduction

The participant is provided with a brief introduction about the concept, so the participant can get on the track during the storytelling and interface operation phase.

Concept: Storytelling & Interface Operating

To have an idea of how the concept operates, a story is told including the content building and memory retrieving process. The interface is operated along with the story, so the concept can be clearly visualized.

Concept: Initial Thought

The participant is asked to share initial thoughts after clearly understand each concept. In addition, five qualities of the concept, including "enjoyable", "emotional", "rich", "meaningful", and "immersive", are scored from 1 to 5.

Interview

The participant is asked to rank 3 concepts in several aspects, including the overall preference, main idea, interaction, attraction, the willingness of downloading the app, and their recommendation to friends.

6.4 Participants

The concept test was performed with six participants aged between 24 and 25. Among them, there are 3 industrial design students, 1 front-end developer, 1 computer science student and 1 environmental science student. 4 are categorized as the group run-of-the-mill and 2 are categorized as the group chicken soup for the soul. When drawing conclusions, the opinions from the group chicken soup for the soul will be considered as more important than the group run-of-the-mill, since they are the main target group.

Participant	P1	P2	P3	P4	P5	P6
Gender	M	F	M	F	M	F
Age	25	25	24	24	25	25
Nationality	Taiwan	India	China	China	China	Taiwan
Profession	front-end developer	environmental science student	computer science student	industrial design student	industrial design student	industrial design student
Phone	android	android	iphone	android	android	iphone
Travel app / diary experience	google photo	google photo	write a diary	some travel app in china	instagram	instagram moleskin
Category	Run of the mill			Chicken soup for the soul		

Figure 38. Participant information

6.5 Concept Test Results

6.5.1 CONCEPT TEST RESULTS: KEY TO MEMORY

The comment on concept 1 is quite moderate. It is not the favorite concept for most participants, but receive many positive feedbacks. Participants from the group chicken soup for the soul rank it last of their preference.

Observation

- 4 participants considered the act of scanning enjoyable (3 design students, 1 environmental science student).
- Viewing the digital collection list is enjoyable.
- 4 participants approve the idea of reading the story behind the souvenir.

Quotes

P1: "I like to view the list of my digital collections."
P2: "It helps you remember the details of your trip."
P4: "Scanning builds up the interaction between app and physical souvenir, I think that is interesting."
P6: "Scanning triggers your memory immediately."

Observation

- ✗ 2 participants considered the act of scanning unnecessary. First, it is not technically feasible. Second, there may be several problems considering the lighting and accuracy, it is less convenient than directly touching on the digital collection or searching them in the app. (1 computer science student, 1 front-end developer)
- ✗ 1 mentioned a condition that, if several similar souvenirs were bought from the same trip, what stories are they going to represent?
- ✗ 2 participants found it weird to connect the souvenir with a post. General posts do not intentionally mention the souvenirs, unless it is special; in addition, most people do not write a post to introduce a souvenir.

Quotes

P1: You can already view all your collections in the app or search them, why do I need to scan on them to view the story behind? After all the technique is not really feasible.
P3: How do I scan it if I am in a dark room? I'd rather click on the collection because is way easier than scanning and take less time.
P5: Tagging on the post is weird, it's like piecing up the trip to the souvenir, sometimes the trip is not highly related to the souvenir.

6.5.2 CONCEPT TEST RESULTS: HYPERLINK

The comment on concept 2 is quite extreme. Several participants from the group run-off-the-mill considered it meaningless, while the only 2 participants from the group chicken soup for the soul showed their strong preference toward the concept. One of them even started to imagine how she is going to utilize this app to create something she like while undergoing the storytelling and interface operating process.

Observation

- Half of the participants like the digitalization of the diary.
- All of them like the idea of adding additional content to the diary.
- 1 considered there are many opportunities for the diary digitalization: scanning is a good way to include surroundings and diary to a picture, while using the pressure-sensing pen and augmented paper can prevent the digital diary from distortion.

Observation

- ✗ Half of the participants considered the digitalization of the diary unnecessary.
- ✗ Scanning diary to digitalize it may cause image distortion.
- ✗ 2 mentioned it is better to have a direct overview of the digital content then hiding them in the hyperlink.

Quotes

P4: "It expands the content of the physical diary, adding things that cannot not be added in the past."

P5: "You might hardly look at digital mementos in your device generally, but the hyperlink give you a chance to look at them."

P6: "It is inspiring for those who want to create something. I see many possibilities."

P6: "It is a good way to share paper work. Either by taking photos or using pressure sensing pen to digitalize the diary is nice. For photos, you can also take picture of the surroundings; for pressure sensing pen and augmented paper the digital diary will be more accurate."

Quotes

P2: "I don't really like the act of scanning diary, I'm a bad scanner."

P3: "Scanning will decrease the quality of picture, the digital diary may not be displayed well."

P3: "If I have both digital and physical diary, I will only read the physical one, then why is it necessary to have a digital version diary?"

P5: "It requires additional steps by touching the hyperlink to read the content behind, but I prefer to have a direct overview of the content, don't hide them in the hyperlink."

6.5.3 CONCEPT TEST RESULTS: ENTRANCE TICKET

The concept received the largest number of positive response. It is the winner among the run-off-the-mill and ranked second among the chicken soup for the soul.

Observation

- The idea is considered creative.
- The idea is considered practical.
- All of the participants like the idea of adding content to the postcard.

Observation

- ✗ The participants were not sure whether they can still change the content after transmitting the data to nfc tag.
- ✗ The hidden content can be a more personal multimedia, instead of a general post.
- ✗ Nfc tag might risk damaging while delivering the postcard.

Quotes

- P1: "As a receiver, you receive 2 surprises at a time."
P2: "You can attach things to postcard, it's not only a souvenir, but you also add things of your own, you create something in it so it's especially meaningful."
P3: "You can store any media in your postcard besides text, giving you a higher level of experience."
P6: "It creates more opportunities to retrieve your memory."

Quotes

- P3: "Nfc tag may be damaged while sending the postcard."
P4: "If the sender want to change the content afterwards, will it be possible?"
P5: "The content should not be only a general post, not flexible, it should be something more personal."
P6: "Text in the digital content is not necessary, just multimedia is enough."

6.5.4 STRONG & WEAK POINTS

Concept 1: Key to Memory

- Scanning facilitates interaction, it is an impressive part of the app.
- It provides an overview of digital collection.
- Users are able to see the stories behind the souvenir.
- ✗ Scanning is considered unnecessary by some people. In addition, there may be some technical problems with scanning.
- ✗ It is confusing what is actually the "content behind the souvenir".

Concept 2: Hyperlink

- The digitalization of the diary creates opportunities for editing and sharing the diary.
- It adds additional digital content to the physical diary.
- There is an opportunity for nice interaction between digital content and physical diary.
- ✗ The digital diary may result in image distortion, and some people doubt the necessity of digitalizing the diary.
- ✗ Some people do not like the interaction of scanning the diary.
- ✗ Giving a direct overview of the digital content serves better experience than hiding them in a hyperlink.

Concept 3: Entrance Ticket

- Multimedia can be added to the postcard.
- The receiver can experience 2 surprises when receiving the postcard.
- Postcards can also be sent to the person himself/herself, which creates more opportunities to retrieve memory.
- ✗ Content behind the postcard should be well designed.
- ✗ The concept is suitable for being an additional function not an independent application.

6.5.5 CONCEPT TEST RESULTS: OVERALL COMPARISON

During the interview, participants were asked to score the interaction quality that the concept hopes to achieve in order to have an idea of which concept fits the best. The interaction quality includes:

- enjoyable -- The degree of joy when going through the process of content building and memory retrieving.
- emotional -- Whether the process arouses one's sensibility.
- rich -- The richness of both digital and physical content.
- meaningful -- Whether the way of preserving memory is meaningful.
- immersive -- The degree of immersion while retrieving the memory.

As the result has indicated, concept 3 scores best with the overall qualities in group run-of-the-mill and the second best within the group chicken soup for the soul, while concept 2 receives the highest score from group chicken soup for the soul.

Concept						
	C1	C2	C3	C1	C2	C3
enjoyable	3.6	3.6	4.1	3	5	4.5
emotional	2.8	3	4.5	3	4.5	5
rich	3.3	3.8	4.5	4.5	5	4
meaningful	3.8	3	4.3	3	4.8	4
immersive	2.8	3.4	4	2.5	4.5	3.5
Category	Run of the mill			Chicken soup for the soul		

Figure 39. The average score of interaction qualities from two different groups

Comparing the preference of overall concept, concept 3 is the winner among group run-of-the-mill and concept 2 is the winner among group chicken soup for the soul. It was observed that although concept 3 received much preference from run-of-the-mills, it is not as strong as how chicken soup for the soul show their preference with concept 2. Since chicken soup for the souls are the target group, the idea of converged concept will be designed based on concept 2 and complemented with the idea of concept 3.



Participant	P1	P2	P3	P4	Winner 	P5	P6	Winner 
overall preference	C3 = C1 > C2	C1 > C3 > C2	C3 > C1 = C2	C3 > C1 > C2	C3	C2 > C3 > C1	C2 > C3 > C1	C2
overall interaction	C3 > C2 > C1	C3 > C1 > C2	C3 > C1 = C2	C1 > C3 > C2	C3	C3 > C2 > C1	C2 > C3 > C1	C2/C3
attractive	C3 > C1 = C2	C3 > C2 > C1	C3 > C1 > C2	C3 > C1 > C2	C3	C2 = C3 > C1	C2 = C3 > C1	C2/C3
will download	C1 > C3 > C2	C1 > C2 = C3	C3 > C1 > C2	C3 > C1 > C2	C3/C1	C2 > C3 > C1	C2 > C3 > C1	C2
will recommend	C3 > C1 > C2	C3 = C1 > C2	C3 = C1 > C2	C1 > C3 > C2	C3/C1	C2 > C3 > C1	C2 = C3 > C1	C2
Category	Run of the mill					Chicken soup for the soul		

Figure 40. The rankings of 3 concepts

Based on concept 2, some aspects should be taken into account before getting into the converged concept:

- whether digitalizing the diary is necessary
- how to build up digital content for the diary
- how can the digital content be presented
- what is the preferable technique for the physical and digital diary to interact with each other

In addition, how concept 2 and 3 can be combined will also be taken into account.



Figure 41. Participant from the group chicken soup for the soul operates the interface of concept 2 with her own diary aside.


7

CONVERGED COCONCEPT

7.1 Concept Introduction

7.2 User Flow

7.3 User Journey Mapping

A hand holding a smartphone displaying the iOS home screen with various app icons like Messages, Photos, Mail, and Instagram. The phone is held in a red sleeve. In the background, there is a white cup of coffee and a red notebook on a white wooden table.

A converged concept based on previous concept 2 and concept 3 is designed. Some basic elements and how the concept can be operated will be introduced in this chapter.

7.1 CONCEPT INTRODUCTION

The converged concept consists of features from the previous concept 2 and concept 3. The design does not intend to separate these two features deliberately but aims to merge them into a whole. The application lays emphasis on diary content building and memory retrieving, while the same way can be applied to postcard content building and retrieving. The main product includes an application and a special diary, whose paper is stuck with rfid tags. According to the result from the user test, most people considered "scanning a diary" a negative experience, thus, in the converged concept, rfid is adopted as the main technique that builds up the interaction between physical and digital memento. By reading the rfid tag on the diary, the cellphone pops up related digital contents, given a smooth and instance remembered experience. In addition to building digital content behind the diary, the user can also share hidden digital content behind other physical mementos such as postcards or souvenirs by sticking rfid tags to the object. Further information about the components will be described as below.

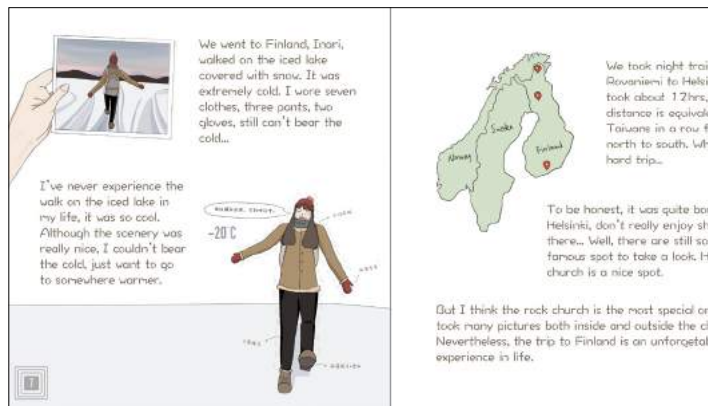


Figure 42. Smart diary and the application



Figure 43. Interface of "My Trip"

SPECIAL DIARY

The application will be accompanied with a special diary and a supplementary package of 20 pieces of rfid tags. The tags are applied in the form of a sticker, by sticking the tag on the diary page, users can easily link the paper to related information by simply placing the cellphone on the tag. The material of the diary paper is consist of metal, which is similar with aluminum foil. It prevents the rfid tags from being interfered by each other when reading the tags with the cellphone.

TRIP

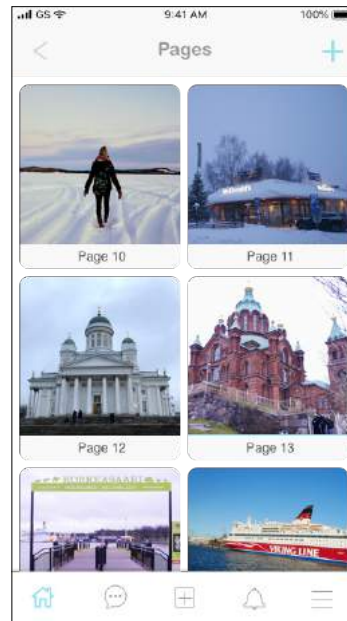
"Trip" is the main page of the application. It allows users to build up and view digital contents behind the corresponding page of the diary. In order to make the information more organized and give users a clear overview of their memory, each trip is clearly listed with date and country, followed by some detailed contents behind the trip.



PAGE

The “Page” refers to the digital content behind a rfid tag stuck to a certain page of the diary. For example, if you stuck 2 tags in the diary for your trip to Finland, you can add 2 “pages” in your trip, referring to the digital content behind 2 tags. While selecting digital content in a certain page, media related to the date of the trip pops up to provide users a quick search.

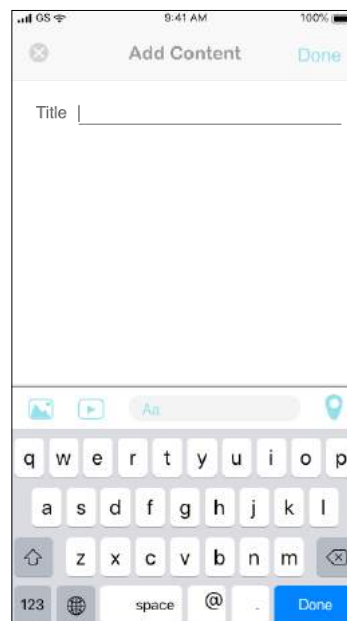
Figure 44. Interface of "Pages"



ADD

The “Add” function allows users to build up digital content for different purpose. The users can either build up content and save it in the “trip” or transmit the data to other rfid tags in order to share with others. The act of sharing content with rfid tags mainly includes postcards or other souvenirs. Anyone who scans on the rfid tag can see the hidden content. The shared content will be automatically saved to the “content” located in the message page, for the purpose of self-reference or forward the content to other rfid tags afterwards.

Figure 45. Interface of "Add Content"



TRANSFER DATA

The page for rfid transfer is divided into diary and other tags. The tags name of the diary is marked with number, corresponding with the number marked on the tag. Thus, when the user is building content for tag1, they can easily select “tag1” to transmit data to the tag. Other tags refer to the tags outside the diary. When the user want to transmit the shared content to the rfid tags, they should select tags from this column.

Figure 46. Interface of "Transmit data"



SHARE PAGE

The "Share Trips" page consists of messages and shared content. After the user transmit the created content to rfid tag, the content will be automatically saved to the “shared content”.

The “Message” subpage is mainly for general sharing of the trip, dialogue between friends and the most featured function: the shared content will appear in the dialogue when the receiver scan the rfid.

Figure 47. Interface of "Share Trips"



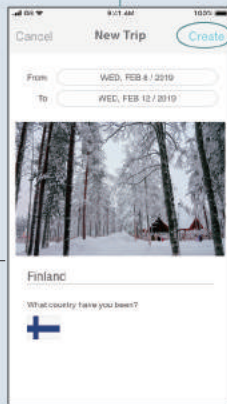
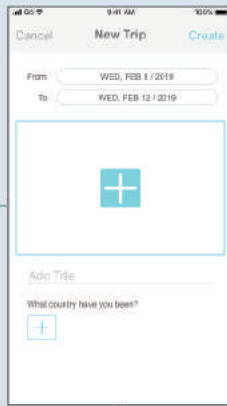
7.2 USER FLOW

DIARY CONTENT BUILDING

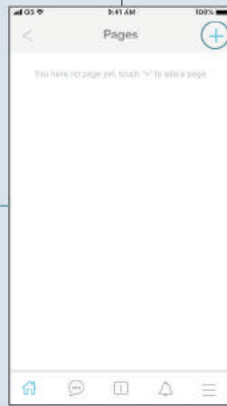
1. Create a trip to build up digital content



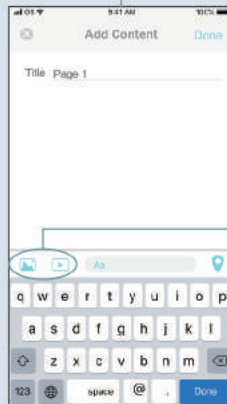
2. Select the date, cover photo, title and country



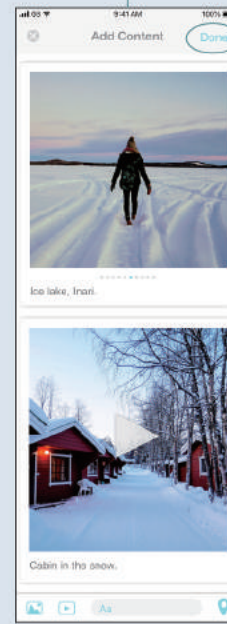
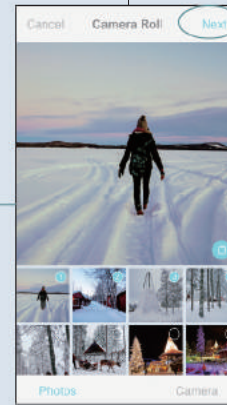
3. Add a page to create digital content for certain tag on the diary page



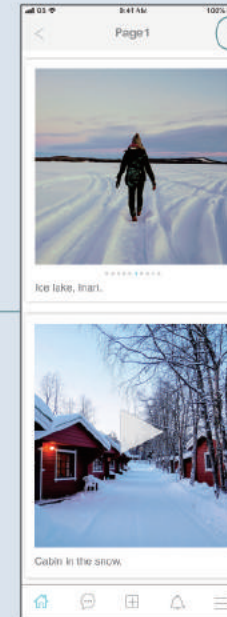
4. Add title and other media to the page



