WILLOW: REMINISCENCE OF A DEAR DEPARTED

Interaction Design Project I I I

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Declaration

The research work embodied in the written submission titled "Willow Reminiscing about a Dear departed" has been carried out by the undersigned as part of the post graduate program in the Industrial Design Centre, IIT Bombay, India under the supervision of Prof. Pramod Khambete. The undersigned hereby declares that this is her original work and has not been plagiarized in part or full from any source. Furthermore, this work has not been submitted for any degree in this or any other University. It is understood that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action if the need arises.

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Approval Sheet

The Interaction Design Project III entitled "Willow: reminiscence of a dear departed" by Sukanya Mudaliar , 126330005, is approved in partial fulfilment of the requirement of Master of Design course (Interaction Design).

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Abstract

This project is a service design solution that facilitates people when they reminisce upon time spent with a parent, grandparent or friend who is no longer alive.

It was inspired by a peer reviewed paper on thanatosensitivity, studying digital inheritance and its effects. It led to studying ways to cope with grief, approach towards death and common funeral rituals in India. Simultaneously 7 people who had lost a dear one were interviewed by asking open ended questions. Through the interview, nostalgic reminiscence was identified as the focus of the project. To further reinforce the ideas and maintain sensitivity, PD approach was incorporated. It set the tone and language of the design output. Based on these insights the final deliverables of this project were designed. The first deliverable was a service blueprint that explains the possible threads of service encounters. Initially, these encounters were tested through the Science Fiction Prototyping method and then more encounters were chalked out through a graphic novel and video prototype. The ideas were evaluated by taking feedback of people on various aspects on Likert scale and through a set of open-ended questions.

This project has been a humble attempt to envision sensitive service encounters in a constantly evolving future, with the firm conviction that the future, after all is a product of our many stories and expectations.

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Introduction

Project started by studying the urge to leave behind a legacy. But soon it became evident that the primary users would always be the ones who live and experience the legacy. They fondly reminisce their time with the departed. They experience nostalgia.

Russell W Belk defines nostalgia as *a wistful mood that may be prompted by an object or a scene, a smell, or a strain of music.*

But nostalgia was not always looked upon in this light.

The term 'nostalgia' was coined by a physician named Johannes Hofer, when he observed a similar set of symptoms among the Swiss mercenaries who served the European monarch. Hofer believed it to be a 'cerebral disease' which is fatal. Up until the 1950s, extreme depression, suicidal tendencies and eating disorders were commonly diagnosed as Nostalgia. [1] Then the sociological point of view on nostalgia became well known. This change made a definite differentiation between nostalgia on an individual level that experienced on a societal level. [2]

Further, nostalgia may be classified into 3 levels:

Real Nostalgia

Real nostalgia refers to sentimental or emotional yearning of the past. This is when the person has actually experienced the past and yearns for it.
For example a song that was popular when an individual was in college brings back the feelings of that time.

Simulated Nostalgia:

This is a nostalgia where the person has himself not experienced the past by himself, but remembers it through the eyes and stories of a loved one.
An example, when a grandmother narrates the story of how she met her husband to her grandson.

Collective Nostalgia:

It is a sentimental or bittersweet yearning for the past which represents a culture, a generation, or a nation. This is not an individualistic notion, rather, it is a collectivistic notion which makes the emotion more consistent between individuals of a similar background when it is presented in the same context. [1]

As one ages, they experience more of nostalgia. And though nostalgia is a very personal emotion, it can be experienced by a large majority of the population as it advances in age. This form of collective nostalgia hit the USA when the baby-boomer generation approached their middle ages. [1] In this period nostalgia was widely studied from a consumer research and marketing standpoint. [1] [3] Today, India has the largest youth population [4]. Soon this population will come of age to experience their own set of nostalgic emotions. But our data driven world of today is it can we make it a richer experience if we foreseeing it and retaining its triggers?

How do people indulge in reminiscence?
People indulge in it through external environments, objects and their senses, but more strongly through their internal senses, their imagination, their thoughts and emotions.

Following is an excerpt that aptly describes the triggers and feeling of nostalgic reminiscence.

" I feel that there is much to be said for the Celtic belief that the souls of those whom we have lost are held captive in some inferior being, in an animal, in a plant, in some inanimate object, and thus effectively lost to us until the day (which to many never comes) when we happen to pass by the tree or to obtain possession of the object which forms their prison...And as soon as I had recognized the taste of the piece of madeleine soaked in her decoction of lime-blossom which my aunt used to give me (although I did not yet know and must long postpone the discovery of why this memory made me so happy) immediately the old grey house upon the street, where her room was, rose up like a stage set to attach itself to the little pavilion opening on to the garden which had been built out behind it...and with the house the town, from morning to night and in all weathers, the Square where I used to be sent before lunch, the streets along which I used to run errands, the country roads we took when it was fine. And...so in that moment all the flowers in our garden and in M. Swann's park, and the water-lilies on the Vivone and the good folk of the village and their little dwellings and the parish church and the whole of Combray and its surroundings, taking shape and solidity, sprang into being, town and gardens alike, from my cup of tea." [5]

Project Process Flow

Figure 1 An overview of the design process applied in this project.`

Literature Study

Reminiscence and digital inheritance

A detailed study of a paper [6] on thanatosensitivity raised many important questions, such as:

- Can digital artifacts support or replace the more material ways of remembering?

- What types of data are meaningful when commemorating the dead?

- What technologies are appropriated for this purpose?

- What are the problems faced while inheriting digital data and devices.

It documents a quality based survey on inheriting of digital devices and how it affects the nostalgic reminiscence, emotions and attitudes of the successor. Individuals above the age of 18 who had experienced the loss of a dear one, within 5 years from conducting the survey, were recruited. Of the survey results the following points acted as inspiration for this project:

None of the respondents indicated that the deceased had made any specific arrangement for their personal technologies in the will 78% respondents indicated that they treasured mementoes.

82 % felt that reminders of the dead are important.

61% did not associate reminiscing with negative affect.

About 54% believed that digital mementoes could be as meaningful as their physical counterparts (e.g., digital photos vs. printed photos).

43% of the respondents expressed no preference for physical mementoes over intangible mementoes. Thus, participants were roughly split about the value and utility of digital devices when compared against physical mementoes.

Half of the participants had digitized possessions (mostly photos) of the deceased. Other items such as furniture, jewelry, letters, journals, bills, voice mails, videos, obituaries, newspaper clippings, art, and silverware were also said to have been digitized in some manner.

A 65% majority reported using their computer and the internet to help them remember, commemorate, or reminisce about their deceased family member. They described using their computer and the internet for activities like, searching for genealogical or biographical information about the deceased, sharing photos (through Facebook, Flickr, etc.) of the deceased, creating a quilt square to represent the deceased in a memorial quilts, using digital pictures frames in the home, reminiscing in emails to relatives, eulogizing the deceased on memorial websites or Facebook, completing administrative tasks (e.g., comparing funeral homes).

When remembering or reminiscing, respondents reported that they most valued photographs (92% of respondents), followed by video of the deceased (41%), journals or written works (39%), music (29%), and non-musical sounds (e.g., voice recordings of the deceased) (29%).

Although 80% of the respondents had not yet planned for their technological estate, More than half the respondents were concerned about how it would be handled upon their death. Many worried about their privacy. They reported to have a few files which they did not want anyone to see and wished to have them permanently deleted upon their death while a large percentage of their other files they would be willing to share with specific individuals. A slightly higher percentage of files (M = 61%, SD = 33%) must be shared while (M = 36%, SD = 30%) they felt must be available to friends.

Overall, the respondents rated the deceased as less tech savvy than themselves, given that the average age of the respondent was 35 years while that of the deceased at the time of death was 72.

Also, with time, occupations have changed and intangible possessions have increased. Intangible possessions were found more difficult to inherit, often went missing or got destroyed. Reasons for intangible possessions being lesser inherited than tangible ones.

Passwords, blocked access unless the service providers were sent a request or the accounts were hacked.

Digital possessions are difficult to claim unlike physical ones.

Physical possessions bore 'personal touches' such as handwriting, wears from usage, etc. which made them unique and participants were more motivated to retrieve such artifacts. Digital artifacts on the other hand, seem less 'special'.

The survey found the role of a "gatekeeper" for household data. The person in this role would take it upon themselves to sort through the data as part excavation, part privacy advocacy, and part "grief work".

Gatekeepers faced certain problems. It was difficult to understand the filing system of the deceased, thus making it hard to find important information in vast and deep pools of data. Digital data unlike physical artifacts (like diaries), were difficult to classify as sensitive or private, without first going through them. The same devices are often used for both personal as well as professional purposes making the task of the gatekeeper even more complex, they must in some cases inherit the roles and responsibilities associated with that data.

On the other hand, digital inheritance often gave a deeper understanding and insight into the life of the deceased than physical artifacts.

The emotional journey from Grief to acceptance

To understand the emotional journey of the bereaved, a handbook [7] which is meant as a guide for those in grief of losing a close relation to death, was studied. It is meant to help them through the tough period of mourning. It's also useful for companions of a grieving person or for caretakers of children who have suffered the loss of a loved one. The following information proved helpful in shaping this project:

The various stages of grief, viz., denial, anger, depression and acceptance are commonly experienced by the bereaved before they move on with their life. This is considered normal.

The complicated grief reactions which have been classified as chronic grief reactions, delayed grief, exaggerated grief, masked grief reactions.

Rituals can be very useful in coping with difficult situations and bringing comfort and peace. It can also mark affection and respect for the departed.

Ways to accommodate or plan rituals for oneself.

In order to avoid interference with the natural process of grieving the system must allow minimum or sensitively planned access to the users until they begin to show symptoms of acceptance of their loss and of moving on. Throughout the life of the service, it must evoke certain desirable emotions and avoid the triggers to certain undesirable ones.

Desirable emotions	Undesirable emotions
Nostalgia	Depression
Inspiration	Frustration
Comfort	Shame
Reflection	Hopelessness
Joy	Anger
Security	Guilt

This handbook, pointed at rituals as a critical tool to help cope with the loss.

Funeral Rituals [8] [9]:

In order to understand what the bereaved go through, a detailed study of the activities of the bereaved was conducted, from the point of receiving the news of death of the beloved, through some rituals that they undergo during and after the period of mourning. This study included getting a gist of the funeral traditions of Hindus, Muslims, Christians and Parsis. The following were the questions to be answered through this exercise:

What other matters do the bereaved attend to?

Do the rituals help them to come to terms with their loss?

Along with an online search, in order to understand what the bereaved go through, an interview with a person who, over the years had to undertake the task of arranging for many funerals of those among his family and friends, was conducted. Following were the learnings from this exercise:

There are many arrangements to be made when a person passes away. Not only is this experience an extremely painful one, emotionally, but it can also be quite taxing to arrange, logistically. It is also an extremely social affair; friends and relatives come forward to provide support at various levels. There are logistical arrangements like calling the attending family doctor home to declare the person's death. Conveying the message of the passing of the beloved, to relatives and friends; arranging the final rites, where all friends, relatives and acquaintances gather to mourn and to pay their respects to the dead.

Administrative arrangements like collecting the initial death certificate from the attending doctor. Various ceremonial arrangement must be made. Offering emotional support to other bereaved.

Rituals allow the bereaved to overcome difficult situations through pre-planned activities that must ideally bring solace and peace to them.

After understanding the traditional process of coping with grief, it now became essential to explore how these needs would be addressed in the future. For this purpose, understanding ways to accurately gauge future trends became imperative.

Futurology:

The works of Ray Kurzweil and Brian David Johnson both have a distinctive approach towards future studies. Ray Kurzweil is an author and inventor who is currently the director of engineering at Google He explains how the human brain is hardwired to linear progression, while the change in pace of technological innovation and advancement has been and will continue to be exponential not just in hardware and software but consequently in all other areas of research and development. The ability to understand the subtleties of human speech, such as jokes, puns, sarcasm, etc. which had for long been considered beyond the grasp of machines have now been assimilated into artificial Intelligence programs through Natural language processing. [10] Similarly, he predicts that the ability to find patterns across seemingly diverse fields and to correlate them to arrive at a new hypothesis, which is also considered a characteristic of human intelligence, will be mastered by artificial intelligence in the future.[11]

Brian David Johnson, Intel's futurist, has a job to look 10 to 15 years out and come up with a vision as to how people will interact with computers. Johnson refers to this as "future casting" – which is about determining a vision of the future that he and Intel can then work to build. He works with a inter disciplinary team of ethnographers, social scientists, and others to understand the current state of the *culture* and try to figure out where it's going. The other part is to look at the hardware. Johnson and his team work with computer scientists to look at the current state of the art in hardware, software, and algorithms, as well as the research coming up. The tech data is combined with the social sciences data to come with scenarios of future that answers the question of 'how to make people's life better?' [12]

He has pioneered a method to prototype new ideas. Science fiction prototyping is a method of using science fiction to describe and explore the implications of futuristic technologies and the social structures enabled by them. [13]

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Figure 2. An example of a service design blueprint, used to map out the experience.
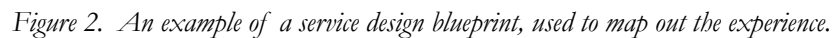
Service Design

Since the entire journey of nostalgic reminiscence is extremely personal, one cannot always predict the users' plan of action or desire. However, there is a way to premeditate a range of encounters and

interactions and offer them to the user at their convenience. Service design allows this possibility.

The purpose of service design methodologies is to design according to the needs of customers or participants, so that the service is user-friendly, competitive and relevant to the customers. [14]

News & Social Media

Desire to influence legacy and reminiscence expressed in social media

The desire to influence how one will be remembered after one's own death is both strong and common; it is an exciting prospect that has held the imagination of many. Such desires are quite common and have been expressed many times.

Image 1This Facebook update gathered some interesting comments

Image 2. Large number of 'when I die' quotes available online.

Image 3. Pune Times article on popular celeb accounts that have been created and managed posthumously

Yahoo Japan offers to end virtual existence for the dead

Anna Fifeld

In Japan, preparing for major events in life has become an institution. There's a whole preparation vocabulary: There's "shukatsu," for when you're looking for a job; "konkatsu," for when you're looking to get married; and "ninkatsu," for when you want to get pregnant.

Now, Yahoo Japan is helping people get ready for the inevitable, offering "Yahoo Ending," a service that, among other things, allows Japanese people to send emails to loved ones from beyond the grave. An animated video on Yahoo Japan's site asks, "If today was the last day of your life, would you be ready for the journey?"

"Yahoo Japan's job has been to solve social problems through the power of internet and to provide services from the cradle to the grave," said Megumi Nakashima, a company spokeswoman.

This end-of-life preparation is also known as "shukatsu" (pronounced the same but written differently in Japanese from the job-searching term). The basic service will

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END-OF-LIFE CYBER SERVICES

deactivate users' Yahoo accounts after their deaths. It also offers to delete documents, photos and videos from customers' Yahoo Box online storage accounts and cancel subscription services linked to Yahoo Wallet. The new service, announced last week, is being portrayed as a way to address the kinds of problems encountered by families worldwide who lack the passwords or legal authority necessary to close down the Facebook or other online accounts of relatives who have died.

The search-engine company will send an email the user has prepared to as many as 200 addresses and open a "memorial space" bulletin board where people can leave condolence messages. All this is offered for just $1.80 a month. But how does Yahoo Japan know when a user is dead? The users will register and they'll receive a booking number to share with someone they trust. When they die, that person calls a Yahoo Ending number and provides the booking number, and then the deceased's funeral preferences are shared. The funeral home sends the cremation permit to Yahoo to trigger emails and deletion of files. THE INDEPENDENT

Image 4. An article on the facility of ending one's virtual existence upon death.

Upcoming trends in technology

Nostalgic reminiscence is extremely personal [2] and requires sensitive, technological growth is exponential [11], this led to the analysis of existing affective technologies and artificial intelligence.

Affective computing and Affective wearable

Image 5 A wearable affective device

With affective computing, the device has the ability to detect and appropriately respond to its user's emotions and other stimuli. It leads to responses that relate to, arise from, or deliberately influence emotion or other affective phenomena.

A computing device with this capacity could gather cues to user emotion from a variety of sources. Facial expressions, physiological parameters, posture, gestures, speech, the force or rhythm of key strokes and the temperature changes can all signify changes in the user's emotional state, which can all now be detected and interpreted by a computer.

An 'affective wearable' is a wearable system equipped with sensors and tools which enables recognition of its wearer's affective patterns [15]. A wearable device can hang from a belt, be worn like a wrist watch, in shoes, socks, gloves or other accessory. In either case it would be constantly be in touch with the user without hampering his day to day life.

One such wearable device is Empatica [16]. It is in the form of a bracelet that can monitor physiological signals in real time. It can measure skin conductance, heart rate, temperature and movement. Presently it is being used for research in the domain of health and behavior, with accurate data in the wild. The commercial purposes of this device beyond medical reasons have not yet been explored. This leaves a great potential to be explored in the domain of wearable devices. Presently, technology driven companies like Google [17] and Samsung [18], are exploring the future of technology in wearable devices. Even though the current devices have not integrated affective computing, it is very likely that it would be integrated in the future. This presents us with a plethora of opportunities to design user experience given the new form factor and capabilities.

Sociable personal robots

Image 6 Sociable Robot Jibo

JIBO [19] is a family robot that recognizes its users by face and voice, it uses Artificial Intelligence algorithms to learn user's preferences in order to become more intuitive and integrated into their life. It acts as a personal assistant which communicates and expresses using natural, social and emotive cues. It claims to have storytelling abilities and it's camera inputs can track the user's sight to allow an immersive video experience i.e. it aims to make remotely connected users feel as if they share the same room. It can work in collaboration with the users' mobile devices, personal computers and other JIBOs.

Service for legacy and reminiscence

www.eterni.me is a service that claims to be able to recreate a user's personality through an avatar, on the basis of information provided by the user. Its features include, being able to have a Skype chat with the deceased, where the avatar of the deceased will be able to offer advice on the basis of media interactions that are available from the life of the deceased user. This product is similar in its basic idea of using the user's data when they are alive to aid reminiscence of the user after their death. The service in not yet available, but prospective users may signup to be waitlisted to avail this service [20].
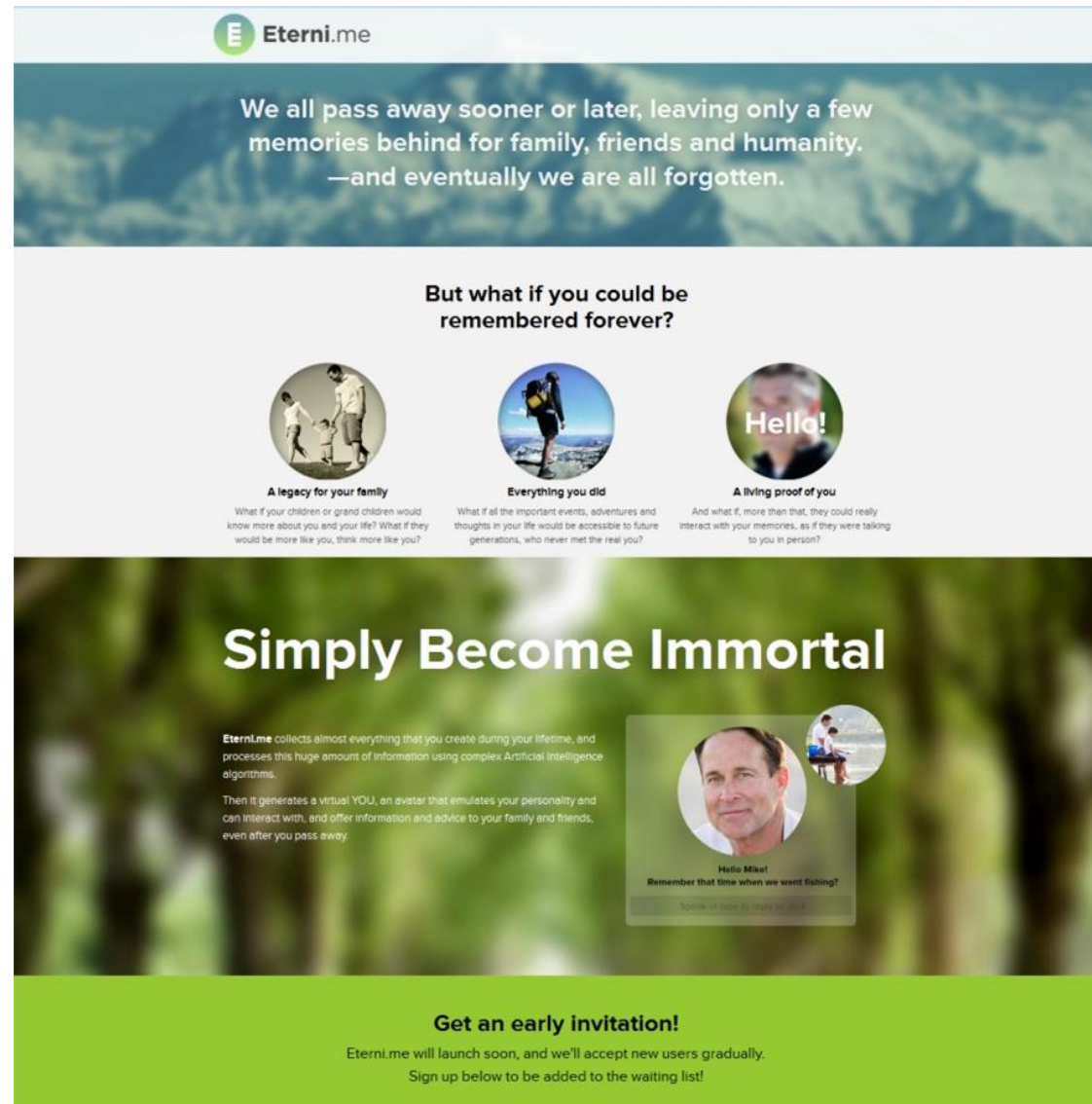
Image 7 The landing page of eterni.me where one may sign up to a waiting list to use the service

Summary of Insights from Secondary Study

Impact of death of a user in the world of digital interactions.
In most cases it is not properly acknowledged, thus leading to loss of opportunities for more appropriate design. [21]

Coming to terms with the death of a loved one through interfaces.
Even when there is a facility for inheritance of data, it has many problems like breach of privacy of the deceased user, no facility for the inheritor to sort and extract relevant data.

During the grieving phase, one requires rituals to come to terms with the loss, sorting through old memories is like a bitter pill in this period but it does allow the bereaved an opportunity to steadily accept their loss. Sorting through the deceased's memories and files may have become a ritual with many a bereaved. However, looking through somebody else's files is a very tedious process, where one is always weary of stumbling upon something that may not be meant for them to see, moreover one may not understand another person's filing and naming system and thus find it very difficult to extract important and relevant data in a timely manner.

Upon suffering a death in a family, the bereaved take on many additional responsibilities and tasks such as rituals, paperwork for death certificate, formalities for inheritance, etc. Thus, digital inheritance today, may often be more of a burden than a valuable contribution during the grieving period.

The review of news & social media and that of upcoming trends in technology, helped bring forth a few other points.

The survey results from the paper on thanatosensitivity show how most participants felt that they needed nostalgic reminders of the deceased relative and did not associate it with any negative affect [6]. The handbook on coping with grief elaborated on how memories that brought about certain desirable emotions were welcome, but those that triggered undesirable emotions must be avoided [7] . It is critical that the bereaved come to terms with their grief, else they may show symptoms of unnatural grief which may lead to further complications that may be harmful to the emotional and mental wellbeing of the individual.

It is evident from the many examples (Images 2 & 3) in social media that there is an obvious interest on arranging for an individual's virtual existence posthumously, for those who may prefer to terminate their virtual presence; companies like Yahoo have started providing them with the option of ending it (Image 4). The affective state of a person can tell whether they will be receptive to certain kinds of nostalgic triggers and memories. Devices that can read these physiological signals, in real time, are being developed [16]. This coupled with the technology to note and analyze personal preferences of multiple people can make a system more sensitive to the needs, reactions and emotional responses of its user [19].

Future possibilities
Futurists speak of exponential growth observed in technology and how it is expected to only grow even faster than ever before [11]. In this situation it is important that we begin to detail out what would be the ideal scenarios and experiences we desire and technology may then be developed on the basis of these plans [13].

Rituals help us to cope with changes and transitions better [7]. Thus there seems to be a possibility to design contemporary rituals with the help of currently available data and technology. These could be meaningful and immersive experiences that help us cherish and learn from the past while still ensuring relapse into shock and grief is avoided.

User Studies

It was necessary to understand what is it that was remembered by those who reminisced about a dear one who had passed away. How long did it take for them overcome their grief and begin to cherish old memories? What is it that they were trying to preserve even after years of separation from their beloved?

At this juncture, it was decided that people who had lost their parent or grandparent must be interviewed. These relations are usually sufficiently close and people in these relations tend to spend long periods of time and have memories right from the very early stages of their life. Also, upon losing such a relation, they have enough years in their own life for the possibility of nostalgic reminiscence. Thus, in order to understand the journey from grief to nostalgic reminiscence and beyond, people who fit this profile were interviewed.

Interviews

Semi-structured interviews of 7 people, who had lost either a parent or a grandparent, from 1 month to 40 years ago, were conducted. They were asked to describe:

- Their most memorable experiences from the time they spent with their beloved departed.

- Their journey through grieving, accepting their loss and fondly remembering the deceased

- Their experience with evocative objects, situations and other such inputs.

Image 8 A live portrait painting session by one of the interviewees remains a cherished memory and one of the only remaining images of her deceased grandfather

Observations

Users as grandchildren:

In cases where the user had lost their dear one about 2-3 years before the interview, objects reminded them of stories, songs, and habits. In another case the user had lost their beloved more than a decade ago has memories of their early childhood that gave them a sense of that period as a whole but could only remember specific details and incidents while reminiscing with other elders.