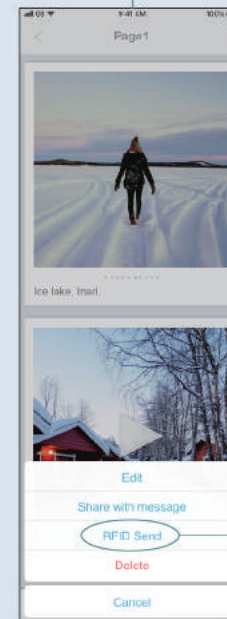
5. Media related to the trip date pops up for you to select



6. After you finish editing, touch "..." to look for button to transmit data



7. Select "rfid send" to transmit data



8. Select the tag you have built up content for in order to transmit data

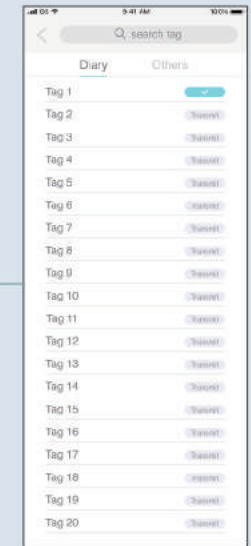
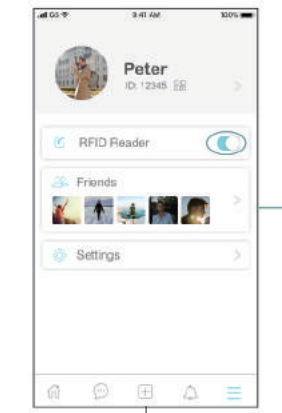
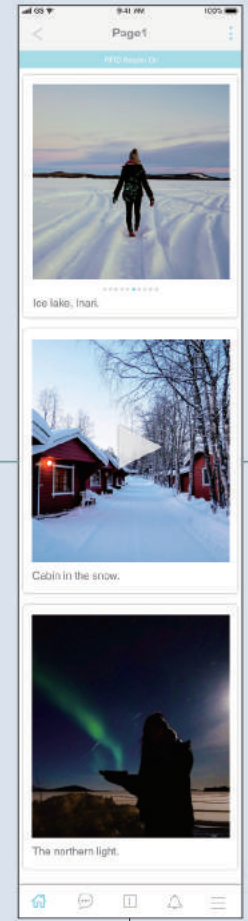


Figure 48. User flow -- Diary content building

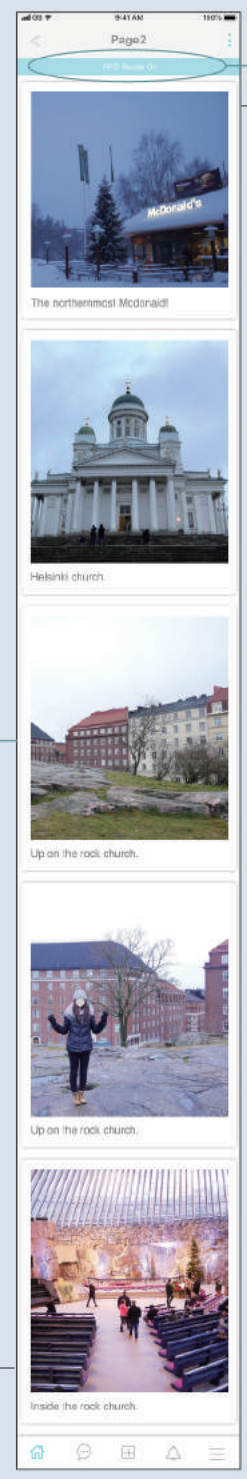
DIARY MEMORY RETRIEVING



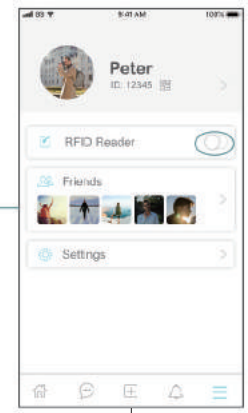
1. Turn on the rfid reader in the menu page



2. Place your phone on the rfid tag, the digital content pops up immediately, read the diary and digital content together



3. Touch the notification to go back to menu page



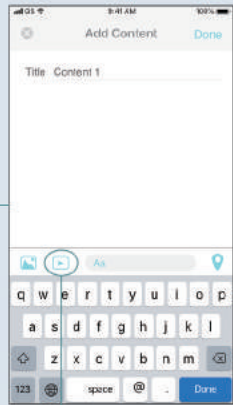
4. Turn off the rfid reader

Figure 49. User flow -- Diary memory retrieving

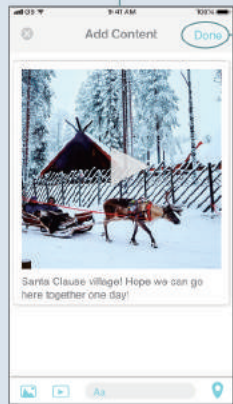
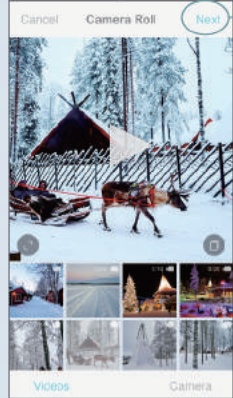
POSTCARD CONTENT BUILDING



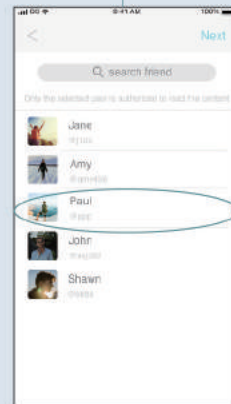
1. Touch "+" to build up shared content



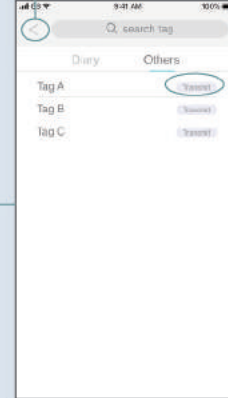
2. Name the title and build up content



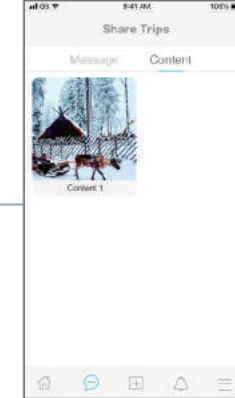
3. Select whether you want to add the content to a trip or share content with rfid tag



4. Authorize the selected user to prevent others from viewing the digital content



5. Select the rfid tag to transmit data



6. The content is sent and saved to "content" page automatically for later reference.

Figure 50. Postcard content building

POSTCARD MEMORY RETRIEVING

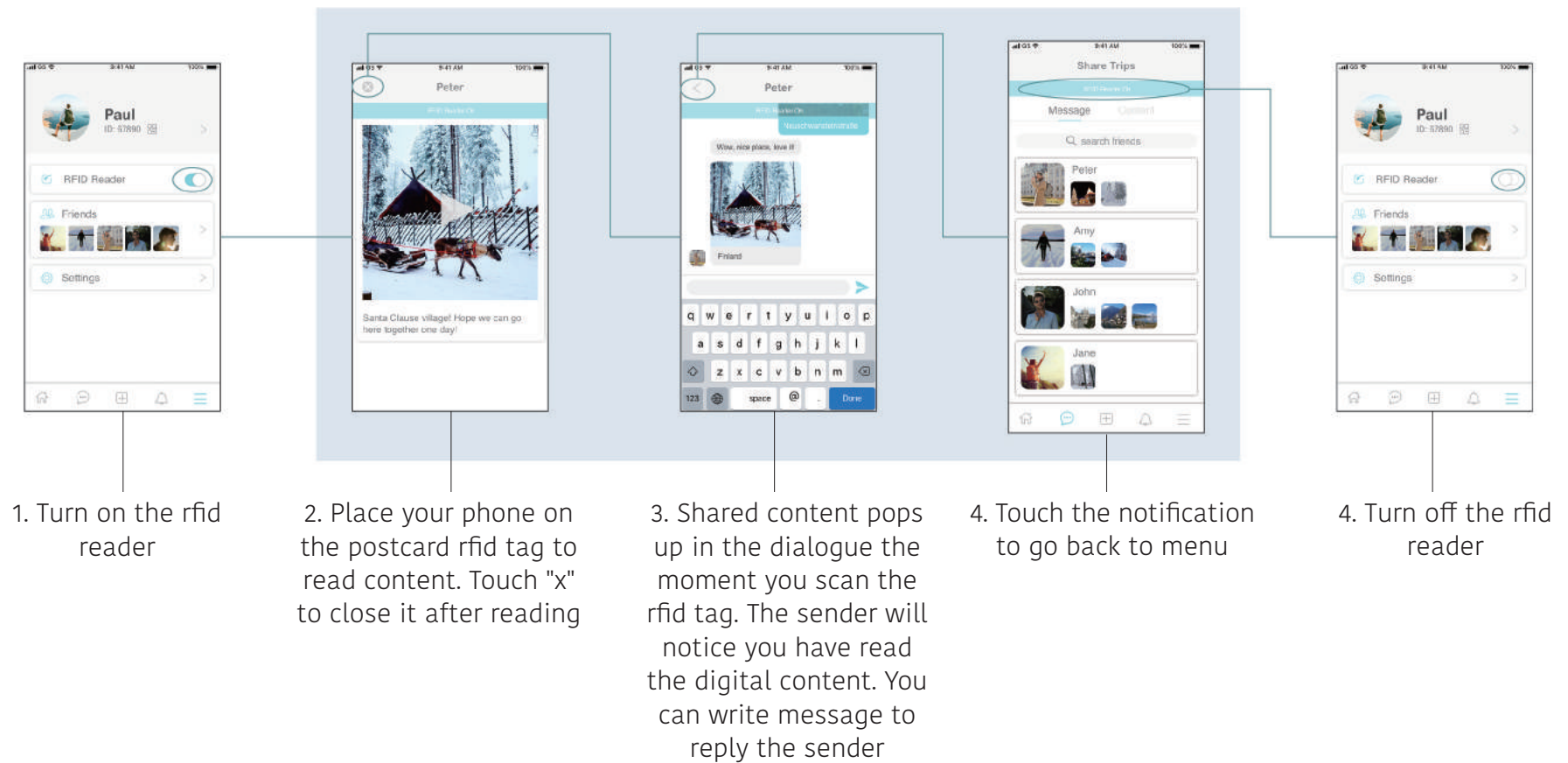


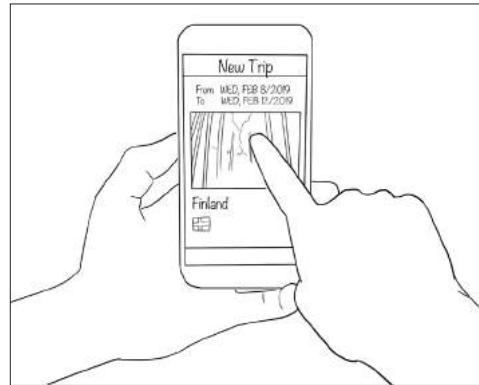
Figure 51. User flow -- Postcard memory retrieving

7.3 USER JOURNEY MAPPING

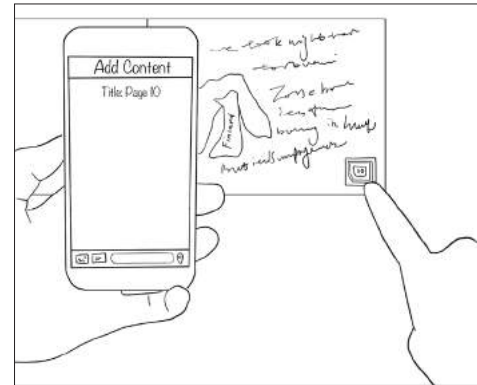
DIARY CONTENT BUILDING



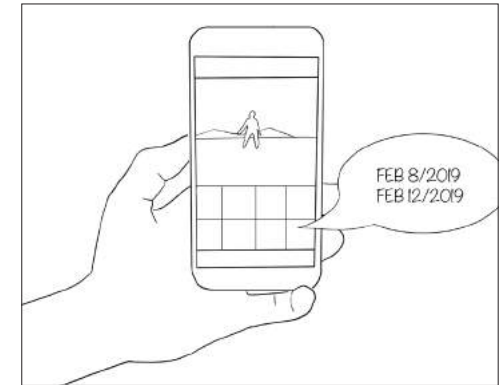
1 Peter went home from his trip to Finland. He writes his trip on the diary and sticks some rfid tags on certain pages.



2 He adds a trip “Finland” in the app, fills in the date, selects app cover photo and country.



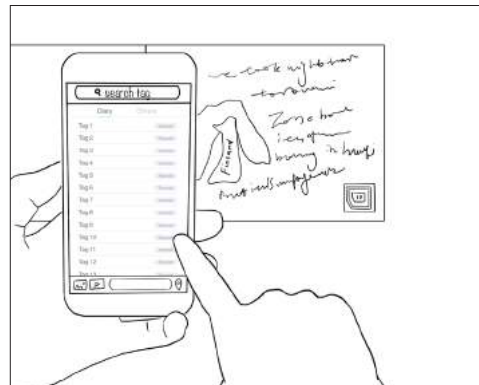
3 He adds a page to the trip and build up digital content in the page.



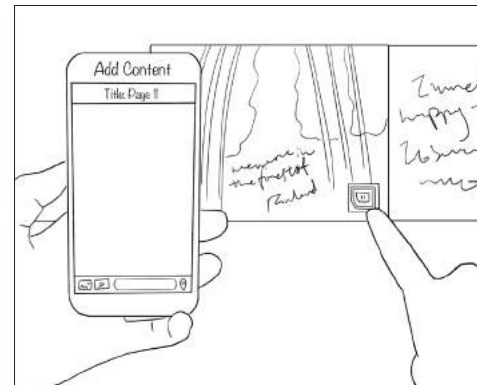
4 When adding photos and videos, the media of related date of the trip pops up for Peter to select.



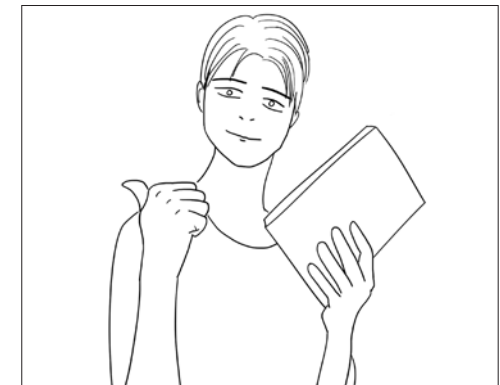
5 After Peter finishes building the content, he wants to transfer the content to the diary.



6 Peter sees “tag10”, which refers to the rfid tag10 on the page, so he selects “tag10” to transfer data.



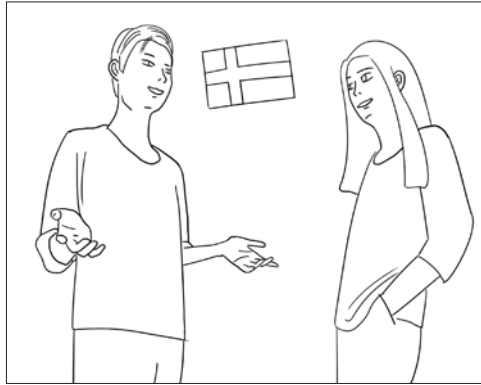
7 Peter repeats the steps for other tags.



8 He finishes building up digital content for his trip in Finland.

Figure 52. Storyboard -- Diary content building

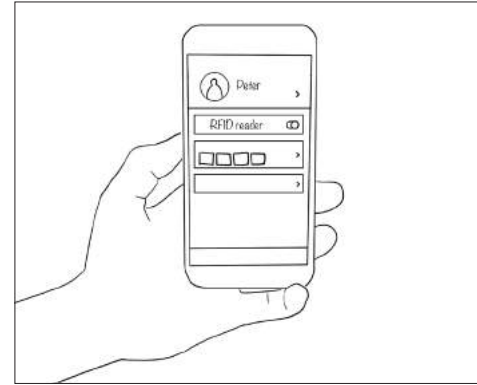
DIARY MEMORY RETRIEVAL



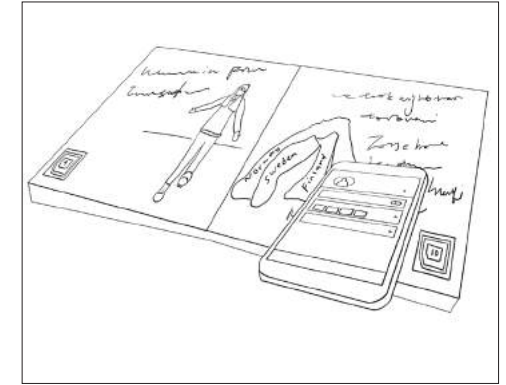
1 Chatting with his friends reminds Peter of his trip in Finland.



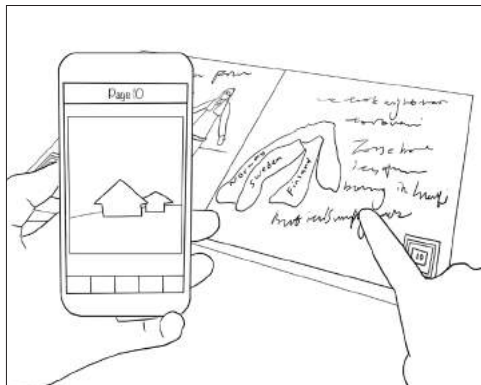
2 Peter holds his diary in hand with his cell phone.



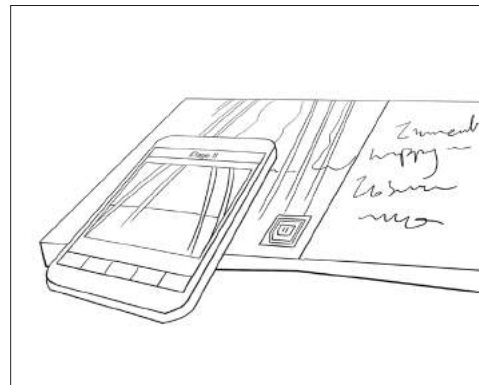
3 Peter turns on the rfid reader in the menu page.



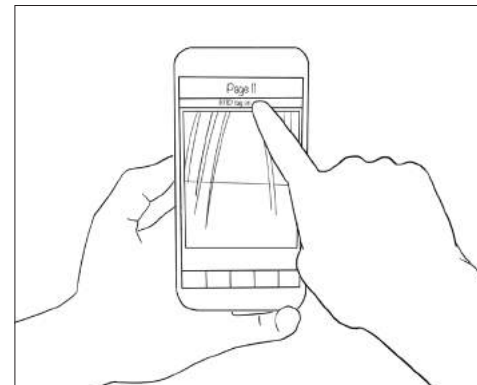
4 Peter places his cell phone on tag10.



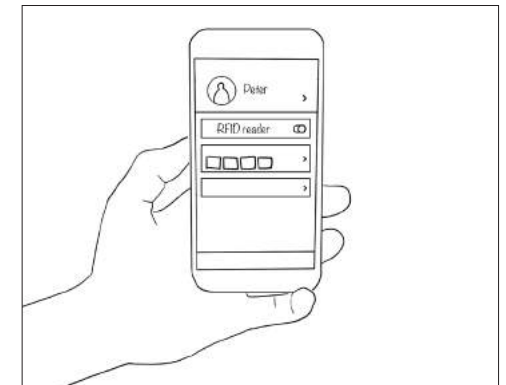
5 The digital content of tag10 pops up, so he can read both digital content and physical content together.