Users remembered specific rituals and practices that they maintained with their loved ones, these would go on to be important memories after their loved ones had departed. 2 users spoke of reminiscing about their departed relatives, as a family on Shraaddha day. On this day the family would offer food preparations to the ancestors and gather together to share their memories of the deceased. The elders in the family narrate incidences and elaborate upon the nature, habits and qualities of the deceased. Due to this practice the deceased grandparents hold an even more clearly developed image in the minds of their grandchildren who may have spent relatively lesser time with them than their parents, aunts and uncles.

Users as children:

Users saved objects that remind them of specific exchanges with the deceased that have touched them, but the evocative value faded as they grew busy with other engagements and as time passed by.

While speaking of their observations about grief, loss and reminiscence a user mentioned multiple instances of people she has known, where they, as parents of a child who has passed on, can't get over their loss and may mourn for very long durations of time.

Opportunity

From the initial years, interviewees recalled intense initial pain and longing which made them want to avoid anything that triggered memories of the deceased. With time and constant mental engagement in day to day activities of life, the pain slowly subsided and they had learnt to accept the loss. As the pain subsided, they grew fonder of reminiscing the time spent with the deceased with a nostalgic and often a reflective mood. But the evocative quality of the memories and triggers were often lost because of gaps in the fading memory and limited access to evocative material. Typically, the reminiscence may just receive a trigger and no external support beyond that, but it becomes more enjoyable when it receives a favorable sensory engagement.

For example, when a person misses the deceased, he or she may want to go to places which they may have frequented together, eat food that may be their favorite, or indulge in such similar activities which may be evocative in nature and may support their nostalgic state of mind. This is considered therapeutic [6].

Initial Ideas

Brainstorming and sketching led to some ideas based on the insights derived from the interviews

Tangible-virtual Shrine to the deceased

Idea: A dedicated physical space for experiencing the presence of the beloved and interacting with them.
Users: Spouse and offspring
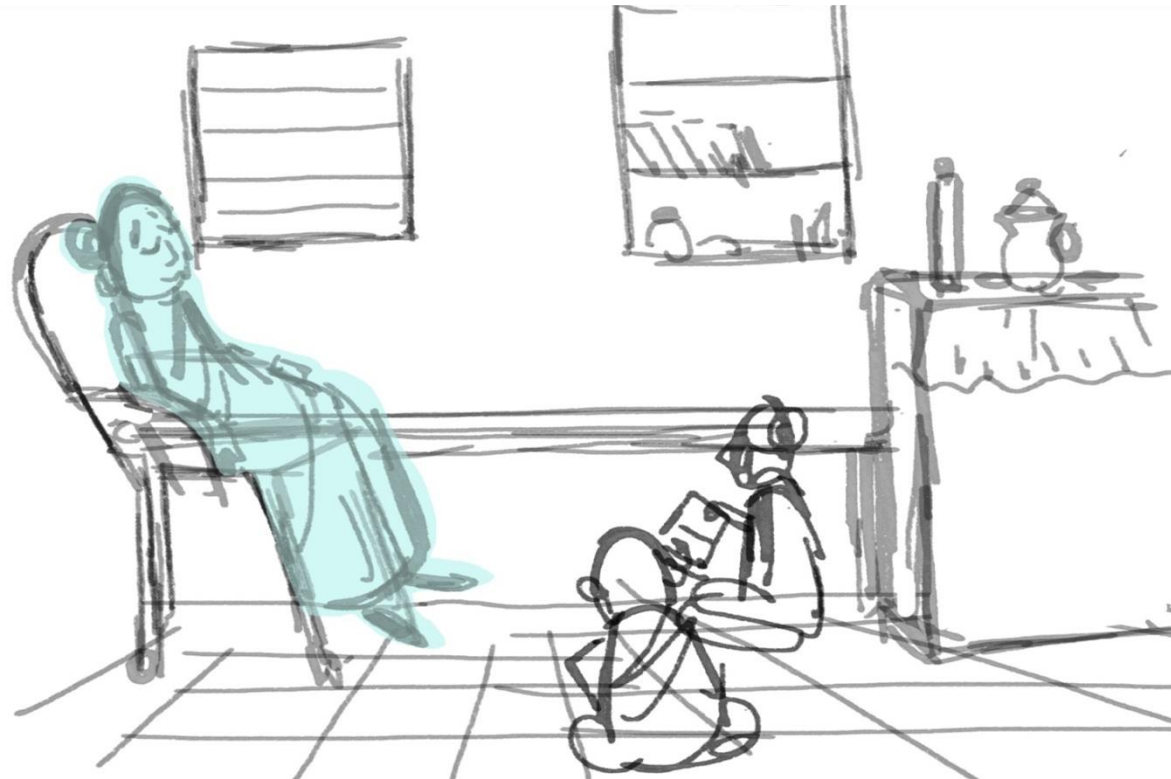
Image 9 Tangible-virtual Shrine

Creating a virtual immortal

Idea: The deceased live through online activities. Their personality grows and remains active as per the influence of those survivors who continue to interact with this persona.
 Users: Friends.
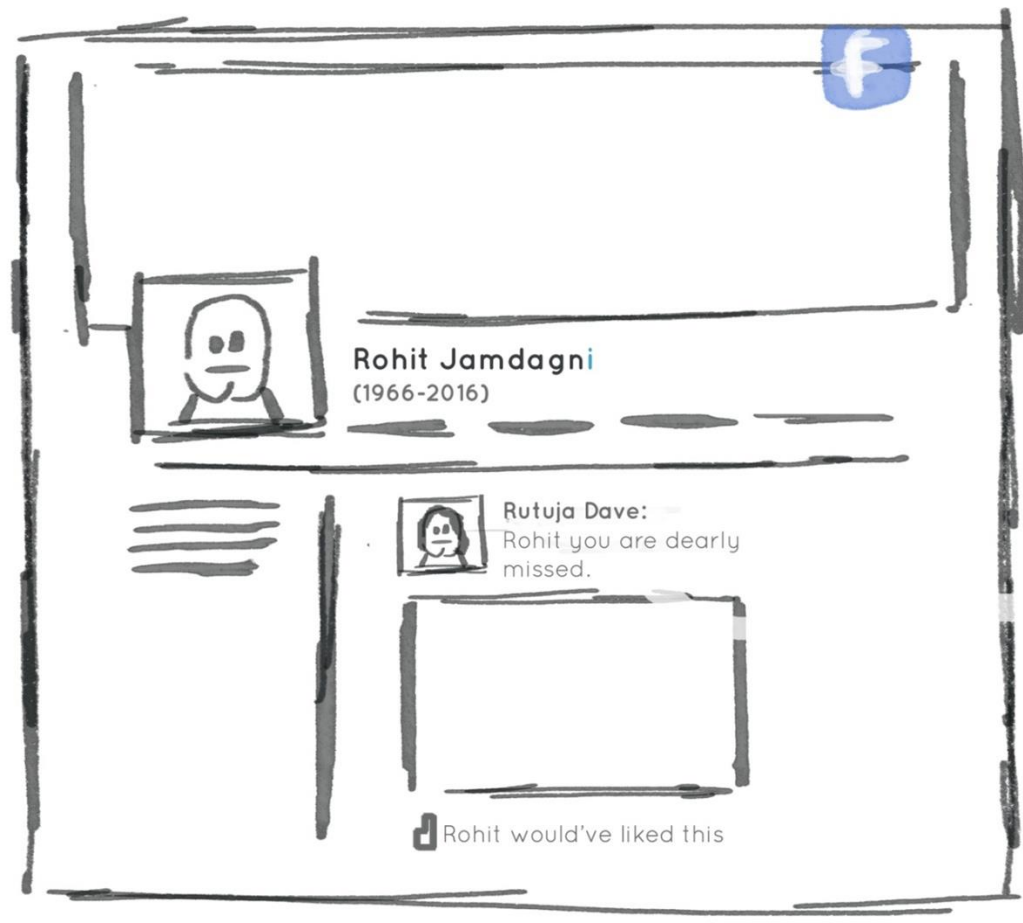
Image 10 Online social presence of the deceased

Creating a presence

Idea: This is to alleviate the sense of loneliness in cases where there is a sole survivor living in the home of the deceased. A visual representation (eg. holographic projection) replicates to patterns of movement, habits and routines of the deceased.

Users: Survivors who once lived with the deceased, eg. Children, spouse or owners of deceased pets.

Image 11 The routine of the deceased is imitated in order to recreate the presence the deceased.

Conjuring a beloved for conversation

Idea: A holographic representation of your beloved merely for conversation, it learns from the discussion and past data from the beloved's life.

Users: Grandchild, friend, spouse and offspring

Image 12 Conjuring a beloved for conversation

Recreating a memory

Idea: Recreating an ambience from a past memorable occasion and re-experiencing it to newer possibilities.
Users: Grandchild, friend, spouse and offspring

Image 13 Recreating a memory

Heirloom

Idea: All available data about members of family will be encoded into an object of importance for that family, this object will be multiplied and passed down to all successors of the family upon completing a rite of passage. The members of the family will be able to learn about their ancestors and also be able to interact with avatars of them, the object will also contain life stories, important life events and lesson learnt which has be passed down as wisdom to the next generation. The object and its data will be updated (in terms of technology and experience) and added to with every generation that it passes.

Users: Successors

Image 14 Heirloom

Smart Memento

Idea: Mementos already hold some meaning to the survivors and turning them into smart, interactive objects could increase their life and value.
Users: Spouse, offspring.

Image 15 Smart Sweater   *Image 16 Diary Chat (Inspired by Tom Riddle diary from Harry Potter)*

Evocatve quality

Feel the tactlile exchanges that were shared with the owner, like a pat on the shoulder, a hug.

scent of the owner

Original belonging of the deceased, converted to a smart object.

Leaving Landmarks

Idea: Discovering new aspects of the lives of the deceased, as and when, one might chance upon a relevant connection.
Users: All varieties of close family relations, as the deceased may have allowed.

Image 17 Leaving Landmarks

Conclusion of Initial Ideas

These ideas seemed to be quite crude and insensitive. There was a serious doubt as to whether a user would be comfortable using such services and products. What one may want to carry forward and treasure in the future and what they may want to leave in the past, was yet to be understood.

Participatory Design

Despite conducting User Interviews and Brainstorming intently upon design ideas, the outcome of ideation seemed to lack the appropriate mood and sensitivity that would suit someone who reminisces upon a dear departed. At this point I was suggested to approach Participatory Design (PD) as a tool to gain a deeper understanding of user needs, sensibilities and better sensitivity towards the tone of the design while dealing with a delicate subject like fond reminiscence of a dear one who has passed on.

About Participatory Design

PD research began in mid-1970s as a reaction to the way computer-based systems were being introduced to the workplace. Even though the introduction of computers was seen as progressive step, the major concern was the neglect of workers' interests who were the most affected by the introduction of the new technology [22].

Participatory design is a shift in approach from designing for users to designing with them. PD practices have been suggested to help bring about change in the sphere of public services [23].

Thus, the Participatory Design approach was resorted to, where the users would be more intimately involved for the strategy formation and ideation stages of the project.

Introductory Session

This session was intended to be a core participatory design session but as the session was in motion it became apparent that the participants needed time to understand the workings of a participatory design session and the intent of this project.

Methodology:

Participants from varied professional and geographic backgrounds were to be recruited; they would be offered a short orientation emphasizing how well-designed products and services could improve day-to-day experiences and introducing techniques for brainstorming and creating quick prototypes of their ideas. This would be followed by a discussion on the factors that could help create a lasting experience. A brief introduction would be given about the project and its goals. The participants would then break up into groups of 2 or 3 and begin to explore meaningful design outcomes for this project.

Selecting Participants

An equal number of male and female participants within the age group of 25-30, were invited for this session. The main criterion for allowing participation was that the individual should have experienced the loss of a dear one between 1 to 10 years prior to this session, more importantly, they should have come to terms with their grief and pain over this loss. 8 participants confirmed their attendance but only 4 were actually able to attend the session. They were research scholars and Postgraduate students with backgrounds in Computer Science, Psychology, Mechanical Engineering, Product Design and Visual Communication.

Preparing material:

A resource collection of images and stickers of people, plants, animals, homes, food articles, everyday commodities used for communication, transportation, etc.; along with large chart sheets, sketch pens, glue, scissors and markers were stocked for ideation and quick prototyping purposes

Orientation:

The session began with an introduction to PD and a brief presentation on the benefits of involving the stakeholders directly in the design process. In order to orient the users to designing their own solution, a set of inspiring examples of interactive devices based on ubiquitous computing were collected. A presentation by Jinsop Lee on how to design more interesting and immersive experiences by designing for all five senses was screened [24]. After this the participants read an excerpt from Lewis Carroll's Alice's Adventures in Wonderland [25]. This excerpt describes how Alice explores Wonderland through a variety of sensory stimuli, a number of doors that could lead her to destinations unknown and she finally finds a curious bottle that say "drink me". The purpose of this exercise was to expose the participants to fictional scenarios that open up their mind to a wide range of interesting ideas. Based on the passage there was a discussion on the quality of emergence while designing an immersive experience. Then a presentation of the project was presented to them. This session was conducted at night, after the participants had completed their day's work. The initial reaction of the participants to the idea of designing for reminiscing about a dear departed was extreme skepticism (Image 18). They felt that such a pursuit would bring the user more pain than pleasure. They unanimously refused to participate in a PD session because they felt that such an experience must not be designed for and should rather be left to serendipity.

Image 18 Initial response of the participants.

At this point, in order to understand the participants' most valuable take away from reminiscence, there had to be a change in strategy. The participants were then presented the set of initial design ideas for their feedback. This strategy elicited more strong reactions from the participants but also changed their perspective about the need of such a service. As they saw more concept ideas, they began to show an interest in the project and this triggered a conversation among them on how they would want such a service to be.

They had a 2 hour discussion among themselves, about the time, place and manner of reminiscing, how they came to accept their losses, how does the manner of departure of the beloved affect the time taken to accept the loss.

Towards the end of this discussion, 3 out of 4 participants were willing to participate in a PD session that would be scheduled on a later date.

Core Session

The 3 participants from the previous session and 2 new participants were recruited for this session. The 2 new participants went through the same orientation session had to discontinue their involvement after the orientation, as they were still needed some time to grasp the concept of participatory design activities.
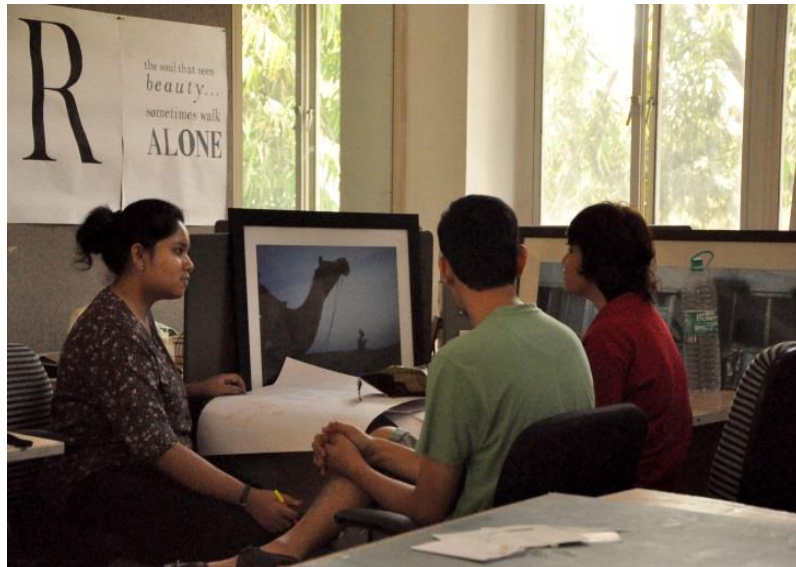
Image 19: Participants at work.

Brainstorming & Ideation:

Participants chalked out a classification of triggers and patterns to reminiscence. They also listed their expectations from reminiscent activities. For example, reflecting on the lives of those dear to oneself when one maybe in doubt or when one has to take major decisions or imagining what a dear departed might have to say had been still alive (Picture 19 and 20).
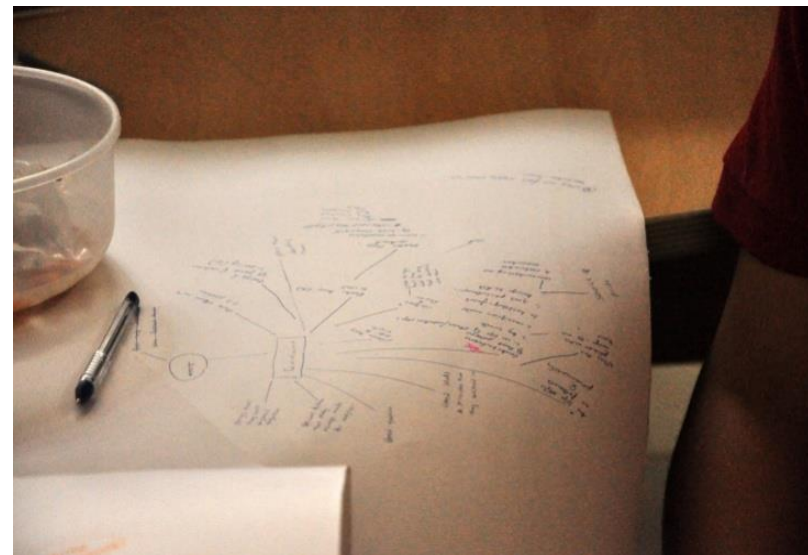
Image 20 Brainstorming Ideas

Insights

Based on the feedback and ideas generated by the participants, the following insights were derived:

The design outcome must not attempt to directly recreate the personality or interactions with the deceased; this is perceived as unnatural, unaesthetic and even creepy or spooky. On the other hand, natural triggers for reminiscence can be made simultaneously available and even enhanced with the help of available data and rich, evocative sensory experiences.

The design output need not necessarily 'appear' to be specifically meant for remembering the deceased but must offer the opportunity to enhance the sense of nostalgia which is the key to experiencing the presence of the deceased in a stable and aesthetic manner.

This said, when the participants began to come up with concepts they too skirted upon ideas which involved direct voice interaction with an avatar of the deceased in the in the mobile app idea. Though the ideas developed in the participatory design session were limited by doubts or ignorance of existence of various technologies and sometime biased by the professional backgrounds of the participants, it was very helpful in setting the mood and tone that the project would take on in order to be more aesthetically acceptable to the user.

Their concept ideas:
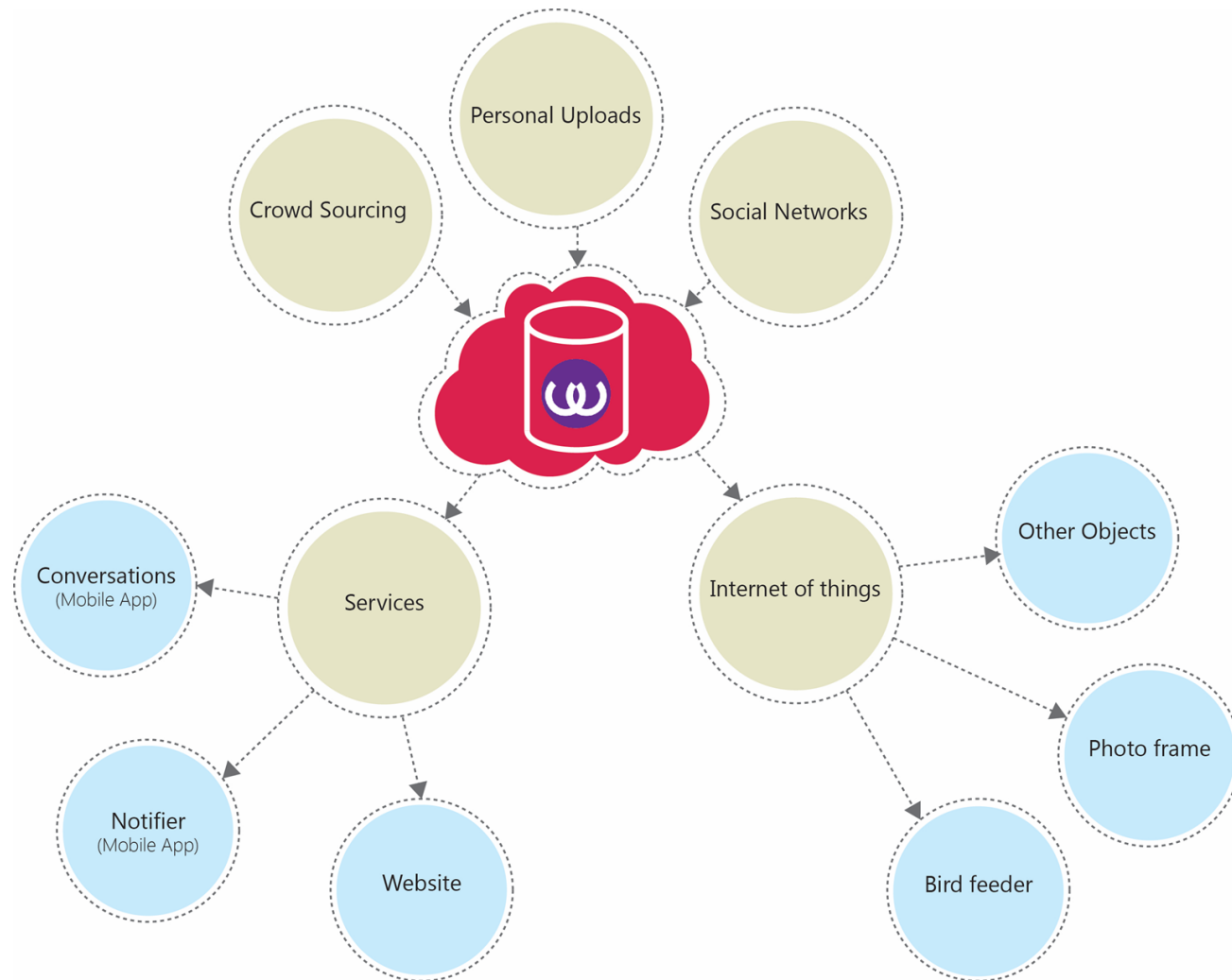
Figure 3: An Overview of their ideas

Participants suggested was to use personal and public uploads and inputs of all users and the deceased in order to design meaningful services and interactive objects of evocative and nostalgic value. They gave some specific examples of how they may envision the deliverables from such an arrangement.

Physical memorials

Participants claimed that they missed the deceased most when they were feeling low or in trouble and were in need of some advice or motivation. Hence, they felt that the design output must be something that gives inspiration, comfort or wisdom.

The first idea was to design stationary objects like benches or show pieces like flower basins to display quotes or favorite phrases of the deceased.

This idea had a few limitations, user's mind would quickly get used to the presence of a single quote that has been engraved on an object and would begin to subconsciously ignore it. Thus, it would not reach them when they may be feeling low or demotivated.

Image 21 The deceased favorite quote engraved on a bench

A memorial installation
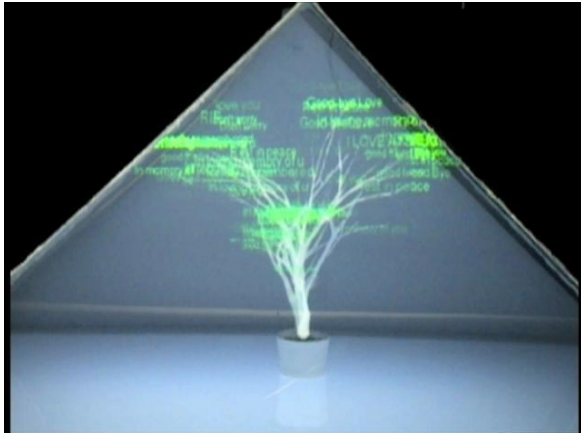
Image 22 The mourning Tree memorial installation

Image 23 Bird Feeder Memorial Installation

Another approach was to crowdsource the memories and eulogies during the grieving period and create meaning interactions at a later period.

Mourning Tree (24)
The mourning tree is an existing interaction that was mentioned as an interesting way to publicly memorialize a person

Memorial Bird Feeder:
Here the idea was to create interactive installations based on the likes and interests of the deceased. For eg. If the deceased was fond of birds, then an interactive birdfeeder which would stay in the courtyard of the home to offer food to the birds and to offer motivational words from the life of the deceased.