6 He places his cell phone on tag11 to read other content.



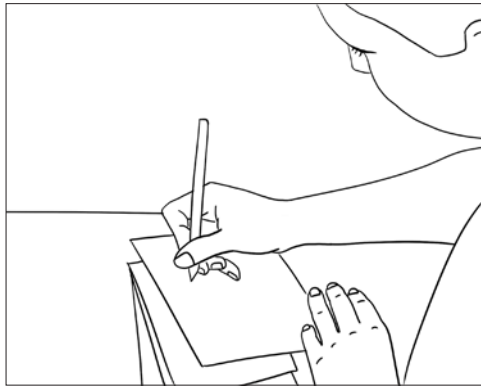
7 Peter finishes reading the content, he touches the rfid reader notification.



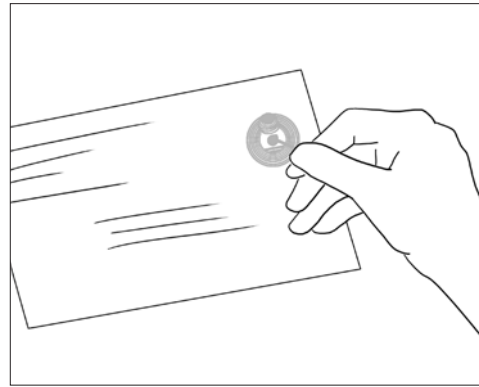
8 The screen jumps back to the menu page, Peter turns off the rfid reader.

Figure 53. Storyboard -- Diary memory retrieving

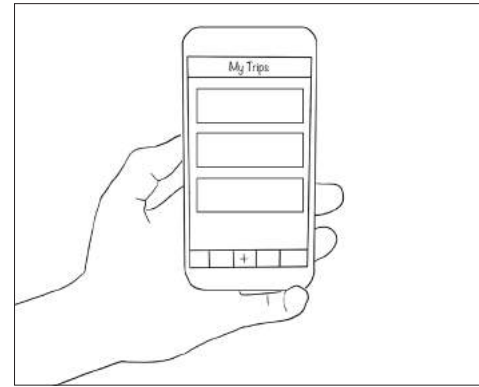
POSTCARD CONTENT BUILDING



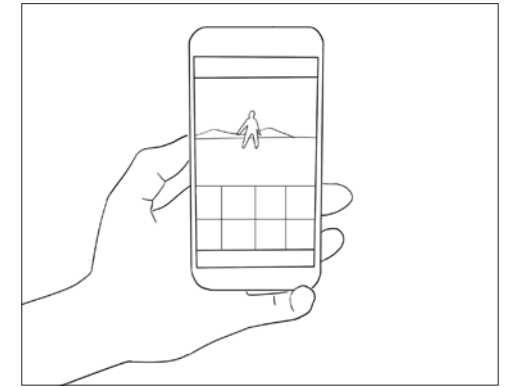
1 During Peter's trip in Finland, he wrote some postcards to his friends.



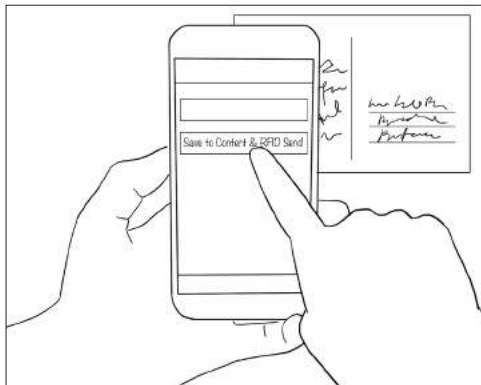
2 He sticks the rfid tag to the postcard.



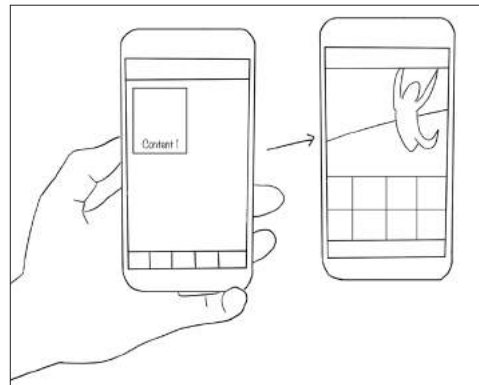
3 Peter creates digital content by touching the "+" in the middle.



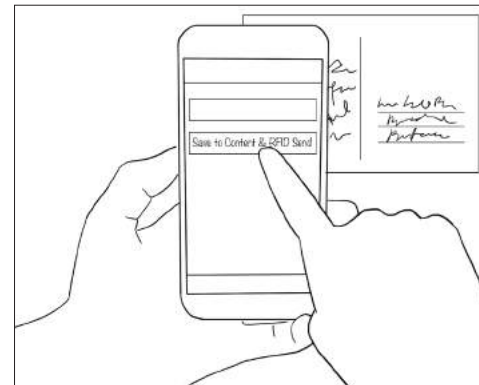
4 Peter adds photos and videos to the content.



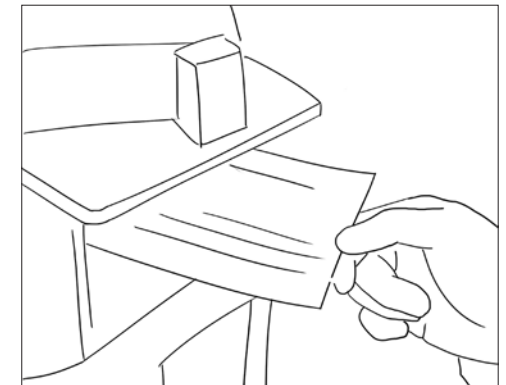
5 Peter selects "Rfid send & save to content" and authorize Paul as the one who can see the content.



6 After data transmission, Peter goes to "shared content" and edit the original content.



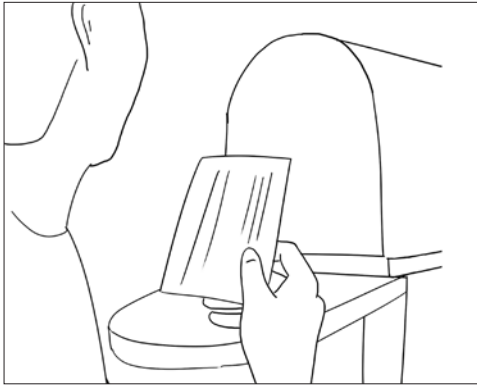
7 He transfers the edited content to another rfid tag on other postcard.



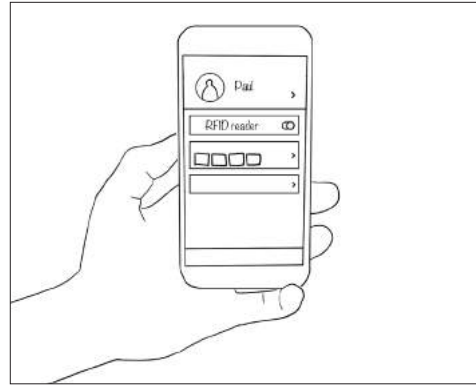
8 Peter sends the postcard.

Figure 52. Storyboard -- Postcard content building

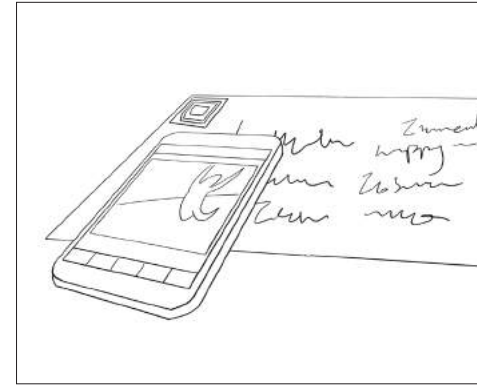
POSTCARD MEMORY RETRIEVAL



1 Paul receives Peter's postcard, he notices there is a hidden content.



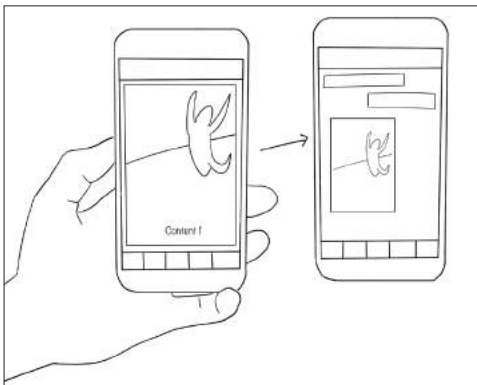
2 Paul turns on his rfid reader in the menu.



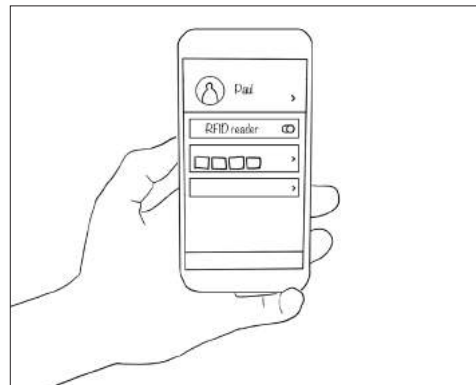
3 Paul places his cell phone on the postcard, the content pops up.



4 Paul reads the postcard text and digital content together.



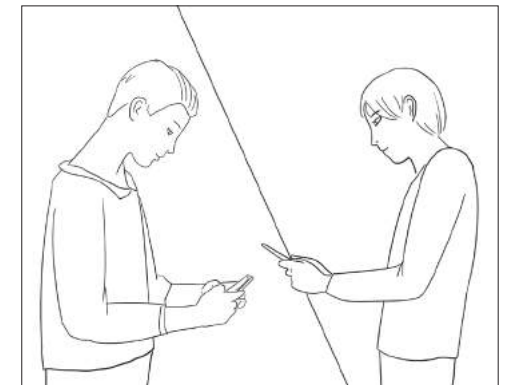
5 After reading, Paul closes the content. The screen goes to the dialog between Paul and Peter. The shared content is now in their dialogue.



6 Paul turns off the rfid reader in the menu.



7 Peter is at home. He sees a notification that Peter has read the content.




8 Peter receives a message from Paul. They have a nice chat.

Figure 53. Storyboard --Postcard memory retrieving

8

USER TEST

- 8.1 Global Approach
- 8.2 Prototype Build-up
- 8.3 Walk Through
- 8.4 Tasks
- 8.5 Participants
- 8.6 User Test Result



A user test is conducted to identify whether the converged concept meets the user's need and what points should be improved. The final concept will be designed based on the evaluation of the user test.

8.1 GLOBAL APPROACH

To identify whether the concept meets the user needs and what points should be improved in the concept, a qualitative user test is conducted with five participants aged between 23 to 28. The time span of the test ranges from half to one hour per person.

RESEARCH GOAL

The goal of the user test is to:

1. To validate the usability and logic of the user flow.
2. To identify points for improvement in the converged concept.
3. To observe whether the expected interaction and experience has met in the converged concept.

RESEARCH QUESTION

1. What problems has aroused while operating the converged concept?
2. Does the converged concept builds up an enjoyable memorable experience while interacting with both digital and physical mementos?

RESEARCH METHOD

Participants were given several scenario-based tasks to operate the application, in order to observe its usability and user flow. In addition, by asking the users to read the content of the diary and postcards along with the digital media in hands, users are able to provide deeper thoughts about their remembered experiences.

8.2 Prototype Build-up

Similar to the prototype built in 3 concepts, the prototype of the converged concept is made with Sketch, but has a more complete function, given a smoother interaction and user flow. In addition to the application, a smart diary is made with written memories and rfid tags on the pages for the interaction between digital and physical mementos. Furthermore, the content of the postcards are especially written to the participants, so the participants will be the true receiver, which helps them immerse in the scenarios.



Figure 54. Prototype of converged concept

8.3 Walk Through

1. Introduction and background information

During the introduction phase, the participant is given a general view of what the project is about, and what they will be doing afterwards. Next, a simple interview is carried out to have an understanding about their previous experience of recording travel memory and afterward remembrance.

2. Concept: Introduction

A story is told in the beginning, so the participant can immerse into the scenario, imagine himself/herself sitting on the couch in the livingroom, operating the application in a relaxing way.

3. Concept: Tasks

The participant is asked to perform 4 tasks under 4 scenarios in the same storyline:

1. Diary content building
2. Diary memory retrieving
3. Postcard content building
4. Postcard memory retrieving

The participant is encouraged to think out loud during the task to give an idea of how he/she has experienced in various stage.

4. Concept: Thoughts

The participant is asked to share his/her thoughts about the remembered experience and the positive and negative points of the design.

5. Interview

The participant will answer some questions based on the overall experience of the concept and each task.

8.4 Tasks

The concept task is presented in scenarios that takes reference of the storyboard in the previous chapter. There are 4 main tasks for the participants to perform: diary content building, diary memory retrieving, postcard content building and postcard memory retrieving. During the diary and postcard memory retrieval, the participants were asked to read the content in the diary and postcard with their application aside. We are able to identify whether this way of remembered experience is enjoyable.

Diary Content Building

There are 2 ways to build content:

Method 1

1. Create a trip in the home page.
2. Create content for physical diary page1.
3. Transmit the data to rfid tag.

Method 2

1. Create content for physical diary page1 by touching “+” in the middle.
2. Save the content by creating a trip.
3. Transmit the data to rfid tag.

Diary Memory Retrieving

1. Turn on the rfid reader on menu page.
2. Place the cell phone on the diary page you are reading.
3. Read the content in the diary and the cell phone.
4. Place the cell phone on another page and read it.
5. Turn off the rfid reader on menu page.

Postcard Content Building

1. Create content by touching “+” in the middle.
2. Transmit the data to rfid tag.
3. The content will be saved to content page automatically.

Postcard Memory Retrieving

1. Turn on the rfid reader on menu page.
2. Place the cell phone on the postcard tag.
3. Read the content on the postcard and the cell phone.
4. Reply the message to the postcard sender.
5. Turn off the rfid reader on menu page.

8.5 Participants

Five participant profiles are provided as below:

Participant	P1	P2	P3	P4	P5
Gender	F	F	M	F	F
Age	28	25	24	24	23
Nationality	Taiwan	Taiwan	China	China	Netherlands
Profession	occupational therapy student	industrial design student	computer science student	industrial design student	industrial design student
Travel memory recording and recalling experience	She likes to collect postcards. Every time she travels, she writes postcards to friends and send a postcard to herself as well, which serves as an important memory cue for later remembrance.	Participant from the group chicken soup for the soul. She writes diary everytime she travels. She sometimes makes quick sketches of the surroundings during travel. She is sensitive with travel memories and cherish it.	He sometimes write diary to express his feelings during his travel. Sometimes he comes up with philosophical insights about his journey.	She seldom write but sometimes scroll through her phone to recall travel memories.	Participant from the group chicken soup for the soul. She writes diary when travel. She has mentioned the problem that digital content cannot be put into physical diary in the first interview.

Figure 55. Participant information

8.6 User Test Results

Before going to the user test result, let's first review the design goal: To design a product and service that facilitates the interaction between physical and digital memento, to relieve one's remembered experience. The most important goal in the user test is to identify whether the participants enjoy the remembered experience with the interaction of digital service and physical product.

From the user test result, I'm happy to say that the goal has been met. The quotes from the participants are provided as below to show how they view the concept.

Quotes

P1: "It brings you back to the moment, makes you immerse into the memory. I like the interaction."

P2: "I love this! Hope it can become a real product someday. It is nice to retrieve memory with phone and diary together. It is very convenient and makes your memory more vivid."

P3: "The moment that digital content pops up in the phone makes you happy. It is meaningful, a sense of ritual that you will value it."

P4: "It enriches people's behavior of recalling memory. It creates a new way of interaction, different from the traditional way we recall memory."

P5: "If it becomes a real product, I would love to use it. It's easy and straightforward, I love the interaction between the app and paper."

In addition to the overall interaction between physical and digital mementos, some problems were found regarding to usability. Observations and quotes are listed according to the participant's performance of 4 tasks.

Usability

- In general, the way to build up digital content for diary is quite easy. 2 participants mentioned that during the content building, a "+" can be added in the blank area to make it more intuitive to indicate that content can be added here.

P2: "I would like to have a "+" in the middle of the content when editing, because it is more intuitive that you know you can add something by touching it."



Figure 56. Suggestions for content building

- The content type of the concept, which includes photo, video and location is satisfying. Almost all the participants suggest that music or sound can also be a nice type of content.

P1: "Certain music stirs up my travel memory, because during the travel, I kept listening to that music."

P4: "You can add sounds, for example, some recordings of your thought from the trip."

- The way of transmitting data is simple. 3 participants intuitively touch the “...” to look for data transmission button, while 2 participants do not know what to do. Those 2 participants suggest that data transmission is an important function, it shouldn't be hidden inside the “...” button.

P1: “The data transmission button is hidden somewhere, I couldn't find it. It is an important function, it shouldn't be hidden.”

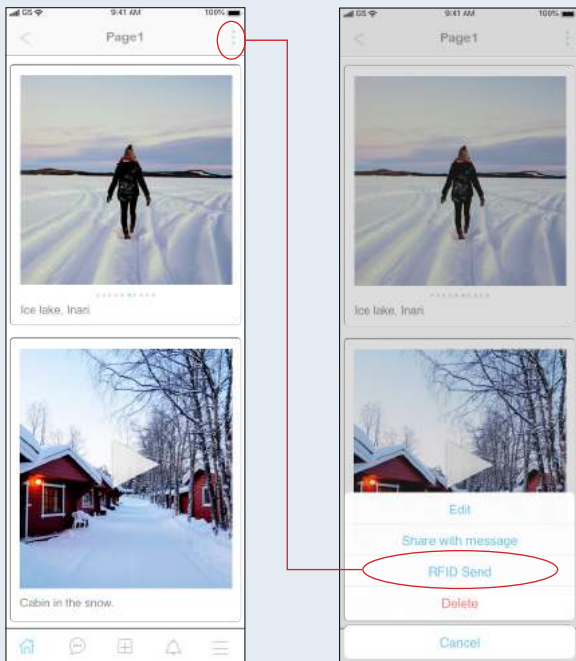


Figure 57. Suggestions for data transmission

Experience

- The content building process is simple and easy, some details can be adjusted (the interface design) to make the process smoother.

P2, P3, P4, P5: “The content building process is quite easy”
 P5: “I really like that both diary and digital content are build up by yourself. If it only links to your photo album when scanning the tag on the diary, I may not find it so attractive.”



Figure 58. Participant reading the diary with the app

DIARY MEMORY RETRIEVING

Usability

- A general problem for calling out the content is that the rfid reader is hidden in the menu page, the participants do not know where the reader is for the first time. All participants considered rfid reader an important function, so it should be placed in somewhere obvious.

P1: "I don't know how to call out the digital content at first, but now I know it is in the menu page."

P5: "Calling out the content is easy, but it's confusing that you put it in the menu. The rfid reader is an important function, but the menu seems secondary to me."