Interactive Objects

Interactive Locket

A Locket that held a picture of the deceased which could talk to the wearer, when opened.
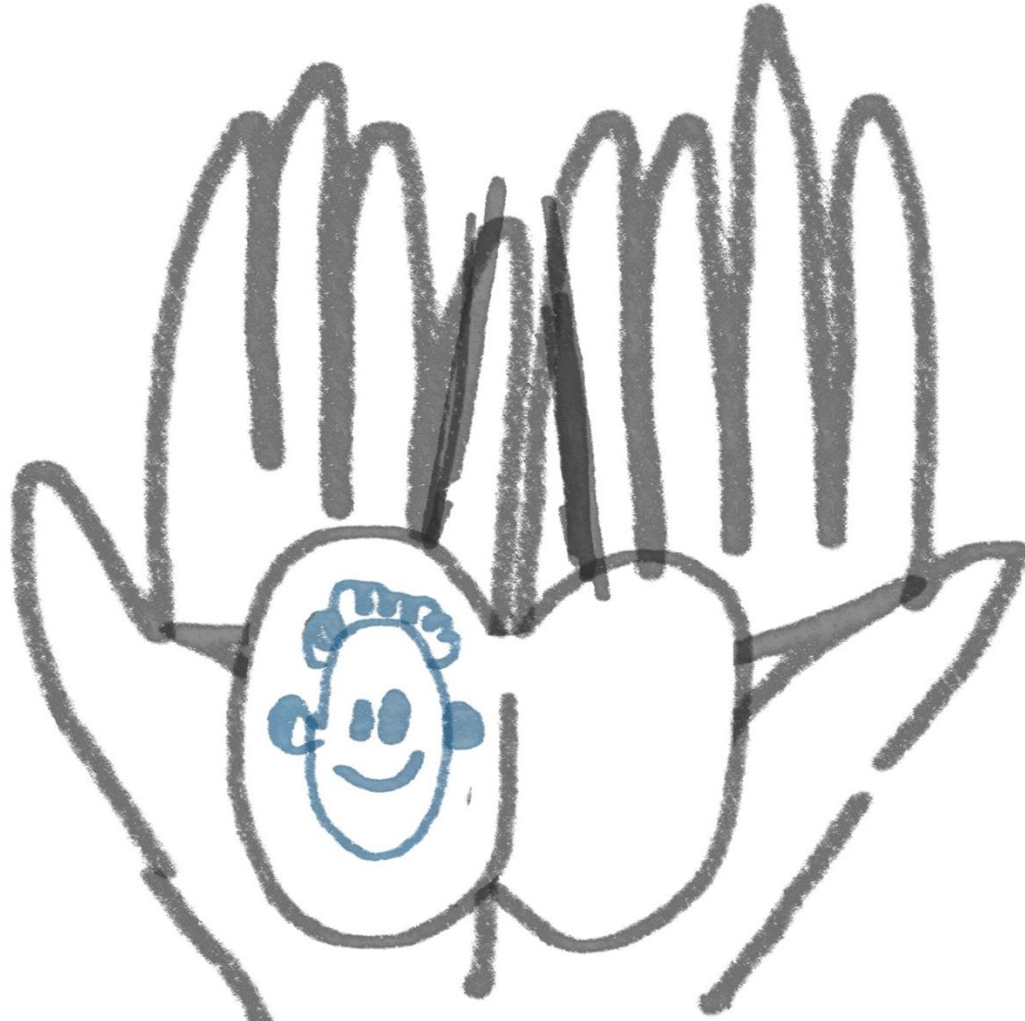
Image 24 Interactive Locket

Interactive Photo album

A photo frame that understood natural language input and learnt the interest patterns of every member of the family, individually.

Image 25 Interactive Photo frame

Application for phone call

An app that created an audio-visual avatar
of the deceased for the purpose of chatting
and calling to offer advice and motivation.
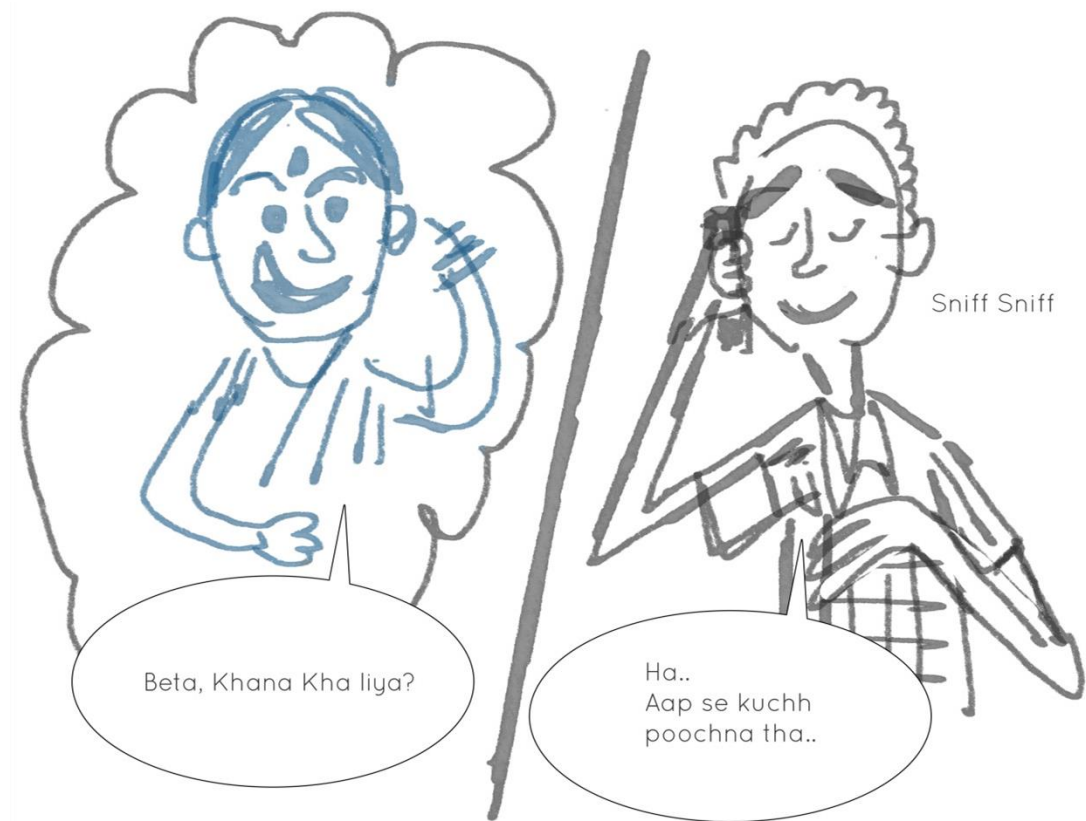
Image 26 App for phone call with a re-creation of the deceased

Concept development

The PD session gave a clear directions for the project.
The reluctance of the participants for the initial ideas were indicators of some insensitivity. After the PD session, the participants expressed their concerns. They also discussed the ideas which can be implemented to aid reminiscence. Initially they came up with ideas with the use of current technology. Subsequently, with collaboration of other designers, the ideas were finely polished and detailed out.

Since the ideas clearly pointed out to a service comprising of a technology ecosystem, it was decided to follow a service design approach. The next step was to coherently stitch these ideas to a service.

The following section documents the steps that were followed to develop the concept.
The process starts with mapping the touch points on a service ecosystem. The ecosystem consists of the electronic devices which the user may come regular contact with, data that is generated by the user everyday will be collected for a better understanding of the users emotional and behavioral patterns. Furthermore, eulogies, offerings and all accessible data from the life of the deceased will be collected to be part of the service. The stakeholders of the service are illustrated in the stakeholder map (fig 4).
The final concept of the service is illustrated through a service blueprint and journey map. Lastly, some of the service encounters are depicted in scenarios. In order to evaluate the service design, 'science fiction prototyping' method was used. The results of which are analyzed and presented at the end of the section

Lifelogging and data inheritance

Lifelogging is the process of tracking personal data generated by our own behavioral activities [26]

With lifelogging devices and apps becoming more and more conveniently available and socially acceptable. We are assuming that lifelogging would be a growing trend in the future and our user who is interested in taking responsibility of his or her data would also be an avid lifelogger.

Based on the findings from the interviews and participatory design sessions, a futuristic service needed to be designed. This is necessary because the pace of technological development has become exponential and by the time these ideas are implemented, they will belong to the era of their execution. [13] Because the act of indulging in reminiscence is   extremely personal it was necessary to place a structure to the variety of services that could be planned around this form of experience. This structure could be illustrated through Experience journey mapping, a tool used to map out the life of the service and how a user may utilize it.
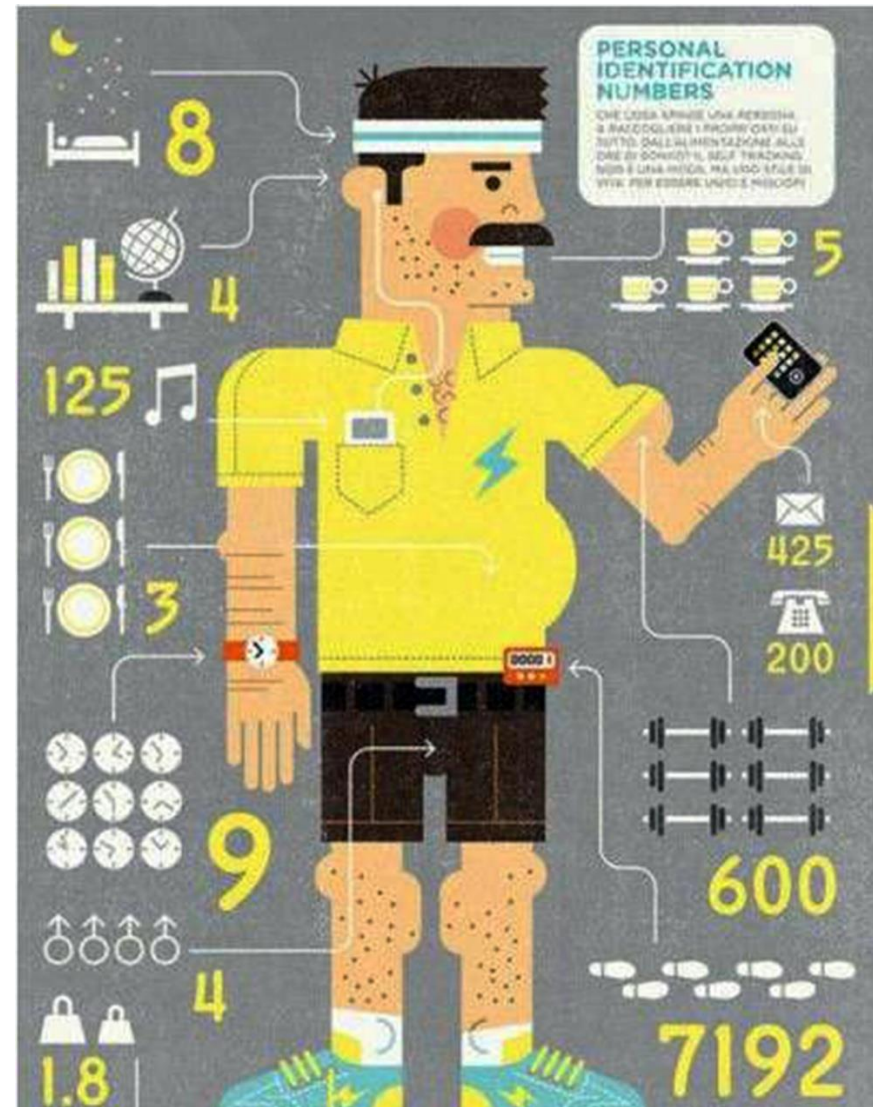
Image 27 The various opportunities for data collection and interpretation available tot a lifelogger today.

Stakeholders

The basic idea is to capture data generated by a person while they are alive, this person must allow their data to be recorded through various lifelogging methods. This profile will henceforth be referred to as the 'Lifelogger. The other direct contacts of the Lifelogger who wish to cherish their memories will be referred to as the 'Reminiscers'. This service may be supported by other stakeholders like the Lifelogger's immediate family, friends, colleagues, casual acquaintances, companies that thrive on user data and other service providers.

w
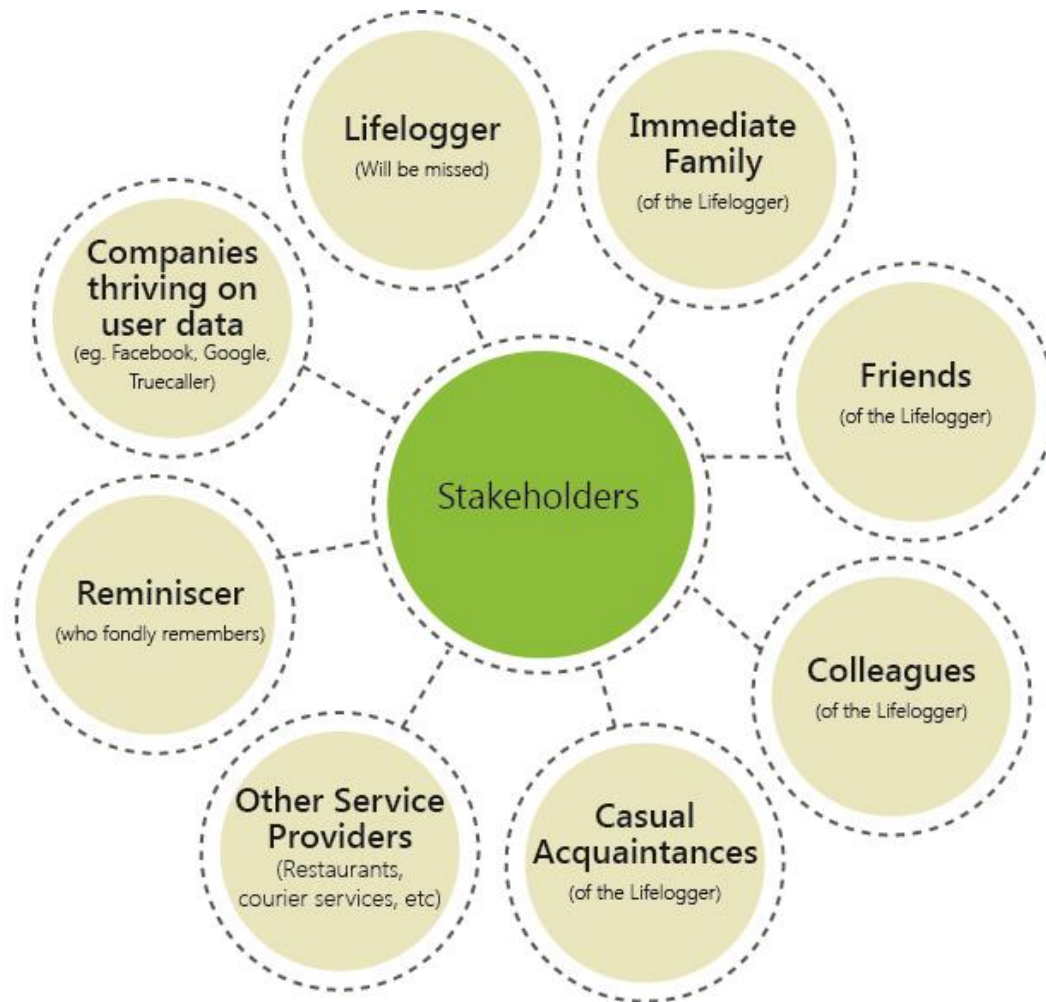
Figure 4 Stakeholders to the proposed service