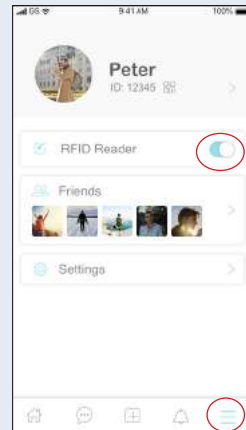


Figure 59. Rfid reader hidden in the menu page

Experience

- All the participants agree that the way of interaction between digital content and physical diary brings them back to the special moment and they enjoy it.

P1: "I can immerse myself into the trip, it gives me vivid memories."

P3: "It is good that the content pops up immediately."

P4: "It's fun that you see the content instantly. In comparison to QRcode, you need to turn on the camera and scan the code, it is quite troubled, so I like the idea of scanning the rfid tag."

POSTCARD CONTENT BUILDING

Usability

Postcard content building is considered the most confusing part in the whole user test.

- There are two "+" in the mainpage, one for creating a trip, another for building up digital content and the user can select whether it will be saved in trip or send to others afterwards. Several participants touch the "+" at the up right corner, which is for creating a trip. They should touch the "+" in the middle in order to create digital content for the postcard.

P1, P2, P3, P4 hesitated which "+" they should touch, only P5 intuitively touched the "+" in the middle.

P2: "There are two '+' in the mainpage, which one should I select?"



Figure 60. Participants were confused with two "+" in the menu page

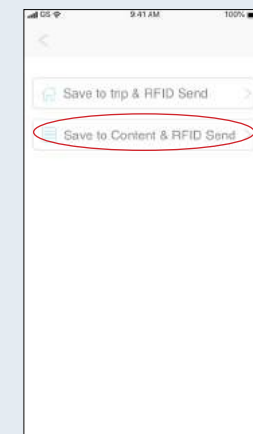


Figure 61. Participants were confused with which button to select

- While transmitting the data, the participants do not know which to select: “save to trip & rfid send” or “save to content & rfid send”. Among them, the “content” is especially confusing, no one knows what “save to content” refers to.

P1: “Why should the digital content be saved to different location?”

P3: “I don’t know what “content” means. It should be changed into some understandable name.”

P5: “I think it’s logical that you share the content and this content will be saved to somewhere else, but it needs some clear explanations.”

Experience

- The experience of postcard content building is not so well due to the confusion with the interface design. But except for the confusion mentioned above, the participants agree that the process is quite easy, similar to building up content for the diary.

P2: “The process is easy. There’s only some problems with the two ‘+’ and what the ‘content’ means.”

P5: “It’s the same process of building up content for the diary, so it’s easy.”

DIARY MEMORY RETRIEVING

Usability

- Several participants find it awkward that after closing the digital content that pops up when scanning the postcard, the screen jumps to the chat box between the sender and the receiver. Two participants suggest that some logical transitions should be added between these two pages. One considered that the sense of ritual has been disturbed by the chat box. The other suggest that she prefer the reply to be “the reply below the post” instead of replying it in the chat box.

P1: “Is the reply only in the form of private message? I think it’s better that people can leave a reply on the post, otherwise the dialogue may disappear someday.”

P3: “It gives you a sense of ritual when seeing the content pops up after scanning, but the screen jumps to the dialogue after closing the content. It becomes normal and I no longer have the special feeling anymore.”

P4: “It’s quite awkward that after you close the content, it jumps to the dialogue. You can add a step like asking ‘would you like to leave some message to Peter?’ then jump to the dialogue.”

P5: “I like the direct reply, but it’s weird that you are originally in the menu page, after the content pops up and you close it, it jumps to the message page. It is jumping around the pages.”

8.7 CONCLUSIONS

According to the user test result, the converged concept receives positive response regarding to the overall experience and interaction. Some details related to the usability should be adjusted in order to maximize the joy of the user's remembered experience.

Adjustments that should be made for the final concept are listed as below:

Diary Content Building

- Make the content building page more intuitive
- Add music or sounds
- Place the "rfid send" button somewhere obvious

Diary Memory Retrieving

- Place the rfid reader somewhere obvious

Postcard Content Building

- Clearly differentiate the two "+"
- Make "save to trip & rfid send" and "save to content & rfid send" understandable

Diary Memory Retrieving

- Redesign the flow of message reply

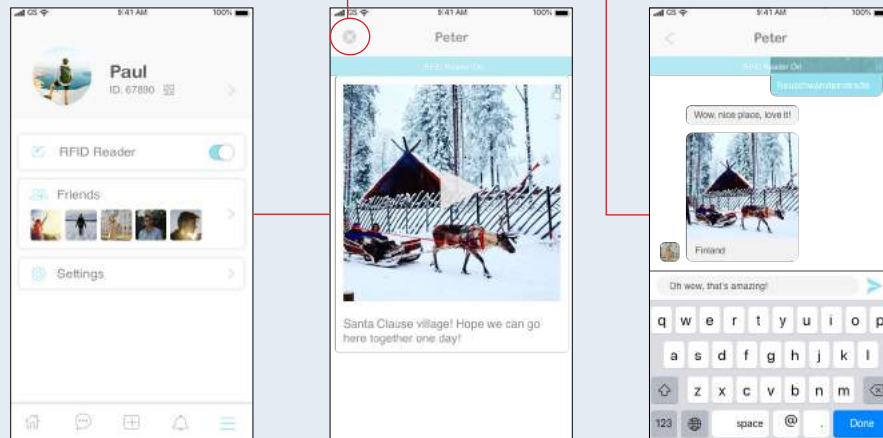


Figure 62. The user flow of postcard memory retrieving is considered awkward because it suddenly jumps to different pages

Experience

- All participants show positive response to the interaction. They like the idea of reading digital content behind the postcard, the step is just the same as the interaction with the diary.

P3: "It's meaningful, giving you a sense of ritual."

P4: "I enjoy the interaction."

P5: "Yes, I enjoy it, it's just like how you interact with the diary."

- The participants have different opinions toward the way of replying the content, we can conclude that the design of this function is less satisfying.

9

FINAL DESIGN

9.1 Final Design Introduction

9.2 User Flow

9.3 Conclusion

The final concept is designed based on the evaluation of the user test. Some detail changes were made on the interface to make the user flow smoother.



9.1 FINAL DESIGN INTRODUCTION

The final design includes the insights and learnings from the project. Some adjustments were made regarding to the details of the interface. The main pages of the final design become simpler than the converged concept. As what can be seen on the tab bar, there are only three main pages: “Me”, “Rfid reader” and “Friends”.

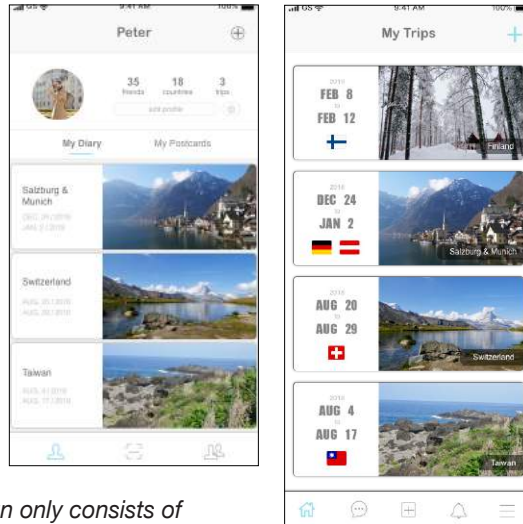


Figure 63. The tab bar of the final design only consists of "me", "rfid reader" and "friends"

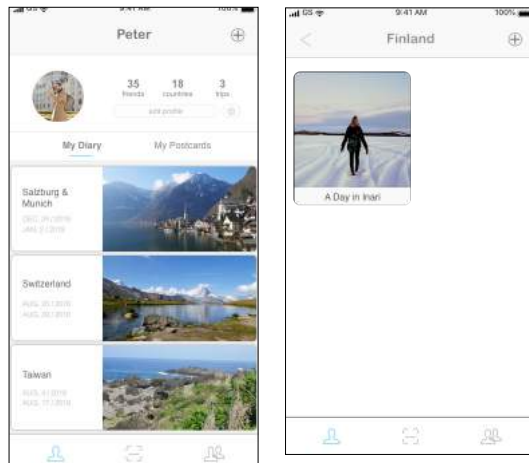
"ME" PAGE

Information including friends, countries you have been, number of the trip and settings can be seen in the “me” page. There are two sub pages in the “me” page: “My diary” and “My postcards”.

“My diary”

“My diary” refers to the digital content built for your diary. It consists of “trips”. Within the “trips”, there are several “pages” corresponded with the rfid tags stuck to the diary.

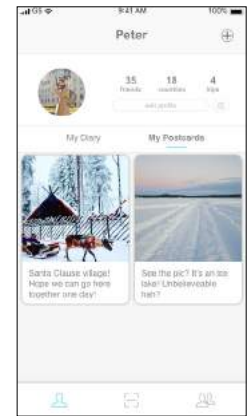
Figure 64. "Trips" and "Pages" in "My diary"



“My postcards”

“My postcards” refers to the digital content built for the postcards you want to send to your friends. The page consists of “posts”.

Figure 65. Digital posts in "My postcards"



"FRIENDS" PAGE

The “friends” page consists of digital posts of the postcards you received from your friends. The digital content will be automatically saved to “friends” after you scan the postcard.

Figure 66. Digital posts in "My postcards"



RFID READER

The function of the rfid reader is to read the content behind the rfid tag by placing your cell phone on the tag.

Figure 67. RFID reader



OTHER DETAILED CHANGES MADE IN THE DESIGN

Diray content building



Figure 68. Music and sounds are added as the media type

Diary memory retrieving

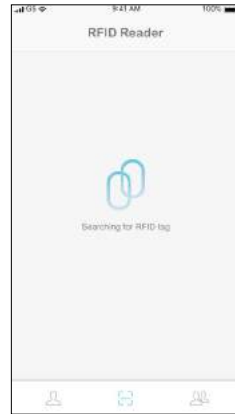


Figure 70. The "rfid reader" is placed in the middle of the tab bar

Postcard content building

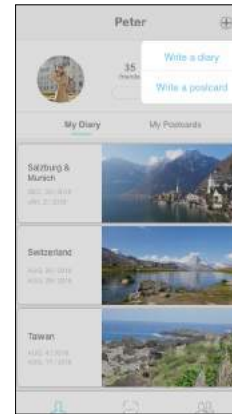


Figure 71. The user can decide whether they want to write a diary or write a postcard in the first place

Postcard memory retrieving

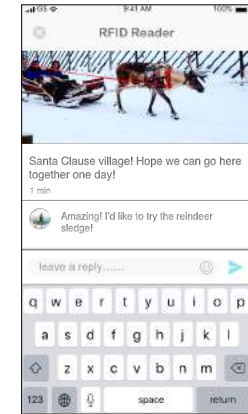


Figure 72. The user can reply the message directly under the post. After they close the content, it remains in the rfid reader page. The design avoids the confusion of jumping around the pages.



Figure 69. The "rfid send" button is placed in the middle of the tab bar

9.2 USER FLOW

DIARY CONTENT BUILDING

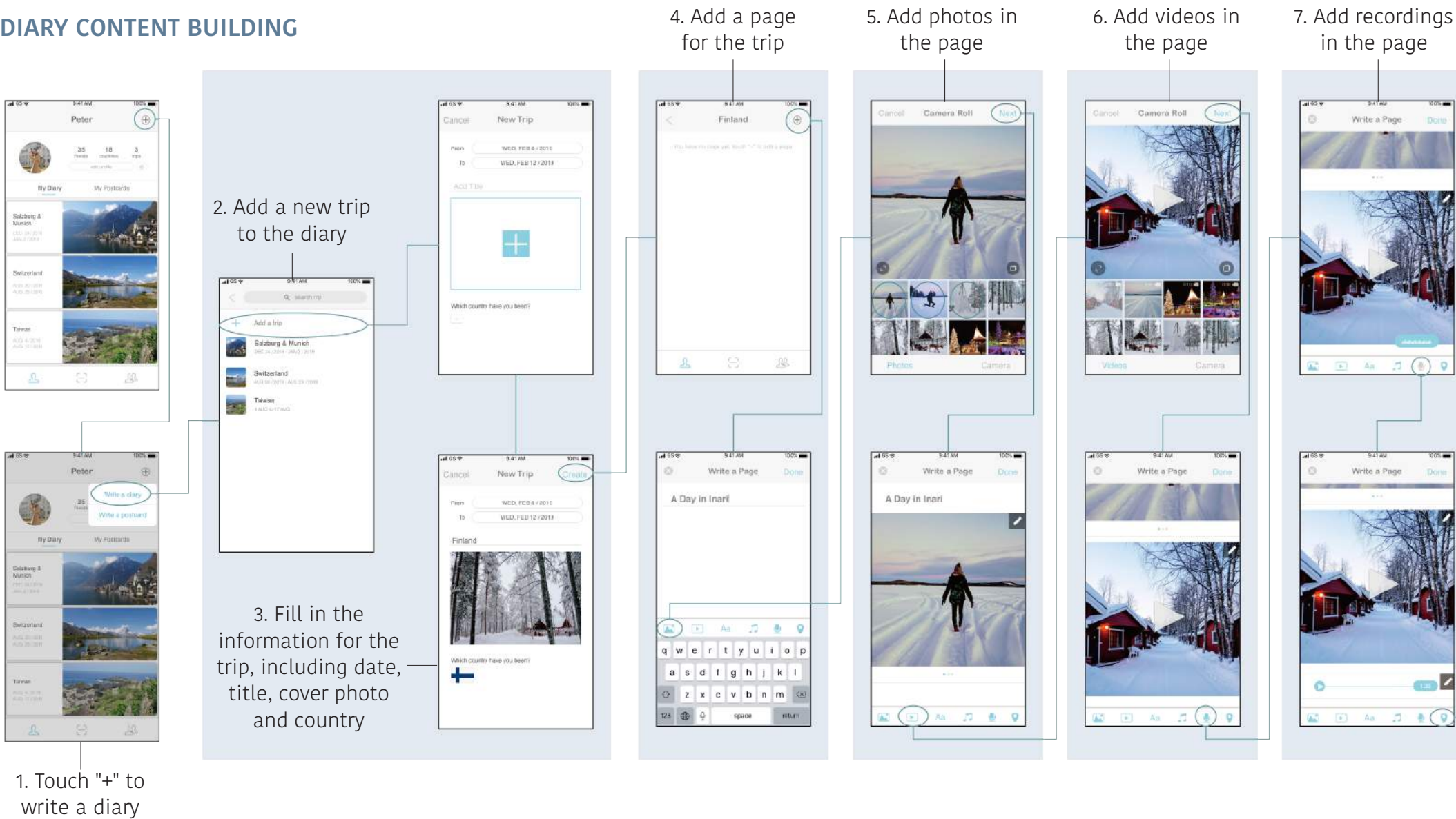
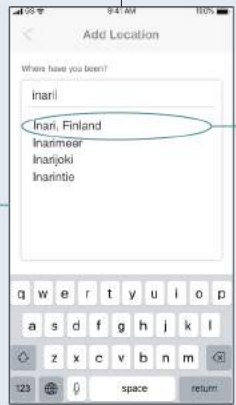
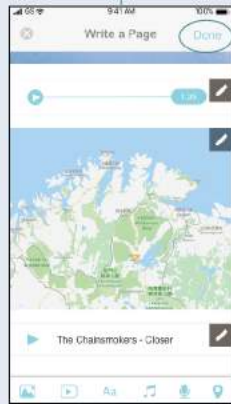


Figure 73. Diary content building

8. Add locations in the page



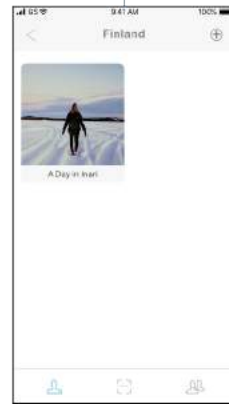
9. Add music in the page



10. The content has been built, touch the "rfd send" button to transmit data

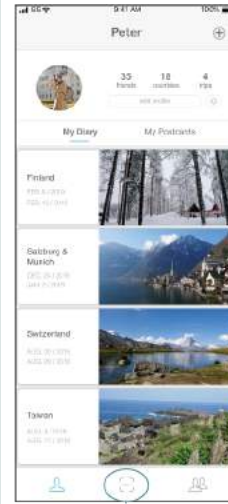


11. Touch the corresponding rfid tag to transmit data



12. A page is created in the trip

DIARY MEMORY RETRIEVING



1. Go to the "rfd" reader to scan the tag



2. Place the cell phone on tag 1, the digital content pops up immediately



3. Close the page and go back to rfid reader



Figure 74. Diary memory retrieving

POSTCARD CONTENT BUILDING

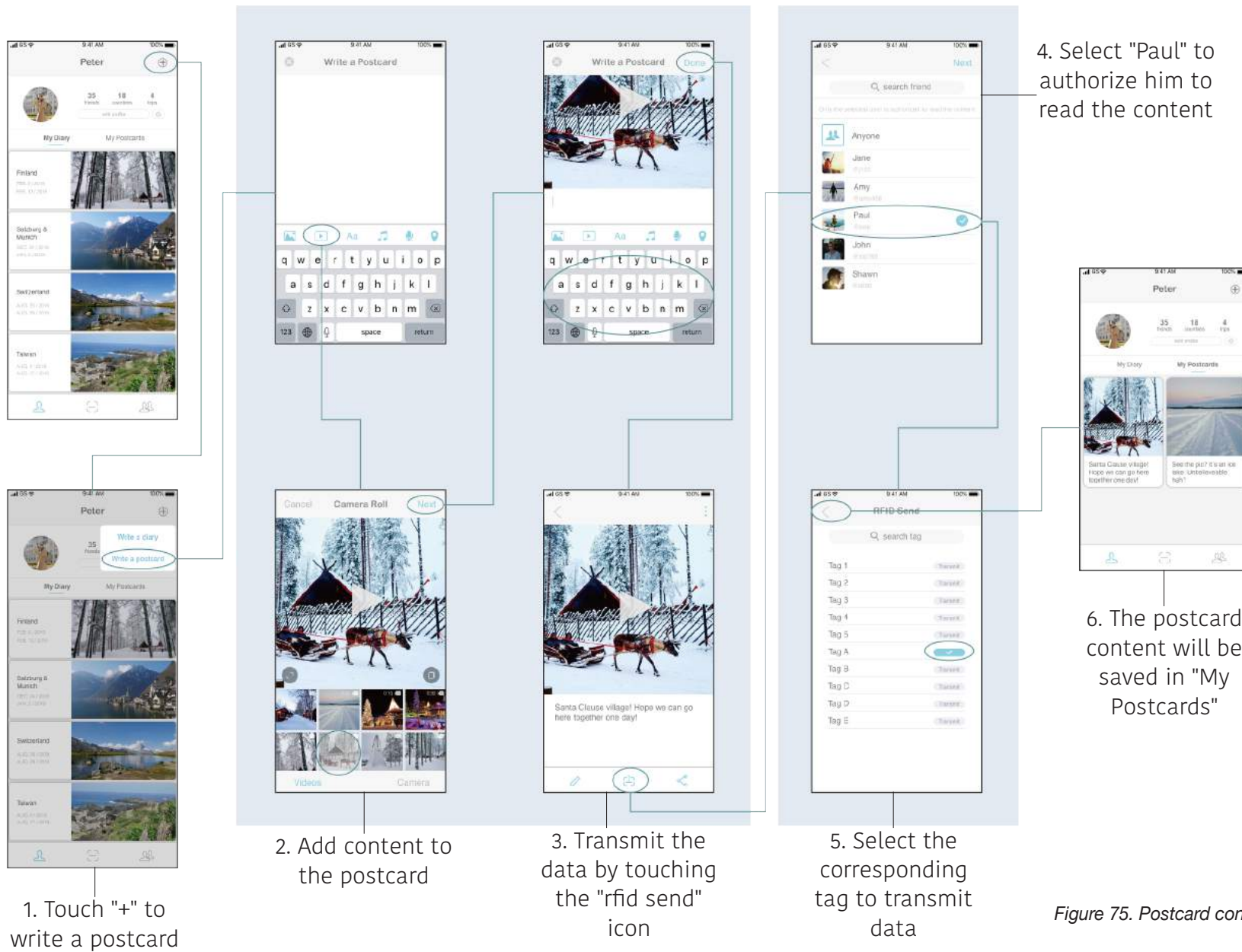
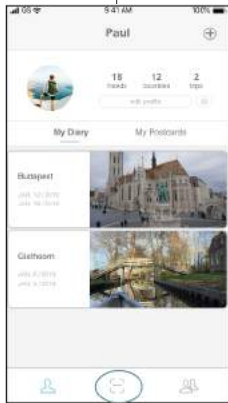


Figure 75. Postcard content building

POSTCARD MEMORY RETRIEVING

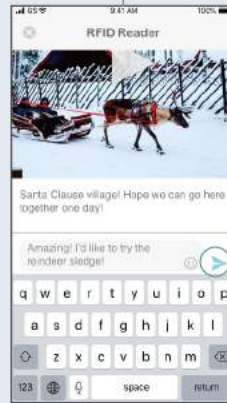
1. Go to the "rfid reader"



2. Place the cell phone on the rfid tag of the postcard



3. Leave a reply to the sender



4. Close the content and go back to the reader



5. The postcard content appears on the "Friends" page



6. Touch the card to view content

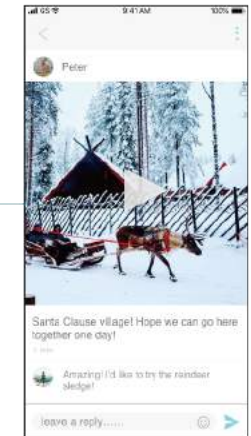


Figure 76. Postcard memory retrieving

9.3 CONCLUSION

Design Goal

"To design a product and service that facilitates the interaction between physical and digital memento, to relieve one's remembered experience."