Final concept
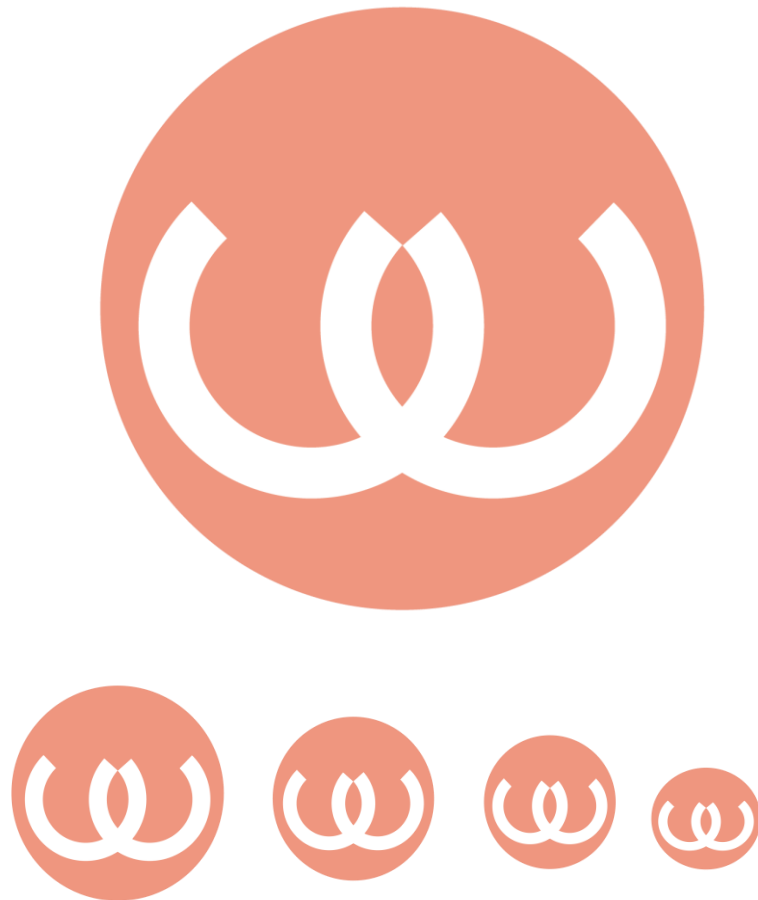
Figure 5 Willow logo

About Willow

Willow is a data-driven service for reminiscing about a close relation who is no longer alive. It offers services of two varieties.

. Lifeloggers, who may use this service to:

- Collect all their data at one space.

- Track their progress across various parts of their life and draw correlations and patterns from their data across activities and time.

- Plan their exit, data inheritance and access rights for when they may no longer be alive.

Once the Lifelogger passes away, their account turns into a memorial database which may have an elaborate variety of access rights (as per the wishes of the Lifelogger).

Reminiscers may use this service to:

- Immerse in nostalgic reminiscence of the lifelogger in a suitable atmosphere with subtle inputs that enhance their sense of nostalgia.

- Learn about aspects of the lifeloggers personality they may not have none about

- Receive parcels that the lifelogger may have desired for them to accept.

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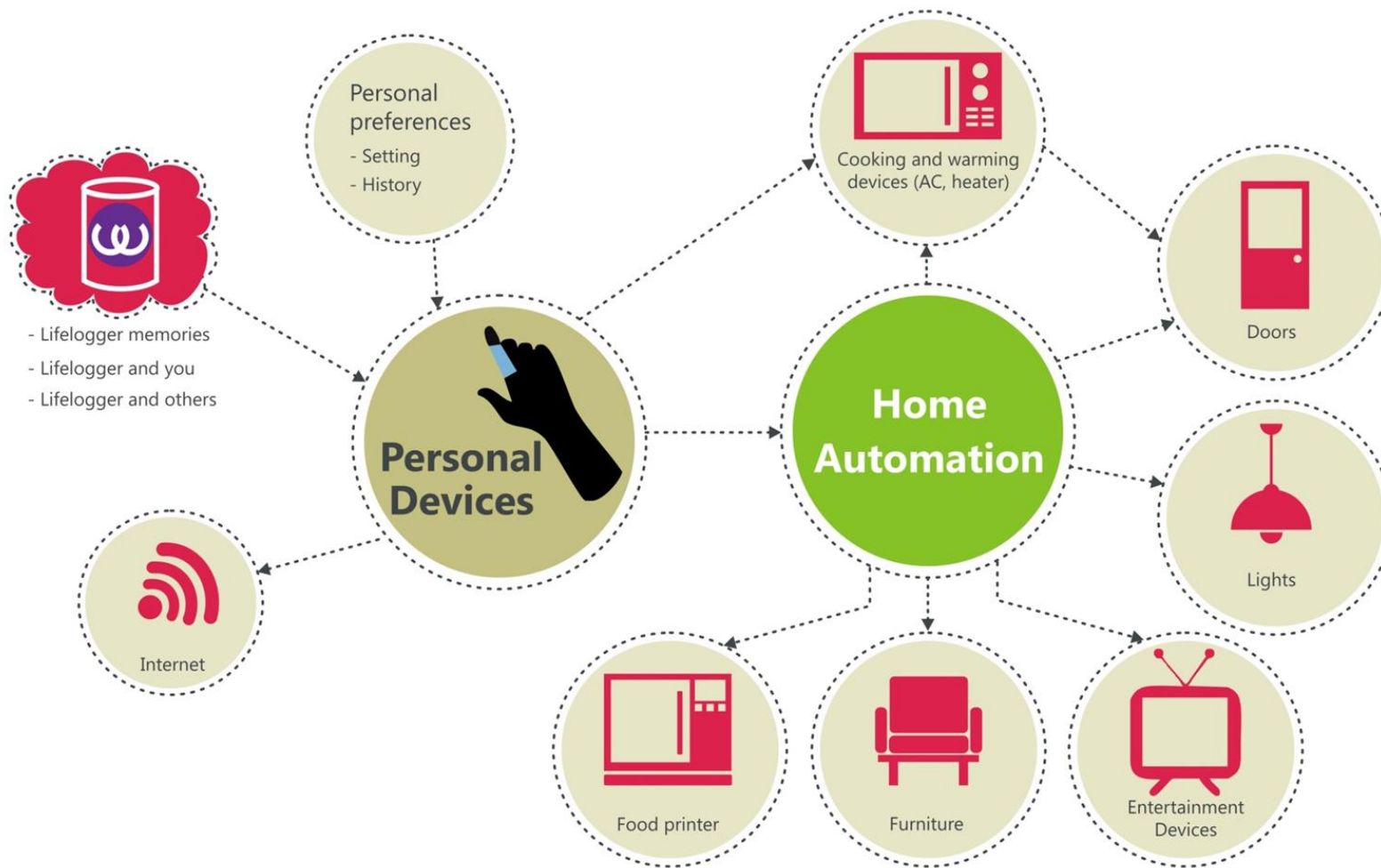
Figure 6 The ecosystem. An indirect channel is formed to a host of other devices for a complete immersive experience

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Experience Journey Map

	Aware	Join	Use	Develop	Leave
			Blueprint of Lifelogger		
Action	View Facebook shares of blogs and videos speaking about this service Upon the demise of a relative/friend receive obituary email from their willow account. Receive recommendations to use service from friends and relatives	Sign up Step 2: Syncing devices and accounts Step 3:Assigning a nominees and access rights for when the account turns in to a memorial database	Viewing lifelogging data Monitor sleeping patterns and other longitudnal physiological data Reflecting back on relevant moments of life	Schedule a 'pitara' for many years ahead in time A Pitara is a parcel that may contain messages, gifts, revelations, etc. Sorting lifelogged data for public and private content. Private content can be shared with specific people or deleted after death. Recommend the service to friends and relatives.	Passes away
Thoughts	Looks interesting, but what about privacy ? What all features does it have ? Is it for free? What does Willow get from it?	What all can I do with Willow? How is my data collected? Willow's privacy and safety policies.	What caused me that nightmare? Let me check my lifelogger feeds of this week. I had a good night's sleep, could it be the reason for productive day? Everytime I have peanuts I have a stomach ache, maybe I'm allergic.	My data is my responsibility I want to share this time with my loved ones in future, they should know I thought about them	
Feeling	Curiosity, Skepticism, anxious	Weary, excited, curious,	Excited, in control of things, self aware	Nostalgic, love, affection, care, responsible, foresighted	
Touch point	Website Social networking sites, Recommendation Mailer	Website set up wizard	Willow assistant, an app that functions across platforms		
Failure recovery	Option to answer FAQs through human or machine voice call	user can call tech support in case the devices fail to sync	If lifelogger ddecides to make data that is classified as private into public, the system shows an alert and asks for proof of identity	If the system detects any form of negativity or if the recipient is not in a receptive state, then the system will withhold it till the recipient is ready.	
Service Evidence	Email Scenario videos,	Verification of all devices and accounts	Timely feedback on physiological patterns voice interactive feedback	On the day of the delivery of the pitara if the lifeloggeris alive they shall be asked permission to dispatch the pitara.	
Backstage Action		Send verification mail to nominee Verify all device and account connection of the user	The system pulls up diverse data together and compares them. It derives conclusions and offers visualizations and explanations to share the findings with the Lifelogger	Ask the user if they would like to recommend friends and family to use Willow	To send a probe mail to the nominee if vital signs of the user are not received Once user's death is confirmed prepare for data deletion and sharing plan as per user's preferences.

	Aware	Join	Use	Develop	Leave
Action	recieves a call imforming about the lifelogger's death logs onto the eulogy site	memories shared by others and personal data that the deceased may	watch video, with the same temperature, smells and tactile inputs Receive a Pitara (scheduled digital parcel) from the deceased	give system feedback to improve accu share more memories and thoughts	reduced signs of nostalgia ignores service notifications
Thoughts	Is this for real? How could this happen?	they are still with us in their memories what message have they left me?	Those were the good old days they cared for me, we shared a special bond they were special, kind, caring, thoughtful….	I know them so much better now I learn new lessons from them constantly	I have now moved on I am too busy now
Feelings	shock, extreme grief, disbelief, pain, shivers and dizziness	nostalgic, consoled, curious, hopeful, sense of longing	curious, nostalgic, acceptance surprised, touched, overwhelmed	steadily more connected to the past, more self aware, nostalgic	preoccupied,
Touchpoint :	Phone call E-mail IVR	website	E-mail	Willow app	
Service Evidence	phone call email	verification messages	notifications on the Willow app	Response to user's feedback	Lesser notifications than before
failure recovery	system detects that the reciever is driving or is otherwise not in a position to take the news, it will call back at a later time.	reminiscer may call tech support if the devices fail to sync to the system	At any point in the interactions if the system detects negative arousal or a drop in the affective state of the user then it may either change its interaction strategy or immediately cease the interaction session, depending on the intensity of the user's reaction. The user may also say 'stop' in order to stop any insensitive or inappropriate interaction. If the session must cease, then the system offers an apology and asks the user if they		Upon hitting minimum usage threshold, Feedback from the user collected
Backstage action	The system confirms whether the reciever of the news is in a position to take the sad news. Then it steadily prepares the reciever for the sad news	Verification of all devices and accounts mentioned by reminiscer	connect current inputs to relevent data from the lifeloggers database.	system becomes more accurate at gauging the patterns of reminiscence and most fond memories that the user may attach to the deceased Connecting the new data with the previously stored data.	reduce number of notifications, steadily to a complete halt

Blueprint of Reminiscer's service

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Elaboration of the journey map

Journey of Lifelogger:

Aware

Becomes aware of this service through Facebook where a friend had shared a video speaking about this service.

Join:

Visits the website, website gives information required for the user in order to avail this service, such as:

What all can I do with Willow?

How is my data collected?

Willow's privacy and safety policies.