The interaction of the converged concept has successfully met the design goal, while some details of the interface has influenced the overall experience. Its featured interaction has remained in the final design and some adjustments were made regarding to the details of the interface, which has solved the problems found in the user test, and made the overall interaction positive and more enjoyable.

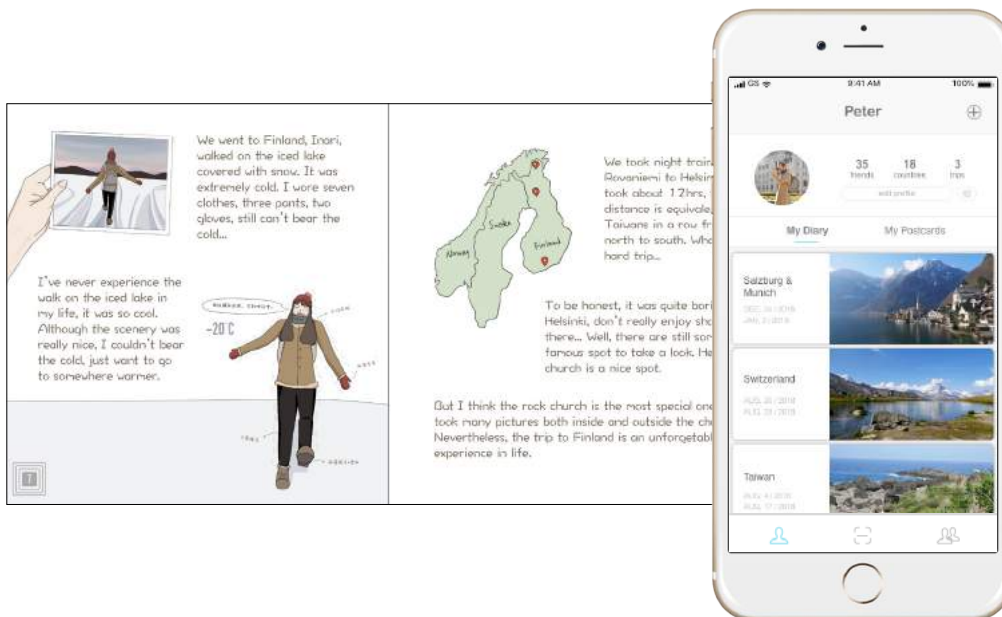


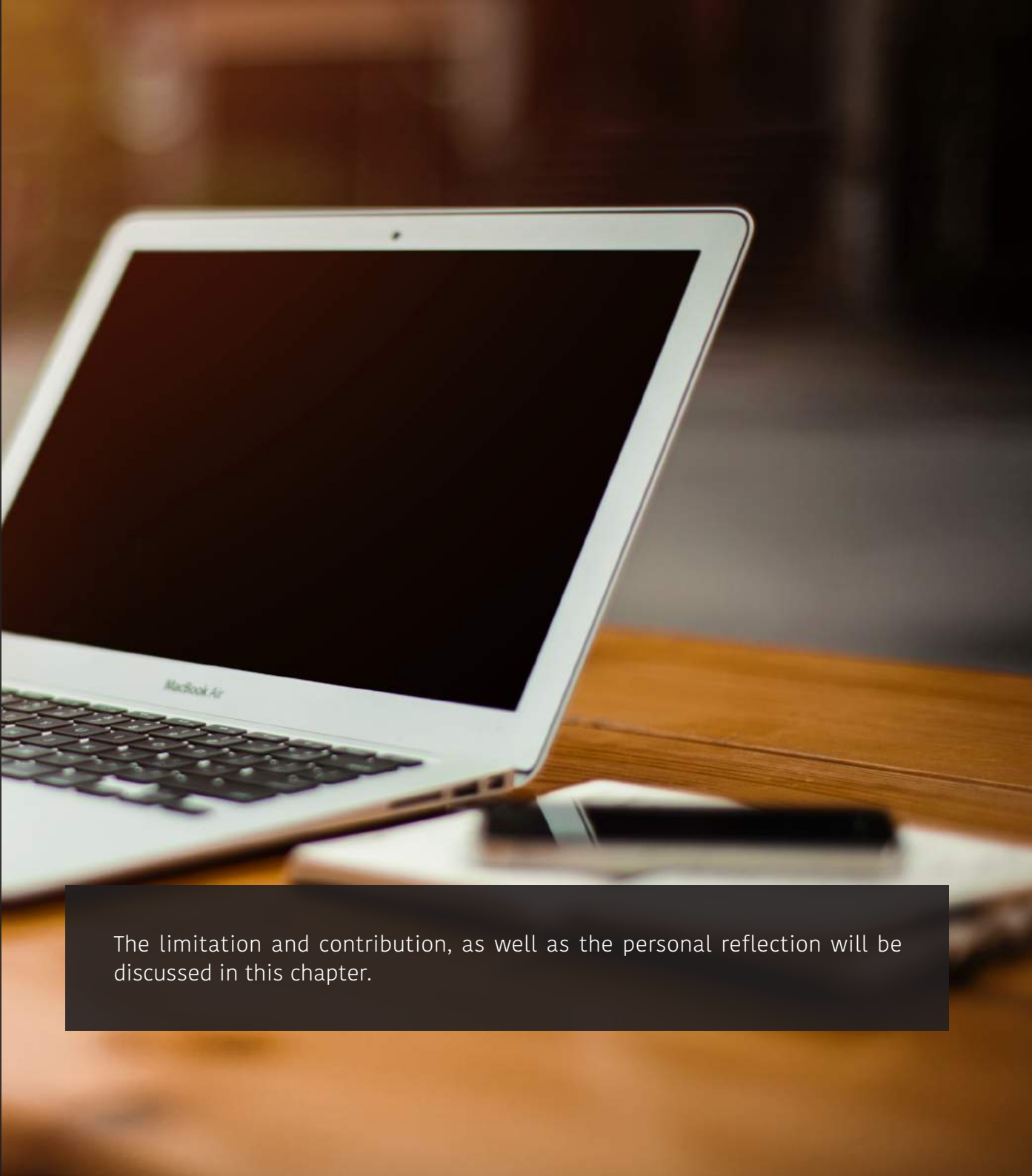
Figure 77. Final design

10

CONCLUSION

10.1 Conclusion

10.2 Personal Reflection

A silver MacBook Air laptop is open on a wooden desk. The screen is black. The laptop is positioned in the center-right of the frame. The background is a blurred indoor setting with warm lighting. A dark grey rectangular box is overlaid on the bottom right of the image, containing white text.

The limitation and contribution, as well as the personal reflection will be discussed in this chapter.

10.1 CONCLUSION

10.1.1 CONCLUSION

Travel memory is considered a significant part of life to many people. In order to keep their travel memory in mind, digital and physical mementos were collected for later remembrance. These mementos possess various values that contribute to different aspect of one's travel memory. By exploring the values of digital and physical memento and understanding the needs of the target group, which refers to the "chicken soup for the soul", the project aims to design a product and service that facilitates the interaction between digital and physical memento, to relieve one's remembered experience.

The final product, which consists of a special diary, rfid tags and an application has successfully met the design goal, which the user enjoys the remembered experience with the interaction between digital and physical mementos.

10.1.2 LIMITATION AND CONTRIBUTION

Limitations on the participants

Most participants from the user test were students, not all of them were from the group "chicken soup for the soul". To validate the usability effect, the project should be evaluated among travelers from the group chicken soup for the soul.

Limitations on the rfid technique

The design lays emphasis on the interaction between cell phone and paper via rfid tags. However, whether the paper material can successfully prevent the rfid tags from interfering with each other has not been validated with real experiment, but only have a consultation with the professionals instead. In addition, the data transmission duration and data storage of the rfid tag should be tested and validated, and the pricing of the product (special diary, rfid tags, application) should also be taken into consideration.

Contributions to new knowledge

Based on the existing knowledge of memory, the research analysed the categories and value of digital and physical mementos as well as how they work for memory. Several methods regarding to the interaction between digital and physical mementos were proposed to enrich the user's travel memory.

10.2 PERSONAL REFLECTION

My ambition for the project is to prove my ability to carry out the project individually. From effectively analysing the paper to performing user research and communicating with the participants, every process is a valuable experience.

At first, I was aware of the issue of how people retrieve their travel memory. During the literature study, I obtained knowledge of the basic structure of memory and the concept of digital and physical mementos, which inspires me to connect both forms of mementos together and further came up with concepts for the project.

During the process, I learnt to be more flexible, since not everything goes on the track you have planned to. I was happy that the design received positive response from the participants, and they understand what the design aims for. I was even happier for the learnings and improvement that I obtained from the project.

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APPENDIX

Appendix 1. Competitive Matrix

Appendix 2. User Research Result 1

Appendix 3. User Research Result 2

Appendix 4. Concept Test Result

Appendix 5. User Test Result

Appendix 6. Graduation Project Brief



APPENDIX 1. COMPETITIVE MATRIX

Competitors	URL	Form	Purpose of the site	Primary Categories	Article Content Types	Personal Page Content Type	Function Features
GOAWAY	https://goaway.today/home/	- Website - Application	To record the trail of one's trip, and write down and add photos of what they have experienced	- discover: trip categories (biking, motorcycling, camping, jogging...) - followings' posts	- routes, map - timeline, photos, writings - diagrams (time, distance, altitude, speed) - photo albums - comments	- level, trip count - followers, following, bookmarks - post articles	- record the trail (app: instant / web: afterwards) - sharing - explore/collect other's route as reference - collecting system (a bit)
Wishtrip	https://www.wishtrip.com/home	- Website - Application	To record the trail of one's trip, and write down and add photos of what they have experienced Also a business platform that allows destination providers to promote all available service	- discover: popular locations and trip itineraries (country, city) - discover: area categories (nature, city) - discover: explore trips nearby - wish trips (bookmarks)	- routes, map - timeline, photos, writings - total time, distance - related trips	- followers, following, chat - monthly timeline, post articles - trip count, total distance, total travel time, total marked places	- record the trail (app: instant / web: XX) - sharing - explore/collect other's route as reference - collecting system (a bit)
Oyster X	https://www.oysterx.bar/tw	- Application	Wipe out the mist on your "earth" to collect every place you have been. Collect the continent, countries and cities and share with your friends	- map with mists	- no articles	- your map: continents, countries, cities, trips, days on road, miles - your city wheel: diagrams of the city you have been, marked in color based on its continent - build your own house	- collecting system (main) - show all the trail you have been on the map - collect continents, countries, cities... - build your house on the map
Journi Blog	https://www.journiapp.com/	- Website - Application	Write what you have experienced in the trip, add photos, locations. You can even print them out into physical albums	- discover: trips from different continents, countries - Followings' posts	- spots (icons), map - timeline, photos, writings, stamp for the journey - slide view - flight, weather	- collect countries - post articles - following	- write blogs with clear locations of each pic - collaborate editing - print them out - collect countries - explore trips - sharing
Polarsteps	https://www.polarsteps.com/	- Website - Application	Write what you have experienced in the trip, add photos, locations. You can even print them out into physical albums	- discover: editors' choice, collections, inspiring travelers - Followings' posts	- routes, map - timeline, photos, writings - steps (a big location) - comments - countries - days	- trips - followers, following - total countries, percentage of the world, continent, flags - count of trips, kilometers likes, steps - further place from home - you haven't travel for ? days	- import your trip, automatically organized into a trip with photos, location, timeline - print them out - collect countries, continent, trips... - explore trips - sharing - frequently used in long trips, photos and writings based on a big location (ex. city)
Penzu	https://penzu.com/	- Website - Application	Online journal that focused on privacy	- just for your writings	- customized background, pad - writings, photos - prompts - time capsule -- send your entry to your future self	- new article - settings - journal list	- Unlimited journaling - Sync journals with Penzu cloud for free - Customize your journal covers - Receive reminders to write - Lock journals with a password - Encrypt your journals - Add photos - Lock app with a PIN

Competitive Advantage	Region	Heuristic Evaluation	Inspirations	Customer Reviews	Score
- route recording - content of the trip is based on timeline, and able to quickly search for its location - automatically pairs up the photos and its location on the map	- Taiwan	- (O) Interface is clean and clear (web) - (O) Tutorial for beginners in the edit page is considerable (web) - (O) Don't have to login to view the content - (X) Map and content take almost half and half in the web page view. Though it gives a quick view of the content and its location, the experience of reading the content is somehow interfered by the map. It will be nice if the map is retractable. (web) - (O) Map and content view in app is better. The screen view is based on map, scroll up to see the timeline - (X) Location based. User must first enter a location on the map in order to edit the content. - (O) Jump through the places on the route automatically to give an overview	- retractable map - the content can correspond with its location - add locations after building up content - don't have to add location for each writings or photos - albums for each trip	- Many users suggest they just want to share with friends, not the public - Trace recording is sometimes interrupted by internet connection - easy usage	- interface: ★★★★★ - usability: ★★★★★ - function: ★★★ - popularity: ★★ - information: ★★★
- route recording - content of the trip is based on timeline, and able to quickly search for its location	- world wide	- (O) Don't have to login to view the content - (O) Mark out the order of location on the map - (X) You can only add journey with app recording, previous journey cannot be added - (X) You must record while travel	- trip count, total distance, total travel time, total place - mark the order of the place	- nice app	- interface: ★★★ - usability: ★★ - function: ★★★ - popularity: ★★★★★ - information: ★★★★★
- collecting system - gamified interface	- Taiwan	- (X) Cannot add previous route in the app - (Δ) Function only focus on collecting - (O) Interface is simple and beautiful	- collect places and make into beautiful diagrams	- In order to wipe out the mist, user walks to some small streets that he will never go, and encounter some surprise - serious technical problem	- interface: ★★★★★ - usability: ★★★★★ - function: ★★ - popularity: ★★★ - information: ★★
- collaborate editing - content of the trip is based on timeline, and able to quickly search for its location	- world wide	- (O) mark the place on map with icons - (O) the marked place is always in the central of the map when scrolling through different photos (web) - (O) edit your journey together with your travel companion - (X) if you have long trips, you have to keep scrolling down to view the last day memory - (X) cannot edit on website - (X) content of the post are limited by its location	- use icons to mark the place - locations on the map can be highlighted when viewing certain photo - collaborate editing - functions to quickly go through places within a long trip - must be able to edit on website	- Quite troubled: word limit 1000, photo limit 10, can't upload videos, cannot share single article - want a world map to record where they have been	- interface: ★★★★★ - usability: ★★★★★ - function: ★★★ - popularity: ★★★★★ - information: ★★★
- automatically organize your trip, easy and effortless - suitable in both long, short trip, any distance	- world wide	- (O) When scrolling through an article, there is a small person icon walking on the line, indicating the timeline you are browsing through the trip - (O) Mark out the location when browsing through certain photo, and the location will automatically jump to the middle of the map - (O) the first time you login, it analyze the location of your photos and list out the country you have been - (O) you can see the total place you have been on the map, just at a glance on your personal page - (O) one main trip is divided into several steps (small trips), write and share photos about the steps and view comments - (X) the width of a photo takes up whole page, somehow troublesome to scroll through all photos (web) - (X) when viewing articles, you first see the trip and locations, not the article itself (app)	- automatically organize a trip - timeline indication - add transportation details - albums for each area	- love the map view (satellite) - it's good to see others writings and photograph, but people write in different languages - hope it can also add videos - good to update we family and friends - live that photos automatically pop up to be added on those travel dates - It has an option to make a photobook afterwards with your photos and text journals, which I look forward to see - not able to share trip with companions, or add someone to the trip - want to add modes of transportation	- interface: ★★★★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★★★★★
- private journal with private settings		- (O) customize font and background (pro) - (O) choose title, cover, security option for the journal - (X) ugly interface, can only change background in pro, but is still ugly - (O) simple and easy usage - (X) lots of functions cost money	- time capsule - privacy (set code)	- For the first time I have a journal that I can write in honestly without having to censor myself - the bonus of being able to lock my writings is even better - It is so much easier and calmer to type on a computer than keep a journal open	- interface: ★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★

Competitors	URL	Form	Purpose of the site	Primary Categories	Article Content Types	Personal Page Content Type	Function Features
Daybook	https://www.daybook.app/	- Application	We don't know the value of moments until it become memories. Write down your moments, treasure your memories	- your articles - calendar	- cover photo (multiple) (jump automatically) - date, weather - title	- all diary - basic settings	- simply write a diary and add photos - passcode-protected personal diary - speak to write diary
Card Diary	https://itunes.apple.com/app/card-diary-pretty-journal/id1295506659?mt=8	- Application	Turning your attention inwards and listening to what is going on in your mind. Write one card for each day. Motivate you to find the meaning each day	- month card in timeline - write diary - calendar - today, weather - search diary	- cover photo (multiple) (jump automatically) - date, weather - title, writing - pro: add styles, mood, photos, videos, export, pin lock, location	- all diary - basic settings (lock, notifications, buy, synchronize)	- search diary, set reminder, lock - text styles - share - import & export - favorite list - add emotion - calendar based
Medium	https://medium.com/	- Website - (Application)	Read and write topics on specific knowledge you like and share with others	- theme category - featured articles	- writings, pictures - follow, social media, bookmarks - claps, comments - related articles	- profile - your articles	- knowledge sharing - several themes - text styles
Wordpress	https://serendispace.wordpress.com/	- Website	Create your own website and write articles	- your articles - about you - you decide the categories	- previous & next article - photos, writings, tags, links, ads, (videos) - comments, social media	- about you - backstage to manage your posts, categories, pages, theme...	- you decide what to show in your own website (theme, categories, page, text styles...), very customized - make use of your creativity
Leap Second	https://www.leapsecond.co/	- Application	Capture your favourite memories and showcase the finest moments of your life in style.	- record - calendar - play videos (all, year, month...) - settings	- calendar, add one second video to the date	- no personal page	- record 1 second for each day and trim them into your final video of the month/year
Google photo		- Website - Application	Store all of your photos and organize them automatically	- photos, timeline, location - albums -- your album, favorites, people & pets, location, things, videos... - create -- photo collages, album, videos, animation...(or automatically create) - recall the days (ex. 1 year ago)	- detect faces and share - photo (edit, info - date, people, share)	- no personal page	- unlimited photos backup, no worries if your phone is low on space - synchronize on multiple devices - categorize the photos automatically, quickly search your photos - build up shared albums - time capsule (recall this day one year ago) - automatically made into short videos - filters, simple photo editing - share with others
Instagram		- Website - Application	Post your satisfying photos, write down your thoughts and share with others. Discover interesting photos	- other's posts, search - add post, likes - messages - stories, add stories, live	- photos up to 10 - like, share, bookmark - writings, comment - location - tag people, hash tag	- intro - all photos, stories - collections - photos tagged by others - photos shared with close friends	- edit and share stories, see who has read your stories - able to edit photos - suitable for both private and commercial - able to upload private photos, or set photos only share with close friends - every post must include a photo - your profile is an album with all of your post photos

Competitive Advantage	Region	Heuristic Evaluation	Inspirations	Customer Reviews	Score
<ul style="list-style-type: none"> - private journal with private settings - speak to write diary - simple, easy - multipurpose usability (to-do list, day planner) 		<ul style="list-style-type: none"> - (X)only app version, typing diary feels better on the computer - (O)simple and easy usage - (O)can also act as planning - (O)view all your articles at first glance 	<ul style="list-style-type: none"> - emoji-like feature - search tags - reminds of adding entry - able to print out - functions of swiping left and right to see other days 	<ul style="list-style-type: none"> - simple & easy to use - I'd love an emoji-like feature at the top of the journal entry page - want a search tags option from the Home Page to find specific entries with certain tags - download and print these to save a hardcopy - I'd like to be able to swipe left and right to quickly see the other days 	<ul style="list-style-type: none"> - interface: ★★★ - usability: ★★★ - function: ★★★ - popularity: ★★★★★ - information: ★
<ul style="list-style-type: none"> - cards for everyday -- short memory recordings - simple, easy, clean - "date" is very clear 		<ul style="list-style-type: none"> - (X)only app version, typing diary feels better on the computer - (X)cannot see all your articles at first glance - (O)clean and beautiful interface - (O)nice experience when scrolling through the cards - (O)time based, very clear - (O)cover photo for each month 	<ul style="list-style-type: none"> - time based on month 	<ul style="list-style-type: none"> - Clean, minimalistic, and functional - Want to have: web app so I can write longer texts, swipe on entry to edit text and pics, tags to organize posts, Dropbox/Google Drive sync, different text size in the same entry 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★ - popularity: ★★ - information: ★
<ul style="list-style-type: none"> - share your knowledge and story - clean and easy interface - articles from different theme - many professionals - can really learn a lot from the article 		<ul style="list-style-type: none"> - (O)several text styles - (O)clean interface - (O)lots of knowledge - (X)do not have a personal page 	<ul style="list-style-type: none"> - add hyperlink - add highlights 	<ul style="list-style-type: none"> - no ads and very often articles that are interesting to me - Writers on this app have their own unique way of connecting their audience. I can only hope that this corporation continues it's journey of innovation for future of us writers - hope to have a history log of what they just read 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★ - popularity: ★★★★★ - information: ★★★★★
<ul style="list-style-type: none"> - customization - almost full domination - an edit space of your own, you are the main role of the space 		<ul style="list-style-type: none"> - (O)very customised -- theme, pages - (X)requires efforts to manage the post, customization - (O)feeling that you have the dominance of the whole website 	<ul style="list-style-type: none"> - customization - users are able to categorize the articles - add tags - are you traveling alone or with others? 	<ul style="list-style-type: none"> - The themes are breathtaking — even the free ones! — and all of the supporting infrastructure and information is top shelf - suitable for long term operation - it's cost effective for our agency to custom build a theme than find an off-the-shelf theme 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★★★★★
<ul style="list-style-type: none"> - reflect on all your short memories in the past - cut your 1 second video easily, and trim them automatically - add new timeline 		<ul style="list-style-type: none"> - (O)you can reflect on your past memories within a short period of time - (O)the dates which you have videos are marked, so you can easily select and upload video - (O)cutting videos is extremely easy - (Δ)Function only focus on video 	<ul style="list-style-type: none"> - short video trimming 	<ul style="list-style-type: none"> - I would like to see some of the added features that are present in the original second a day app. Such as: create different timelines, export specific clips as one video, enter daily mood/notes, etc - I love the idea behind the concept and was impressed at the functionality of this app 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★
<ul style="list-style-type: none"> - automatically organize - automatically backup and synchronize - support multiple devices - face detection - time capsule 	- worldwide	<ul style="list-style-type: none"> - (O)an assembly point for all of your photos from any devices - (O)automatically organize your photos - (X)limitation of the album is 500 photos - (O)notifications to recall your memory years ago - (X)no maps - (O)able to do simple edit to your photos - (O)able to search photos 	<ul style="list-style-type: none"> - travel photos of the platform can be added from Google photos 	<ul style="list-style-type: none"> - Excellent app. keeps all my pics on cloud, sends me collage picture, movie animation, etc. - sometimes i have to go way far back to find some pictures. Hope this can be sorted please 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★★
<ul style="list-style-type: none"> - share photos or videos in the form of stories or post - many interesting photos to look at, including a wide category - story function - people can build their fame through instagram 		<ul style="list-style-type: none"> - (O)you don't have to worry about the likes when pasting stories - (X)photos posted are mainly for sharing - (O)profile as album is nice looking - (O)make live videos and interact with your followers - (O)privacy settings -- allowing others to follow you, share post with only close friends - (X)not suitable for comprehensive memory recalling 	<ul style="list-style-type: none"> - album based profile - privacy settings 	<ul style="list-style-type: none"> - I use Instagram daily! Each update brings in a something new and improved - For the first I find social network full of pictures of the most wonderful paradise places on the Earth - I really like just wish it wasnt as open to "whomever" wants to follow...if I havent had some type introduce & or know you personally... wont happen. a bit more reserved. 	<ul style="list-style-type: none"> - interface: ★★★★★ - usability: ★★★★★ - function: ★★★★★ - popularity: ★★★★★ - information: ★★★★★

APPENDIX 2. USER RESEARCH RESULT 1

Participant	1	2	3	4	5	6	7
age	24	22	27	25	24	24	24
sex	male	male	female	female	male	male	female
Select a digital memento.	photo	photo	photo	video	photo	photo	photo
What is the story behind?	it's special to see pig on an island	- trip in poland, krakow - poland is the first european country and the farrest country he has been - he always think of the trip when he was dancing poland traditional dance	- the first time to have self-driving travel with dutch friends, we don't have special plan, it's really free and the weather is nice	- the 23-24 birthday night in the hostel of portugal, it's the first time I travel for one month alone, I started to have home sick, and surprisingly people in the hostel held a celebration for me	- snow skating with coach, the coach take care of him	- trip in Edinburgh	- ski in bulgaria
What value does it have?	memories in Lanyu	not the value itself, but the story behind it represents	- friendship, it means the dutch classmates see me as their friend	- it's a special point in life, an accomplishment of traveling alone for one month, having a sense of belonging - it represents "me" at that "moment", I can look back at how I am at that moment, I can feel the change between the present me and me of that particular moment	- meaningful people and experience - you can work on it or even create something based on it (eg. filter, edit), you create new value to it	- it is meaningful because these photos was taken by his newly bought camera, and he is really excited with it	- the special moment only happens once in a lifetime - you are able to capture the special moment digitally - photos can represent certain moment
How do you preserve your memory (photos, videos, map...)	photos, map	photos, videos, map	photo, video, map, schedule and list of the trip (with some link to the related site), blog	photos, videos, map	photos, videos, map	photos, videos, map	photos, videos, map
What digital platform do you used to preserve travel memory (google photo...)	Google Photo	Instagram photo album	instagram post, google drive, print out some digital photos	- in the drive (spend one day to organize photos after the trip) - instagram (selected some important moment) - photo album in the computer - facebook (more like building up an exterior of the self) - do not use blog, the writings are more like suggestions for people, not for the remembrance of the self (for me vs. for other) - youtube	Google photo (automatically categorize) - he rarely take photos in the past, but found it interesting when looking back on those memory	- icloud - IG -- more about showing yourself to others, not really for remembering	- Google Photo - IG -- showing yourself to others
How often do you look back to these memories? in what circumstances?	Rarely, will look at it when building a new album	- rarely go through all of them - but often go back to a particular one, while chatting with people and talk about something in travel, he look back his album and select photos or videos to share (together or far distance)	- go back by chance, if encountered some memory cues or during the chat with others - also depends on how long ago these photos are, more frequent for those taken recently	- rarely look back to the drive - often recall memory from Instagram - no specific reason, sometimes recall while chatting	- google photos pop up notifications for memories one year ago - look back at memories few month after - when he is boring, or when chatting	- go back by chance	- only when chatting, or changing profile photo
What steps do you take when remembering? (alone, with friends, social sharing)	alone	alone, chat with friend, sometimes on social sharing	- alone, friend together - some of the photos may be in other travel companion's phone, ask them to take a look together - share in social media, Instagram, not with facebook, because she doesn't want to let those who are not "friends" with her to see the photos - doesn't mind to show the map to the public	alone, chat with friend	- alone -- just happen in a sudden - with friends -- often after travel (send funny pictures in the chat group) - social media -- during travel	alone, sometimes share with good friend	alone, with friends
What do you missed in this process of remembering?	no idea	nothing, feel satisfied	time flies, really grateful to have these memories	- photos should be presented with words to help her get back to the memories - other sense (eg, touch)	- the object, the smell - like videos when looking back at memory, but find it troubled while recording	- sounds, smells - you cannot search videos - when looking at its preview picture of video, you still have no idea what content it is	smell, the taste of food

Participant	1	2	3	4	5	6	7
What is the story behind?	In Penghu, he ride motorcycle to different side of the island, and collect sand with girlfriend.	when he saw the music box in beijing, he didn't hesitate to buy it, because the music is the theme song, if it's a normal music box, he wouldn't buy it	the photo of the postcard is in valencia	she lived in a germany friend's house for a week, and the friend gave her as a present	It represents the cities he has been	he bought it in switzerland	she bought it because it's beautiful
What value does it have?	- a sense of achievement with the collection - trip with girl friend - they are unique in the place - they are obtained with effort	- the souvenir itself is special and lovely - makes him think of his good memories in beijing	- the photo should be the place she has been to, so she can recall the memory of this place afterwards, it is more significant - postcards are in a similar size, it's like a collection, easy to collect and cheap	- she rarely bought souvenirs, she used to give souls to an object, so the object should be meaningful enough, so she can build connection with them - when recall memories from the object, she can immerse herself in the moment - for sketchings, they are valuable because she took much effort to draw them, and this sketchings get her back to that particular moment	- it can be placed or decorate the room, and you can always see them	- almost don't keep physical object, unless its is really meaningful - it only make him think of the memory from the shop	- simply represent the city - don't really value physical objects - buy consumables as souvenir (eg, soap)
How do you preserve your memory (souvenirs, journal...)	souvenirs	souvenirs postcard	photo album, souvenir, calendar notes tickets were thrown away because they take up space	diary, postcard (write and send to myself), sketching, souvenirs	souvenirs	almost no physical stuff	souvenirs
Where do you store this object (decoration, in box)	some are put in the box, some are decorated outside	decorated in the room	- hang the postcards on the wall	- in several little box, but she doesn't like to put them in box, because they all have soul - prefer practical souvenirs such as necklace, bracelet, so she can wear them, and often think of the memory	hang on the wall	- didn't even open them from the bag	- somewhere in the box, she doesn't really remember
How often do you look back to these memories? in what circumstances?	- for the mementos decorated outside, he looks back at the memory whenever he sees the object - for those hidden in the box, he only goes through them when moving the house, because he thinks it is troublesome to take the things out	Everyday, because he see the souvenirs everyday	by chance, when encounter some memory cue	- everytime she comes back to her old house, she take a look at small things in her boxes - for other decorated souvenirs, they become part of her life, do not look back to its memory often herself, but will look back when friends come to her house and talk about it	- it becomes part of his life, he is used to it and won't purposely recall the memory - only the ones he sees unexpectedly can motivates him strongly to recall its memory	- rarely go back - enjoy the moment is more important - think of the memory when planning the next trip	- rarely go back
What steps do you take when remembering? (alone, with friends, social sharing)	alone	alone, with friends, social sharing	alone will share with friends if the souvenir is interesting itself, would be nice to have interaction with other	will share with friends more than remember alone	- alone	- alone	- alone
What do you missed in this process of remembering?	no idea	he doesn't have souvenirs for all the places but have photos, videos instead	souvenirs do not serve much memory compare to photos	- miss inspiration, (eg, some interesting photo gives her inspiration about how to take photos while travel) - the physical serves as a memory cue, and she can come up with wide range of memory from it	- souvenirs only make him think of memory range related to this souvenir, not comprehensive	- would be nice if you can record your emotion at that moment	- only memories about the souvenir, have no clue what happened in the trip, don't know what the details are

Participant	1	2	3	4	5	6	7	
How do you consider the relation between physical & digital memento	- they are complementary with each other - you can see people, things in the past from digital memento - memories for souvenir are more about the range of experience you obtain it	- they have strong relation with each other - you can shoot video of the souvenir in that place and make its own story - you can recall the memory with both physical & digital mementos together	- digital memories are easy to store - level of memory is different, digital helps remember wider range of memory	- polaroid (from digital to physical) - share pic of her sketch (physical to digital) - they have no boundary between each other, can interact with each other - transformerable	- photos capture the best moment of travel, video capture the process but not the best - photos are authentic than souvenirs, it displays the moment, for souvenir, there are pretty much to imagine - they are complementary with each other - he likes polaroid that transfer the digital photo into physical - physical are more significant to him because it goes through the process of selection - there are too many digital photos that he does not want to go through them	- they are at the same level - they have their own irreplaceable advantage	digital is more meaningful and valuable, it can represent all the travel memory, while the physical do not	
Fill out the form	V	V	V	V	V	V	V	
collecting behavior	What do you collect when travel? (souvenir, experiences like countries, cities, cuisine)	- photo - souvenir - place / food on map - will keep the tickets for a while, but may throw away if he clean the house or move house	- foreign foods - places have been - key chains - foreign currency - Doramon - every ticket related things	- postcard - souvenir - throw away tickets	- postcard - drawing in travels - stamps - series photo - story with stranger	- magnet - museum poster - food - souvenirs - used to collect tickets, but when there are more and more tickets, he throw away, because they are useless	places tickets	- restaurant - cheap, special souvenir
	Why do you collect?	- sense of achievement when seeing abundance of collection - like to organize these collections and make them beautiful	- like it, hobby - like to try things others do not try (foreign foods)	- the size of postcard is ideal for collection	- way to collect memory - they are special	- simply want to collect, but they don't really serve much memory	do this unpurpose, he marked the place while planning the trip, when he look back to the map, he realize he had been to so many places	- souvenir for satisfaction, or as a gift to people - restaurant -- can be the recommendation to others, or as reference that she can visit again
	What does these collection means to you?	- sense of achievement - memory	- sense of achievement - memory - gratify one's vanity	- some trace for your travel memory - some postcards were written with experiences from travel and drawings	- dialogue between the self (like time capsule) - see the growing of the self (comparison), the change between present me and past me - stories - a way of travel	- not really meaningful, just a bit sense of achievement - care about the moment, with someone that makes him happy, photo with friends are more interesting to him	want to keep them as memory, but never actually see them again	- not really meaningful
	Where do you store these collections?	- somewhere in the box	- decorated in the room - draw a map, mark them, hang on the wall	- on the wall	- box, or decor	- on the wall	he forgot where he placed them	- in the box
	How often do you look back at them	- rarely	everyday	see them everyday, sometimes recall it	- sometimes - in bad mood - to show off with friends	- sometimes alone	never	- sometimes alone
	How do you consider the physical and digital collection?	- tangibility	- you can directly see the physical collection but rarely go through digital collection	- more emotions for memory from physical objects	- IG is used to collect stories, create core value island for the self, represent one's identity - pin on google map is impressive but less meaningful	- you imagine your past through physical souvenir, while photos have visual that represent that certain moment, more authentic	- physical collection take up many space comparing to digital collection	- digital collection is more practical, no matter for personal reference or recommendation to others - physical collection are not really meaningful, just because they look nice
remembered experience	Can you share your memorable experience of a place? (You can check out your cell phone and share)	Trip in Lanyu: sun shines while riding motorcycle, group photo together when departure, eating & drinking together in a bar, the pick room, goats & pigs	trip to china, japan, thailand, poland... photos, videos	skiing in poland	trip in portugal	skiing in france	trip in Edinburgh	skiing in bulgaria
	How do you feel now (content, calm, nostalgic...), when recalling this memorable experience?	- content - calm - nostalgic	content, nostalgic, excited, regret, expect	interesting, happy, cherish, sigh (time flies, happy moments can not go again)	- funny, interesting, happy - immersive, feeling what you feel at that moment	nostalgic, nice, interesting	happy	happy
	Do you enjoy this feeling of remembering? Why or why not?	yes	yes	yes	yes	yes even though you have bad experience at the moment, it does not sound so bad when remembering	yes	yes
Notes				- Pensieve -- memory pool in Harry Potter	- there is no good or bad in remembering - it is subjective - possibility driven design			