Setup Wizard:

    Step 1: Sign up
    Step 2: Syncing devices and accounts
    Step 3: Assigning a nominees and
    access rights for when the account
    turns in to a memorial database.
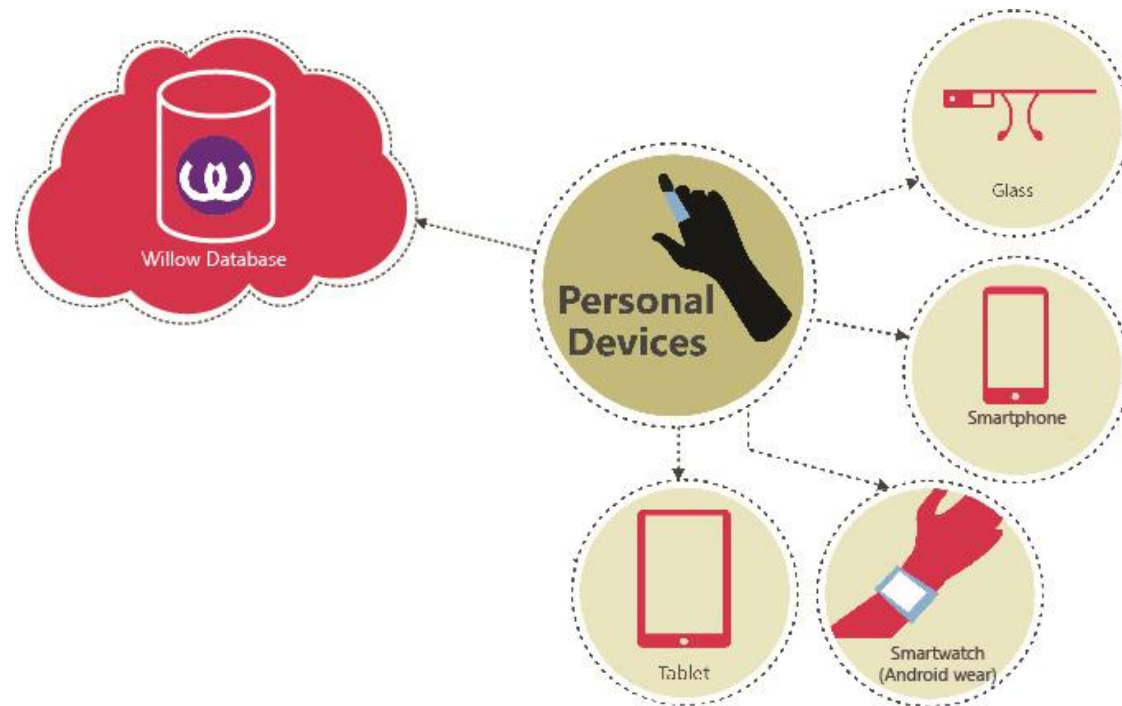
Figure 7 Syncing devices user's personal willow cloud database.

Use:

The Lifelogger views the aggregate data, that's being pulled from all the apps and online activity, collected over time. He uses it to reflect upon himself and gain a better understanding of the impact and patterns created through his everyday activity. By doing so, he is able to optimize time and performance in various facets of his life by understanding how these facets affect each other.

For eg, he suffered from skin rashes from time to time. Willow identified and displayed all the common factors that were present every time his skin broke out into a rash. On the basis of this data, he consulted with his doctor and ultimately he was found to be allergic to pollinated fruit, a rare form of allergen.

In this way he has been able to better understand and optimize his performance even in other facets of his life like his profession, social behavior, and familial relations. This has resulted in the overall improvement of the quality of his life. The system pulls up diverse data together and compares them, derives conclusions and offer visualizations and explanations to share the possible findings with the Lifelogger.

Develop:

The Lifelogger begins to plan ahead of time. He schedules 'Pitaras', for specified recipients. A Pitara is a parcel that may contain messages, gifts, revelations, etc. While placing a pitara in time, the lifelogger is notified that if the system detects any form of negativity or if the recipient is not in a receptive state, then the system will withhold the parcel until the recipient is ready. This is in the best interest of the recipient. The lifelogger also begins to plan how his data will be treated after their death. This he does by assigning access control rights to his data. He chooses to make some content public, share some data with his friends, some content that will be shared only with specific individuals. While there is some other data which the lifelogger wishes to simply be deleted his death.

Leave:

The system stopped receiving vital inputs from any of the sources synced to it, which would give proof of the user being alive. It attempts all available means to contact the user. After this fails, it contacts the nominee to confirm the user's status. Upon receiving the nominee's confirmation, along with official proof of the user's death. The system begins to execute the lifelogger's wishes related to data access control rights that he had specified in the develop stage.

Journey of a Reminiscer:

Aware:

They could become aware of the service through:

An e-mail notifying them that the Lifelogger has enlisted them as a nominee to his/ her Willow account. This means that when the Lifelogger dies, they must contact Willow on his behalf; or if Willow receives any signs that point towards the death of the Lifelogger, they would contact the nominee to confirm the Lifelogger's status.

An e-mail response from Willow, on behalf of the Lifelogger and his family, stating that the Lifelogger is no longer alive.

A sms response hinting at some sad news and directing them to a page that breaks the news of the Lifelogger's passing to them.

A phone call interaction with Willow's audio interface, that informs the user about the sad demise of the Lifelogger and gives key information about the funeral and other services, it also gives the user various options like leaving condolence messages for the bereaved family, sharing memories of the deceased with their family and friends, finding out more about more about the deceased through a collection of their publicly available data.

Join:

If the user signs up for the service they can even access eulogies and memories shared by others and personal data that the deceased may have consented to share with the user.

Use:

Have an immersive evocative experience by allowing multisensory engagement with the help of available smart devices.

Receive a Pitara (scheduled digital parcel) from the deceased (e.i, if the deceased has assigned such a gift to the user)

Discover content that maybe tagged to a location.

Develop:

The system becomes more accurate at gauging the patterns of reminiscence and most fond memories that the user may attach to the deceased.

Leave:

With time it is expected that the usage will taper. But this trend may change and usage may rise again, when the user attains an advanced age. The system will relearn fresh patterns that may emerge in the user at this stage. In such a case, the system is expected to serve the user (if the user desires it) till the end of the user's life.
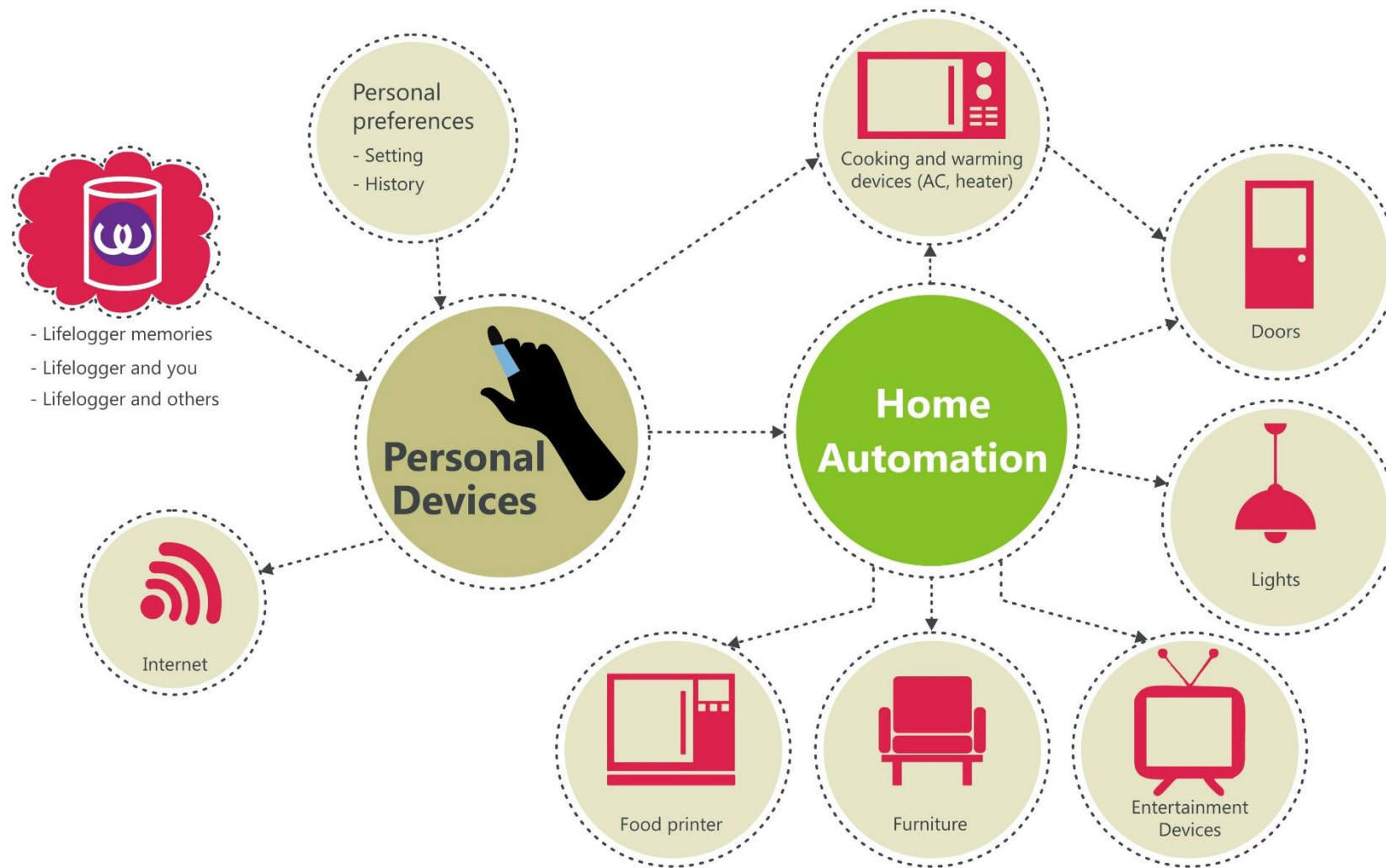
Figure 8 After the Syncing process is complete, all devices will be connected through the Personal wearable devices which will be the direct connector to Willow

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Scenarios

Scenario 1

Mugdha meets her neighbor, Shanti in the lift. Shanti's pregnant and her mother has come to be with her to help her during this period. In the evening, Mugdha seems to be deep in thought about something. Her personal device, which has, over a long period of time, learnt quite a lot about Mugdha's moods and patterns, guesses that she may be in a mood to listen to music.

However, it has been designed to be less presumptuous and so it asks her in order to confirm.
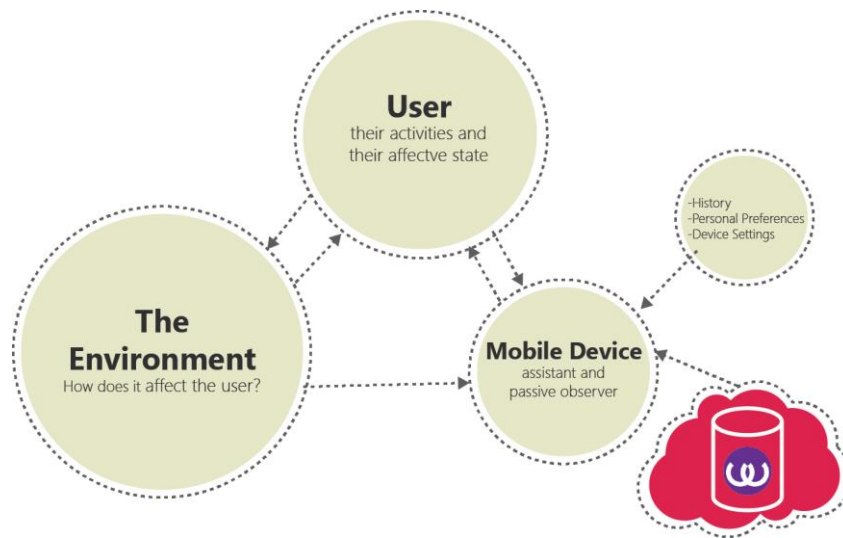
The personal device is attentive to her conversations and interactions s and it pulls data from the Willow quite extensively for Mugdha. She has signed up at Willow to access her mother' memories, 7 years ago. She often spends a few minutes before bedtime indulging in deep reflection and nostalgic reminiscences. Her long use of her mobile device has made it more intuitive to her desires and intentions. So

when she asked to listen to abhangas, the device could immediately recognize her line of thought. When Mugdha was about to have her first son, Anish, her mother would play abhangas for her every evening. Meeting Shanti in her pregnant state, accompanied by her mother had strongly reminded Mugdha of her own pregnancy, when she spent the last long bout of quality time with her mother.

The personal communicates the tactile configuration that offers the sense of her mother's saree, through the home automation system, to the intelligent seating arrangement, this configuration, it has drawn out from her mother's data available on Willow.

It emits her mother's perfume to enhance her passive reminiscence.

Scenario 2

It was nearing dinner time and Nikhil wasn't making any decisions about what he wanted to have. He seemed preoccupied, so his personal device offered ordering in as a possible option when no efforts are being made to cook.

The personal device searched for clues, on Nikhil's state. His body language and voice showed that he was longing something.

So it probes Nikhil further.

Nikhil is engaged to be married and spends quite a lot of time with his fiancé, the device displays her photo, but it has made a mistake.