APPENDIX 3. USER RESEARCH RESULT 2

Participant	1	2	3	4	5
general	age	25	24	23	24
	gender	female	female	female	male
	nationality	Taiwan	Taiwan	Netherlands	Taiwan
	profession	student	designer	student	Graduated
	travel frequency (how often do you travel, to a new attraction, you want to record the memory)		once in 1-2 month	once in 1-2 month	1 in a month
recording	How do you record your travel memory? (ex. photos, videos, writings, sketching, collecting) (digital & physical)	photos, videos, writings sketchings, souvenir, diary	photos hand written diary, drawings	photos, videos hand written diary, printed trip recordings	photos, videos handwritten diary
	What platform do you used to record travel memory	portable hard drive computer album instagram	instagram computer album	computer album will select some highlighted photos	instagram photo album
	What kind of trip will you make recordings?		- abroad: make complete recordings for the trip, including hand writings, print photos and stick to the diary, make drawings, cut off something from the dm and stick to the diary - other attractions in the country: hand writings, make the content complete - normal places: some short descriptions	- long trips abroad, which may last about 3 weeks	- to new or interesting places
	What is the process of your travel recording? (before, during, after)		- prepare things for afterwards recordings (eg, stationery)	find info, stories about the place, make a list of places and its info	- planning with computer
		sketching, photos, videos	- photos, diary - short notes by phone during the trip, incase she forget something	- photos, diary (write complete note each day) - look at the info lists during the trip	- photos, videos
		1 day organizing photos write and post on IG	diary, select highlight photos, select and print photos from the highlight photo	select highlighted photos print travel calendar	- diary - stick tickets in the diary
	Do you encounter any problems while recording?		too many things to bring (eg, stationery) to make physical recordings	prefer hand writing, but it's time consuming to type it and make into digital version	- too lazy to write - forgot the details
	What do you collect while travel?	series photos, story of strangers	-	-	- cities - delicacy - stars of google map - airline he has taken, spots
		postcards, sketchings, stamps	postcards, dm	- stones - sometimes souvenirs - sometimes stick tickets in the diary	- tickets - souvenir

Participant	1	2	3	4	5
age	25	24	23	24	
Why do you collect and what do they represent?	<ul style="list-style-type: none"> - dialogue between the self (like time capsule) - see the growing of the self (comparison), the change between present me and past me - stories - a way of travel 		<ul style="list-style-type: none"> - can make artworks from the stones - the list of places she has been can be the reference for herself and others 	<ul style="list-style-type: none"> - when you have a series of related things in hand, you are motivated to collect them - reminds him of the experience - feels satisfied with the abundance collections 	
quotes	<p>"Things collected in travel, no matter it is an object or experience, serve as a dialogue between the self, it's like a time capsule that brings me back to that special moment."</p> <p>"There are still some things I haven't figured out at that moment, but when I look back at that moment now, I can feel the improvement I have made within this time span."</p>	<p>"Even if the recordings are digitally created, I still print them out and stick to my diary. In this case I can have all the highlighted moments in my diary"</p>	<p>"I have better experiences in hand writings. I enjoy the process of writing and also look back at my writings."</p> <p>"Me and my mom collect map of certain area, then we write down every places we have been. I feel delighted every time I look back at it."</p> <p>"I write diary with hands, but I write reports with computer, because they are different."</p>		
In what circumstance do you recall travel memory?	<ul style="list-style-type: none"> - chatting with friends - in bad mood 		<ul style="list-style-type: none"> - when she is going to visit the place again - when recommending people some places - sometimes without reason 	<ul style="list-style-type: none"> - when he is bored - when he wants to travel abroad - often recall 	
What value do you consider digital memento possess?	it represents the "self" at a particular moment	<ul style="list-style-type: none"> - digital recordings lack authenticity, you may delete them by accident - photos provide precious memory, you can immediately go back to the moment - video is limited, you can only watch them in digital devices, and you must edit them, otherwise you may not be patient to watch all of them - texts show our thought, something that cannot be presented by photos or too late to take photos and be written in text, it tells you stories - they are convenient, do not take up space, no weight, easy to bring with, do not get old 	<ul style="list-style-type: none"> - high quantity photos do not have much value itself, one selected good picture will be more valuable - don't really feel like the digital stuff belongs to you, she write report with computer but write diary with hands - digital mementos often have some premade settings and layout 	<ul style="list-style-type: none"> - It complements the things you might have forgotten - the high quantity of photos makes him reluctant to go through 	

Participant	1	2	3	4	5	
age	25	24	23	24		
memory	What value do you consider physical memento possess?	souls were given to each object, they should be meaningful enough to build connection with her	- hand written diary and drawings: interesting, playful, free to create things. - authenticity, something that really belongs to you	- more customised, you are free to create anything you like - you can't put digital photos in the physical diary	- you make effort to do it - deeper feelings for it than typing - sometimes too lazy to write it	
	How do you consider the relation between physical & digital memento? How can they interact with each other?	- photos should accompany with text in order to bring her back to the moment - they have no boundary between each other, can interact with each other - transformerable	- photos should accompany with text in order to bring her back to the moment - transformerable, you can make your physical diary into digital version by scanning the QR code	- having both of them in hand is really nice, they have their own advantage and disadvantage, both of them are irreplaceable	- transformable - you can either have both of them in hand or one of them	
	If there is a travel recording app for you, what do you expect the functions it provide?		- you can record your route and what you have done in those place, and it can be exported, so it can be stucked into the diary	- to write down what you have experienced accompany with pictures - make the digital app authentic (eg, customised the element of digital booklet) - sharing	- collect the places you have been - collect anything - write something for personal remembrance - share trips with close friends	
	quotes	"it represents 'me' at that 'moment', I can look back at how I am at that moment, I can feel the change between the present me and me of that particular moment" "I rarely bought souvenirs. I used to gives souls to an object, so the object should be meaningful enough, then I can build connection with them"	"digital stuff lacks authenticity, you can easily delete them with a button" "using digital app is like someone offers you a space, you write something on it, but they do not really belong to you, only your physical objects belong to you" "It would be nice if you have both digital and physical version of your travel diary, they have their own advantage, but it should be under the premise that you don't have to make additional effort for it"	"I like handwritten diary, but I can't put the digital photos into the diary. Sometimes I was quite troubled that, when reading handwritten diary, I have to make effort to search for related photos; when seeing photos, I have to flip through the diary to look for the related writings." "I want to share my travel experience with others, but the content will be a bit different for those that are written for personal reminisce and for sharing. I want both, so I write diary for myself and type on blog to share with others, but it take me too much effort, so I only do this once."		

APPENDIX 4. CONCEPT TEST RESULT

		participant1	participant2	participant3	participant4	participant5	participant6
general	gender	male	female	male	female	male	female
	age	25	25	24	24	25	25
	nationality	Taiwan	India	China	China	China	Taiwan
	profession	front-end developer	environmental science student	computer science student	industrial design student	industrial design student	industrial design student
prev. experience	phone	andriod	android	apple	android	andriod	apple
	travel app/diary experience	google photo, instagram	google photo	馬蜂窩, write a diary	travel app in china	instagram	instgram
concept1 intro		The concept1 is called "key to memory". You are able to build up digital content and connct them to the souvenir. You can see the story behind the souvenir by simply scanning them.					
score the value (1-5, least-most), and why	enjoyable	4, like to have many collections	3.5, not sure if she will do it or how much she will do it	3, does not consider souvenir an important part of trip, experience is more important	4	3, feel enjoyable when scanning	3
	emotional	2, just simply see some posts	4, like the story behind, it is unique	2, why should people see the souvenir with the cell phone	3	3	3
	rich	2, the collection itself can be rich	4	4, able to see the list of souvenir	3	5, merge the trip and souvenir together	4
	meaningful	4, collections are meaningful to me	4	3, depends on personal preference	4	4, scanning is meaningful and gives you surprise	2
	immersive	2, simple scanning and reading the post is not very immersive	3, only focus on the souvenir	3	3	3	2
comments on concept 1	strong point	- The interaction is ok. - Happy to see all the collections	- like the idea, helps you remember the detail of the trip - you can also add previous collections to the app	- sometimes looking back at the list of collection is nice	- nice way to organize your memory - helps you think of your souvenir - the interaction of scanning is interesting	- scanning is a nice interaction, you see the storybehind and gives you surprise	- scanning triggers your memory immediately
	weak point	- Not sure if the technique is feasible. It has a simple goal but require high cost to achieve. It lacks efficiency in developing - Only like the digital collections, but the scanning part is quite unnecessary.	- you maynot always buy souvenirs in every trip	- scanning problem: is there is a small number of collections, it is not necessary to scan - scanning problem: what if I am in a dark room? - scanning problem: clicking on the collection is way easier than scanning and take less time	- the tag is not necessary, you can write something about the souvenir rather than tagging souvenir to the existing post	- feels rigid, it's like piecing up the trip into the souvenir, sometimes the trip is not highly related to the souvenir - if you bought 3 souvenirs in the same trip, do they show the same content?	- 'typing' your feelings might not be touching - your digital collections is like shopping catalog, it should be more personal and connecting
quotes		- Are you sure the technique is feasible? - The overall user flow is smooth - You can already view all your collections in the app or search them, why do I need to scan on them to view the story behind? Afterall the technique is not really feasible.	- i like the concept, it is unique	- I put the souvenirs I like at the place where I can see it everyday, I can come up with memories when seeing it, so the app is quite unnecessary	- scanning builds up the interaction between app and physical souvenir, I think that is interesting	- I like scanning, it's interactive - feels somehow rigid with the 'stories' behind the souvenir	- the scanning part is nice

		participant1	participant2	participant3	participant4	participant5	participant6
concept2 intro		The concept2 is called "hyperlink", especially design for those who keep a travel diary. It combines additional digital content to the physical diary. When reading the diary, you can see the digital content through hyperlink.					
score the value (1~5, least~most), and why	enjoyable	5, like the interaction and function	3.5, don't like scanning itself, sometimes fail to make good scanning	3, not necessary to make a digital version	3, writing the physical diary itself is more enjoyable	5	5
	emotional	3, things written in the diary is emotional	4	2, not necessary	3	5	4
	rich	4, you have both digital and physical content in hands now	4	3	4	5	5
	meaningful	4, many contents are all together now	4	2	2, no need to have a digital version	4.5	5
	immersive	4, text in the diary is immersive, the digital content supports it	3.5	3	3	5	4
comments on concept 2	strong point	- the interaction of building hyperlink is nice, hyperlink is impressive - nice thoughts to add media to the physical diary	- you just put everything together as a collage, it's convenience and can carry around	- you can easily attach additional content and carry with you anywhere	- it expands the content of the physical diary, adding things that cannot not be added in the past - a nice way to view videos	- you might hardly look at digital mementos in your device normally, but the hyperlink give you a chance to look at them - you just have to add something to it, don't have to build up the content from nothing - you can put everything together	- a good way to share paper work - when taking picture of the diary, you sometimes want to take in the surroundings as well - inspiring for those who want to creating something - many possibilities
	weak point	- the technique may not be so feasible	- the digital diary itself is not flexible, can't edit the "image" - can the text be recognized in the digital version?	- the technique may not be so feasible - scanning will decrease the quality of picture, the digital diary may not be displayed well - it's weird to have another digital version if you already have a physical one - the digital diary is not flexible, changes can be added to the physical diary, what about a digital one? - how do you know where the hyperlink is built by only reading the physical diary?	- do you scan all the pages of diary into the app? it takes time - some of the page do not have hyperlink, is it still necessary to scan it? - when viewing physical diary, how do i know i have built up a hyperlink in this page? - adding text, location as the content of the hyperlink is not so necessary, only the video may be nice	- doubt the quality of the digital version diary - the contents are hidden in the tag, you need some steps in order to see the content	- no
quotes		- you can tag other media with hyperlink, that is really nice, I like the interaction of building the hyperlink.	- you can't edit the digital diary itself (because it's a still image) instead of adding hyperlink, what if you make a change with physical diary? Shall you scan it again?	- I can make change to my physical diary, but how can I change the digital one? - There will be image distortion if I scan the diary into the cellphone - making the digital version is unnecessary	- maybe you can add dots to the point you marked the hyperlink, and only have to scan the dot afterwards? otherwise how do you know which page you have marked hyperlink	- the page of the digital diary can be richer, showing contents directly	- it's meaningful and creative, you can put many stories behind, oh i love it, i couldn't think of its weakness

		participant1	participant2	participant3	participant4	participant5	participant6
concept3 intro		The concept3 is called "entrance ticket". It creates a new way of sharing by adding digital content to the postcard. Only those who received the postcard are able to read the digital content behind.					
score the value (1-5, least-most), and why	enjoyable	3, as a sender it is less enjoyable, but as a receiver it is vary enjoyable	4.5, you will be really happy to receive it	5, new and interesting	4	5	4
	emotional	5, giving and receiving bonds a relation	4, it's personal	4, maybe depends on the digital content behind	5, especially as a receiver	5	5
	rich	5,	4	5	4	4	4
	meaningful	4, a postcard with hidden content sent from other country	4	4	5	3	5
	immersive	4	4	4	4	3	4
comments on concept 1	strong point	- the idea is more practical - as a receiver, you receive 2 surprises at a time	- you can attach things to postcard, it's not only a souvenir, but you also add things of your own, you create something in it so it's especially meaningful	- you can store any media in your postcard besides text, giving you a higher level of experience - it is practical	- it's cool that you are the privilege one to see the hidden content	- a nice interaction between digital and physical stuff	- it is possible to realise - it adds more meaning to the postcard - it creates more opportunities to retrieve your memory
	weak point	- the function may be rarely used, the sender may requires much effort, while the receiver may find it interesting	- for the first time, it may be less intuitive to transmit the data, especially for elderly people who don't know much about technology	- consider the cost - nfc tag may be damaged while sending the postcard - the content is static, if it is QR code, or given a link to nfc tag, it can be dynamic	- they should install the app in order to view the content behind - if the sender want to change the content afterwards, will it be possible?	- the content should not be only a general, not flexible, it should be something more personal - think more about the feedback of the receiver	- digital text is not necessary, just multimedia
quotes		- I would like to be the receiver, it's an interesting interaction, and you get 2 surprise at a time, I like it.	- you create things and send it to friends, it is very meaningful	- it is new and interesting, the postcard can contain lots of contents	- it is fun if you receive a postcard like this	- it's weird that the digital content is just a post	- I want to let people see what i experienced
Rankings							
rank the concept / why	overall preference	3 = 1 > 2	1 > 3 > 2	3 > 1 = 2	3 > 1 > 2	2 > 3 > 1	2 > 3 > 1
	overall interaction	3 > 2 > 1	3 > 1 > 2	3 > 1 = 2	1 > 3 > 2	3 > 2 > 1	2 > 3 > 1
	attractive	3 > 1 = 2	3 > 2 > 1	3 > 1 > 2	3 > 1 > 2	2 = 3 > 1	2 = 3 > 1
	will download	1 > 3 > 2	1 > 2 = 3	3 > 1 > 2	3 > 1 > 2	2 > 3 > 1	2 > 3 > 1
	will recommand	3 > 1 > 2	3 = 1 > 2	3 > 1 = 2	1 > 3 > 2	2 > 3 > 1	2 = 3 > 1
				strongly like 3			strongly like 2
							strongly like 2
							strongly like 2

APPENDIX 5. USER TEST RESULT

		1	2	3	4	5
general info	participant					
	gender	female	female	Male	Female	Female
	age	28	25	24	24	23
	nationality	Taiwan	Taiwan	China	China	Netherlands
	profession	occupational therapy student	Industrial design student	computerscience student	Industrial design student	Industrial design student
previous experience	- collect postcards - write postcard to friends and herself	- chicken soup for the soul - write a diary - make sketches - every travel memory is very important to her - she can easily immerse herself to the memory	- sometimes write handwritten diary - like to write to express his feelings	- seldom write but sometimes scroll through her phone to recall travel memories	- chicken soup for the soul - write diary when travel - has mentioned her unfulfilled needs of putting digital contents into physical diary	
interview	strong point	- you can read the digital content and the diary together - like the interaction	- it is nice to retrieve memory with phone and diary together - you can read the digital content instantly	- the moment that digital content pops up in the phone makes you happy - you can read text and other visuals together	- it enrich people's behavior of recalling memory - it has nice interactions - it creates a new way of interaction, different from the traditional way to recall memory	- if it becomes a real product, I would love to use it - the usage of the app is clear - it makes you keep both digital and physical content together
	weak point	- the flow is not smooth - do not know where the data is stored - what is your main function? diary or sharing? the "+" in the middle should be designed for the most important one	- creating share content and creating pages to the trip is confusing	- too many functions, such as message and notification, keep it simple	- not all postcard receiver have the app, they need to install the app in order to read the content	- the "menu" is a bit confusing, maybe it should be changed into "profile" - the "homepage" means things of your own, the "share page" means things to share, but the "menu" sounds like both to me, it's just weird
Questionnaire						
all	How will you score this product (1-10)	7	8	6	8	8
	Do you enjoy the overall way of interaction?	- yes, enjoy it, it makes you immerse into the memory	- yes, it is convenient to recall your memory and it makes your memory more vivid	- yes, it makes you happy when the content pops up	- yes, feel happy when you scan the tag and the content pops up instantly	- yes, it's easy and straightforward - love the interaction between paper and app
diary content building	Is it easy and clear to build up content?	- The step is not very clear, the button is hidden somewhere, can't find them directly - the lower bar should be customized under different states	- quite easy, just some slight interface problems - I would like to have a "+" in the middle of the content when editing, because it is more intuitive that you know you can add something by touching it - you can make a notification when you successfully create a trip, not just directly jump to pages, it is a bit confusing - you can write a short description about what the "page" means	- quite easy	- easy	- easy and clear
	Are you satisfied with the media type?	- you can automatically load the location of the picture - you can add music	- yes, maybe you can add your travel companion to the page	- yes, you can also add sounds	- yes, you can add sounds, like some recordings of your thoughts about your trip	- yes, maybe adding pdf like the boarding pass, also like adding music
	Are you satisfied with the layout?	- many opinions with the layout	- the layout is satisfying, only some small details should be adjust	- a general, clean layout	- a general, clean layout	- the white color is clean and nice - it's simple
	Is it easy to transmit data to the tag?	- don't hide the button in the "..."	- don't hide the button in the "..." because "send" is an important function	- quite easy	- easy	- easy

	participant	1	2	3	4	5
diary memory retrieving	Is it easy to call out the digital content?	- don't know how to call out at the first time - the tag may interfere with each other (readin the page1 content but the phone senses the page2 content) - why don't you use QRcode	- don't know how to call out at the first time, but after noticing, it's easy - the reader button should be placed somewhere obvious, where you can always immediately see it, because it is your main function	- once you notice where the reader is, you will find it easy	- once you notice where the reader is, you will find it easy - the reader button should be placed somewhere like the main page	- thought you should read the content by touching "finland" in the "trip" - hiding the reader in the menu is confusing, don't hide the reader inside it, because the reader is important and the menu is secondary - but it's easy to call out content
	Does it bring you back to that special moment?	- yes, I can immerse in the trip, i have vivid memories	- yes, with both digital and physical content together	- yes, I can immerse myself in it	- yes, it can bring you back to the moment	- yes, you scan the tag and you can see the digital content directly
	Do you enjoy retrieving memory in this way of interaction?	- yes, the content immediately pops up - think the reader notification annoying - it is smoother to scroll down to view the content, don't really need the series photo to swipe left to right	- yes, it's really convenient	- yes, it's good that the content pops up immediately	- yes, it is like a kind of instant album - it's fun that the content pops up instantly, it's fast, unlike QRcode you have to turn on the camera and scan it, it's quite troubled	- enjoy it, it's easy, everything is made by yourself - i do not like if you scan the tag and it pops up the album, so i think it's really nice that the content is built by yourself
postcard content building	Is it easy and clear to build up content?	- I just want to build up content once in the diary and share them with others, building additional content for sharing is unnecessary for me - confused why is the content saved to different location (diary / shared content) - can I also save to diary if I have already save it in the "shared content"?	- the process is easy - don't know what "save to content" means - the are two "+" in the main page, which one should I select? - can I save to content first, then rfid send afterwards? - it's weird that you have to select the person you want to send postcard to	- confused with two "+" - don't understand what "content" means, the "content" should be changed into an understandable name	- confused with two "+" - don't know what "save to content" means - it's weird that you have to select the person you want to send postcard to	- wasn't confused with two "+" - not sure what "save to content" means - it is logical but need some clear explanation, maybe adding an "i" for explanation
	Are you satisfied with the media type?	- same as diary	- same as diary	- yes	- yes	- same as diary
	Are you satisfied with the layout?	- same as diary	- same as diary	- same as diary	- same as diary	- same as diary
	Is it easy to transmit data to the tag?	- confused what the buttons means (diary/shared content)	- confused what the buttons means (diary/shared content)	- confused what the buttons means (diary/shared content)	- confused what the buttons means (diary/shared content) - not sure how you can search for tag, if you put the tag away can you still search it? it's better to add some description of how to transmit the data, where you put the tag	- confused what the buttons means (diary/shared content) - but it's still easy and straightforward
postcard memory retrieving	Is it easy to call out the digital content?	- yes, but may forgot to turn off reader	- yes, quite easy	yes	- yes	- yes, the step is just the same as diary
	Are you happy with the interaction?	- yes, enjoy it	- yes, unlike general sharing, there is a ritual in postcard sharing, the digital content become more meaningful	- yes, it is meaningful, a kind of ritual	- yes, enjoy the interaction	- yes, just the same as diary
	Are you satisfied with the way of replying message to the sender?	- yes, but is it only private message? or can they leave the reply on the post, otherwise the reply may disappear	- yes	- no, it's too complicated, at first you scan the tag, the content pops up, it is meaningful, a feeling of ritual, but when you close the content, it jumps to the dialogue, it becomes normal, no longer have that special feeling, it makes the act of hiding digital content in the postcard meaningless - if i want to reply others, i will use other chatting tool, why should i use this?	- it's quite awkward that after you close the content, it jumps to the dialogue. you can add a step like asking "would you like to leave some message to Peter?" then jump to the dialogue - the dialogue should show that "you have read the content"	- yes, like to reply directly - it's weird that you are in the menu, you scan and pops up content, when you close it, it jumps to the dialogue. it's weird that it jumps around the page

IDE Master Graduation

Project team, Procedural checks and personal Project brief

This document contains the agreements made between student and supervisory team about the student's IDE Master Graduation Project. This document can also include the involvement of an external organisation, however, it does not cover any legal employment relationship that the student and the client (might) agree upon. Next to that, this document facilitates the required procedural checks. In this document:

- The student defines the team, what he/she is going to do/deliver and how that will come about.
- SSC E&SA (Shared Service Center, Education & Student Affairs) reports on the student's registration and study progress.
- IDE's Board of Examiners confirms if the student is allowed to start the Graduation Project.

! USE ADOBE ACROBAT READER TO OPEN, EDIT AND SAVE THIS DOCUMENT

Download again and reopen in case you tried other software, such as Preview (Mac) or a webbrowser.

STUDENT DATA & MASTER PROGRAMME

Save this form according to the format "IDE Master Graduation Project Brief_familyname_firstname_studentnumber_dd-mm-yyyy".

Complete all blue parts of the form and include the approved Project Brief in your Graduation Report as Appendix 1 !

family name TSENG

initials K.P. given name KOPING

student number 

street & no. 

zipcode & city 

country

phone

email

Your master programme (only select the options that apply to you):

IDE master(s): IPD DfI SPD

2nd non-IDE master:

individual programme: (give date of approval)

honours programme: Honours Programme Master

specialisation / annotation: Medisign

Tech. in Sustainable Design


Entrepreneurship


SUPERVISORY TEAM **



Fill in the required data for the supervisory team members. Please check the instructions on the right !


** chair Gert Pasman dept. / section: DCC

** mentor Haian Xue dept. / section: DA

2nd mentor 

organisation: 

city:  country: 

comments (optional) 

Chair should request the IDE Board of Examiners for approval of a non-IDE mentor, including a motivation letter and c.v..



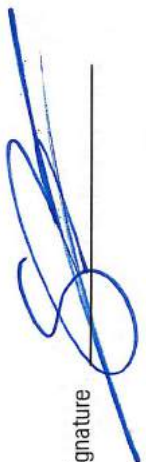
Second mentor only applies in case the assignment is hosted by an external organisation.



Ensure a heterogeneous team. In case you wish to include two team members from the same section, please explain why.

APPROVAL PROJECT BRIEF

To be filled in by the chair of the supervisory team.

chair date - - signature 

CHECK STUDY PROGRESS

To be filled in by the SSC E&SA (Shared Service Center, Education & Student Affairs), after approval of the project brief by the Chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total: EC YES all 1st year master courses passed

Of which, taking the conditional requirements into account, can be part of the exam programme EC NO missing 1st year master courses are:

List of electives obtained before the third semester without approval of the BoE

name date - - signature

FORMAL APPROVAL GRADUATION PROJECT

To be filled in by the Board of Examiners of IDE TU Delft. Please check the supervisory team and study the parts of the brief marked **. Next, please assess, (dis)approve and sign this Project Brief, by using the criteria below.

- Does the project fit within the (MSc)-programme of the student (taking into account, if described, the activities done next to the obligatory MSc specific courses)? APPROVED NOT APPROVED
- Is the level of the project challenging enough for a MSc IDE graduating student? APPROVED NOT APPROVED
- Is the project expected to be doable within 100 working days/20 weeks?
- Does the composition of the supervisory team comply with the regulations and fit the assignment?

comments

name date - - signature

Initials & Name	KP TSENG	Student number	4708091
Title of Project	Design an integrated platform to record and retrieve travel memory		

Design an integrated platform to record and retrieve travel memory

project title

Please state the title of your graduation project (above) and the start date and end date (below). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

start date - -

- -

end date

INTRODUCTION **

Please describe, the context of your project, and address the main stakeholders (interests) within this context in a concise yet complete manner. Who are involved, what do they value and how do they currently operate within the given context? What are the main opportunities and limitations you are currently aware of (cultural- and social norms, resources (time, money,...), technology, ...).

"Memories are the treasures that we keep locked deep within the storehouse of our souls, to keep our hearts warm when we are lonely." — Becky Alligada
 For many travelers, not only is advanced planning and problems dealing important to them, but the "afterwards memory" is even an indispensable part of their journey. Travel is to experience new things, when they become a memory, we need a 'storehouse' to preserve it. But what exactly is this "storehouse"?

Backpackers, those who are fond of travel and travel regularly, are the main stakeholder in this context. They have been to lots of places and continue to experience new things in their life, but also treasure the past memory they have experienced.
 Since most of the experience only happen once in a lifetime, they tend to record the precious memory through different media. Some people take lots of photos and videos, and store them in the computer after the trip; some write blogs or make drawings to further preserve their travel memories; some collect their locations on Google map; some collect postcards or souvenirs...

People's memory are scattered among several media, and there isn't a clear definition of this "storehouse" so far. Is it possible to design "a storehouse" to record our memory, instead of distributing them into different media? Can the storehouse add value to people's travel, so they get the most out of their journey?

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Initials & Name	KP SENG	Student number	4708091
Title of Project	Design an integrated platform to record and retrieve travel memory		

introduction (continued): space for images

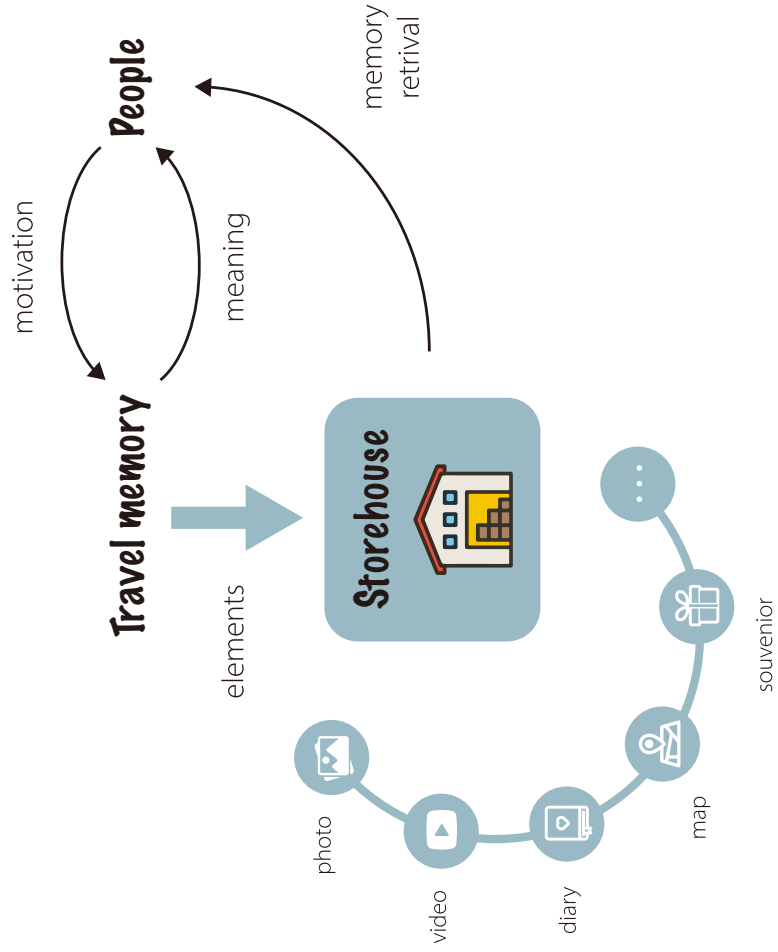
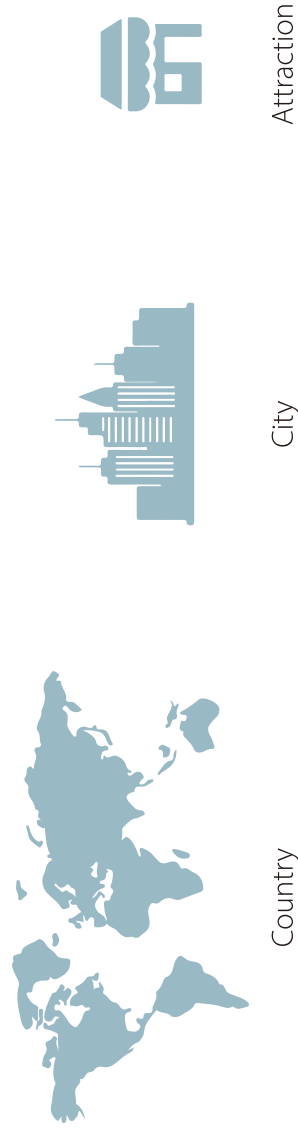
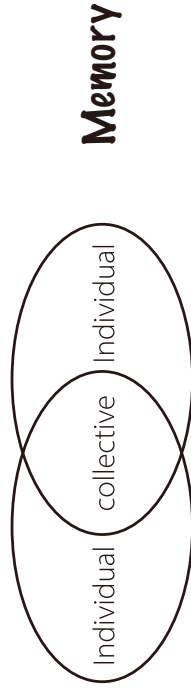


image / figure

The relation between people and their travel memory



Collecting behavior

image / figure

Individual/collective memory and collecting behavior

Initials & Name	KP TSENG	Student number	4708091
Title of Project			
Design an integrated platform to record and retrieve travel memory			

PROBLEM DEFINITION **

Limit and define the scope and solution space of your project to one that is manageable within one Master Graduation Project of 30 EC (= 20 full time weeks or 100 working days) and clearly indicate what issue(s) should be addressed in this project.

Looking at how people value and operate in the context, some problems can be listed:

As people gained more and more travel experience, it seems a bit chaotic when looking back to tones of memories: different time, places, travel companion, recording media...

Due to extra effort spend to organize the travel memory, some people only select some satisfying photos or videos and upload to the social media, and the rest of less interesting photos will remain in the album that they will hardly look through again.

Due to the various travel recording tools, the travel memory of those who make effort in recording, are scattered among different media. It requires effort to make the memory come together as a whole by browsing through huge pack of documents.

How can we design and provide people a clear overview of all the travel memory, in order to keep their memory vivid and enduring?

How can the general recording media (photos, videos, blogs, maps , diary...) be well integrated, so people can get the most out of it without much effort?

ASSIGNMENT **

State in 2 or 3 sentences what you are going to research, design, create and / or generate, that will solve (part of) the issue(s) pointed out in "problem definition". Then illustrate this assignment by indicating what kind of solution you expect and / or aim to deliver, for instance: a product, a product-service combination, a strategy illustrated through product or product-service combination ideas, In case of a Specialisation and/or Annotation, make sure the assignment reflects this/these.

Design a product or product-service combination which integrates the advantage of travel recording media and the feature of collecting system. It will be a private-based platform that preserves individual and collective memory.

Research of this project will mainly be done on memory study and user study. The memory study will be focusing on individual/collective memory and tourism memory retrieval. The user study will be about exploring the needs of target group based on travel memory, and looking through the existing travel recording platform.

Initials & Name	KF TSENG	Student number
Title of Project	Design an integrated platform to record and retrieve travel memory	
	4708091	

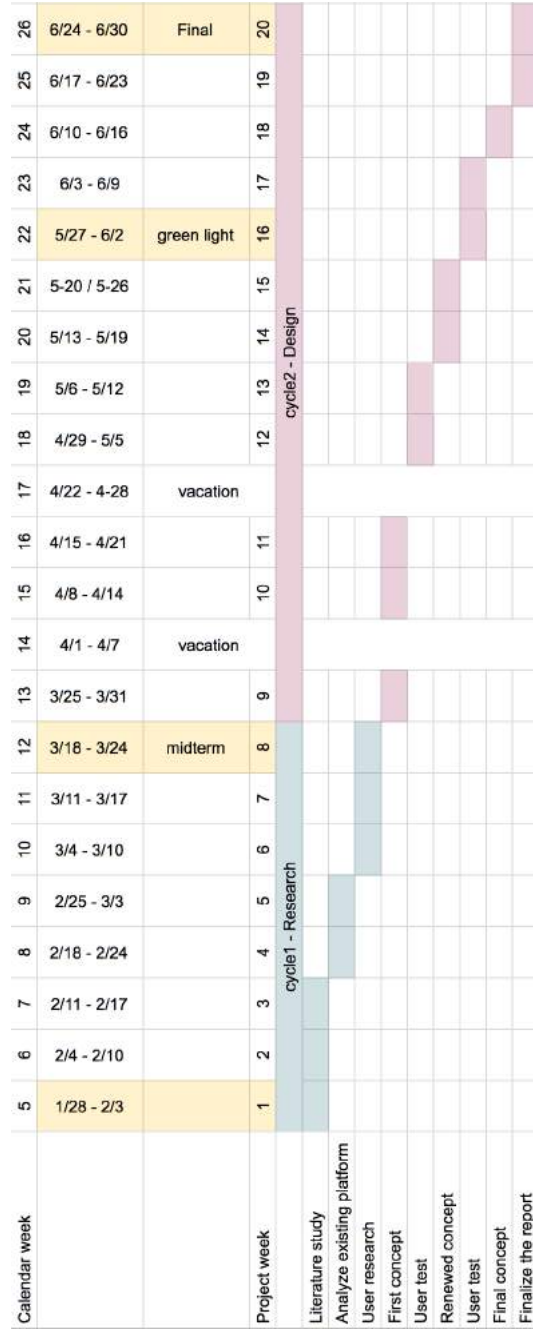
Personal Project Brief - IDE Master Graduation

PLANNING AND APPROACH **

Include a Gantt Chart (replace the example below - more examples can be found in Manual 2) that shows the project, deliverables you have in mind, meetings, and how you plan to spend your time. Please note that all activities within the given net time of 30 EC = 20 full time weeks or 100 working days, and your planning should include a kick-off meeting, green light meeting and graduation ceremony. Illustrate your Gantt Chart by, for instance, explaining why you please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if because of holidays or parallel activities.

start date - -

end date



The project will be divided into two cycles: Research and Design

Research cycle:

- Literature study about memory, including tourism memory retrieval, individual/collective memory, autobiography memory, and the collecting behavior
- Analyzing the existing platform related to travel memory recording. List out the pros and cons of each platform and possible elements that can be recorded within travel memory.
- Perform user research:
 - 1) To explore people's motivation of preserving travel memory, what travel memory means to them, what they want to get while retrieving their travel memory
 - 2) Analyze current situation, explore the value each media (photo, video, blog...) possess, how they contribute to people's travel memory
 - 3) To explore people's collecting behavior. What do they collect while traveling and why.

Design cycle:

- The first concept will be designed according to the research, and evaluate among several backpackers. The goal of the user test is to measure the usability of the interface itself, explore the value people obtain within the platform, and people's experience when recalling their travel memory through the platform.
- The renewed concept will be modified based on the first user test, mainly on the interface and its value.
- The final design will be performed based on the previous insight and evaluation.

MOTIVATION AND PERSONAL AMBITIONS

Explain why you set up this project, what competences you want to prove and learn. For example: acquired competences from your MSc programme, the elective semester, extra-curricular activities (etc.) and point out the competences you have yet developed. Optionally, describe which personal learning ambitions you explicitly want to address in this project, on top of the learning objectives of the Graduation Project, such as: in depth knowledge a on specific subject, broadening your competences or experimenting with a specific tool and/or methodology, Stick to no more than five ambitions.

MOTIVATION OF THE TRAVEL PLATFORM
 After studying in Netherlands, I become a frequent traveler, so do many of my friends. Travel experience become a non-stop topic around us. During the travel, I found out most of my travel companions take lots of photos, and were busy writing diary in the end of each day, recording the travel memory of their own and the memory that belongs to us. In addition to the actual travel, I also follow several social accounts of backpackers, or browse through travel blogs. I found out that people really cherish their travel memory, which makes their life colorful.
 I like the quote of Augustine of Hippo, "The world is a book and those who do not travel read only one page." More and more people travel, and are writing down their own book of the world. How can this "book"(or storehouse) look like if we integrate all the recording media into one? How can people get the most of their travel memory from this book? This is how the idea of the travel platform started.

COMPETENCE TO PROVE AND LEARN
 In this project, I will learn to read and analyze a paper efficiently, gain deeper understanding about travel & experience & memory, to apply generative research method in the project, and learn prototype building software such as Axure or Sketch. In addition, prove the ability of conducting usage inspection and execute user test on my own.

AMBITION
 I want to further develop this platform into a real service after graduate, and then popularize it afterwards.

FINAL COMMENTS

In case your project brief needs final comments, please add any information you think is relevant.

Initials & Name	KP TSENG	Student number	4708091
Title of Project	Design an integrated platform to record and retrieve travel memory		