Nikhil has begun using Willow services to remember his mother, only recently. The device know very little about Nikhil's reminiscing patterns.
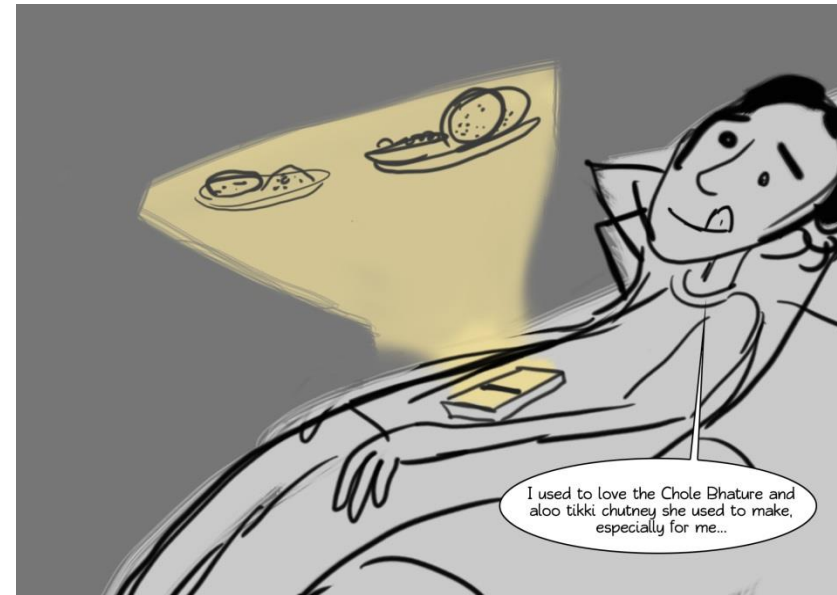
When Nikhil began to speak of his mother's cooking the device began to access her data in which it found her memorial site.
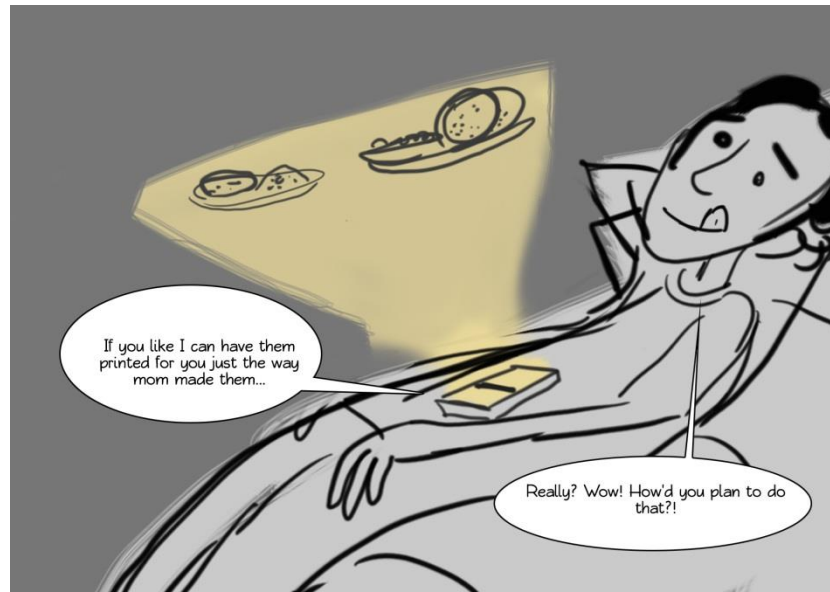
It found the pictures on Nikhil's Instagram under the tag #homefood.

After gaining Nikhil's consent it communicated the recipes and images to the food printer throught the home automation system.

Similarly it found Nikhil's home videos.

When Nikhil's sister's Swarm account showed that she was in a nearby location, the device already knew that Nikhil was missing his family. It guessed that Nikhil might want to spend time with her, hence, it interrupted Nikhil's video to ask if he want to have her over for dinner.

When Nikhil consented, the device communicated to the food printer that dinner must be prepared for two.

Scenario 3

Ratan was only 10 when his father passed away after battling cancer, for a year.

Ratan's father knew he wouldn't live to see him turn 18. So, with the help of his Willow account, he planned a special 18th birthday surprise for him. Ratan put on his contacts and groggily walked down to the garage. There he saw some warm radiance emitted from a spot behind his dad's old car...
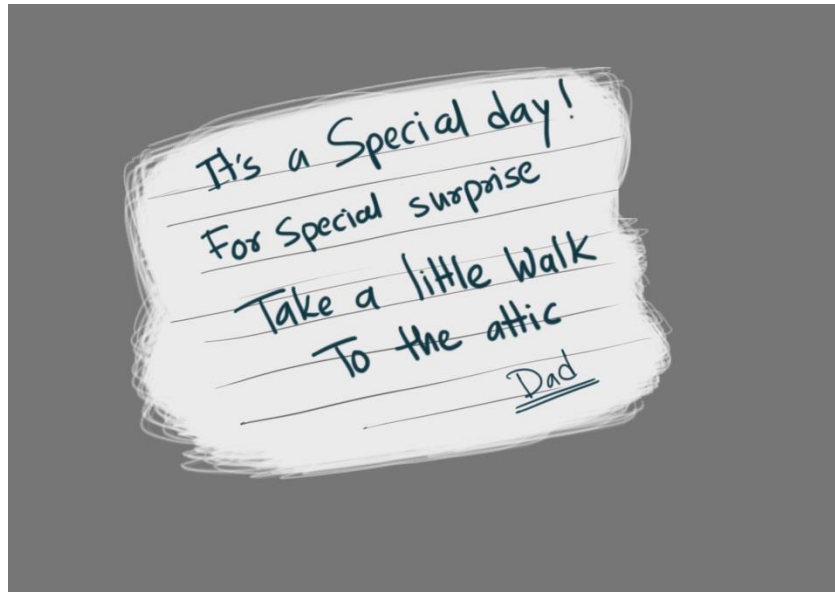
Upon reaching that spot, the radiance revealed a pictures of handwritten notes torn out from his father's diary to create a treasure hunt around the house.
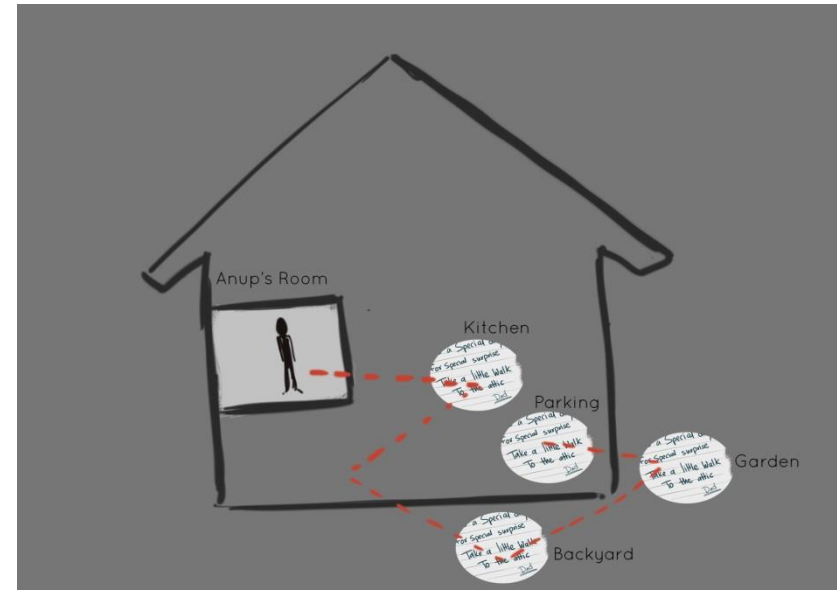
His father had envisioned Ratan to look through the camera of his cellphone for clues, but Ratan now had smart contact lenses to find the clues.

The entire trail was timed to be revealed on Ratan's 18th birthday. Finally, Ratan found himself in his own room one of the tiles displayed a message, it was slightly loose below it.
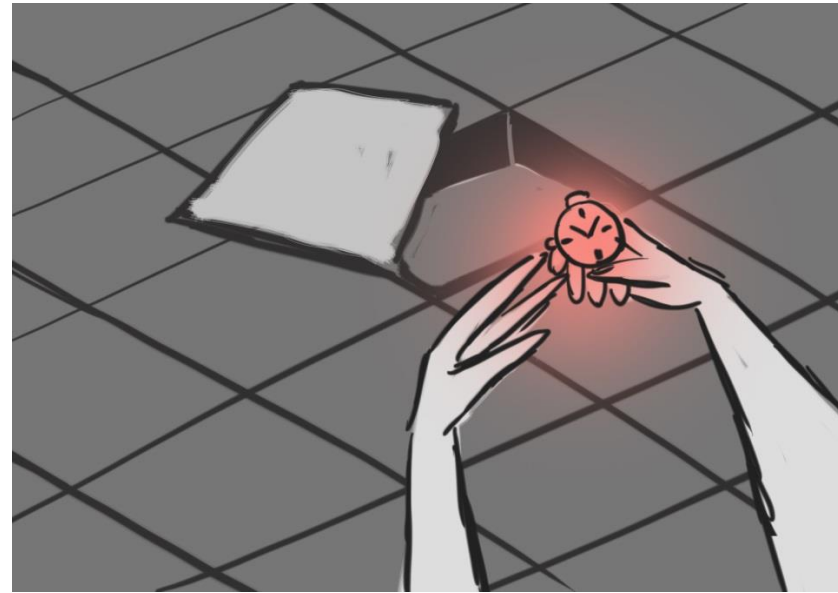
Ratan found his gift. It was his father's mechanical watch a family heirloom. The watch was tagged to start a video when the user swipe the glow around it.
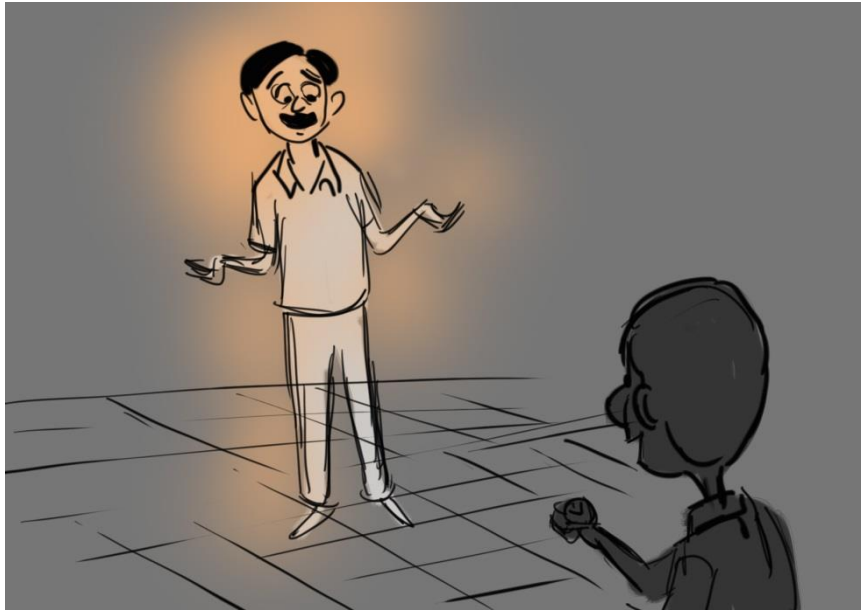
Ratan watched the video play out through his contact lenses.

The video was of his father, standing and talking to him in the very same room. His father's intent and the smooth interaction combined with the timing makes it an immersive and impactful experience.

Scenario 4

Naveen failed his CAT exams once again.
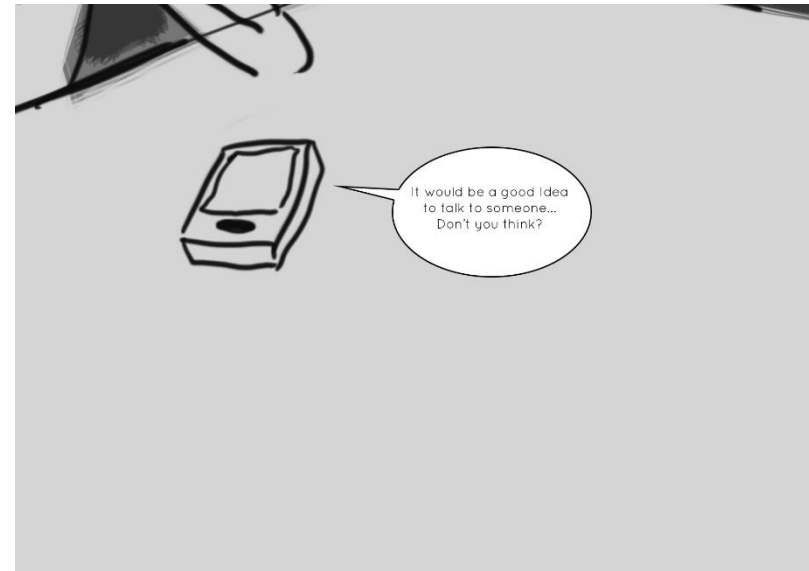
Knowing that he often discussed academic hurdles with his father, who passed away 2 years ago, the device suggests he speak to someone about it.
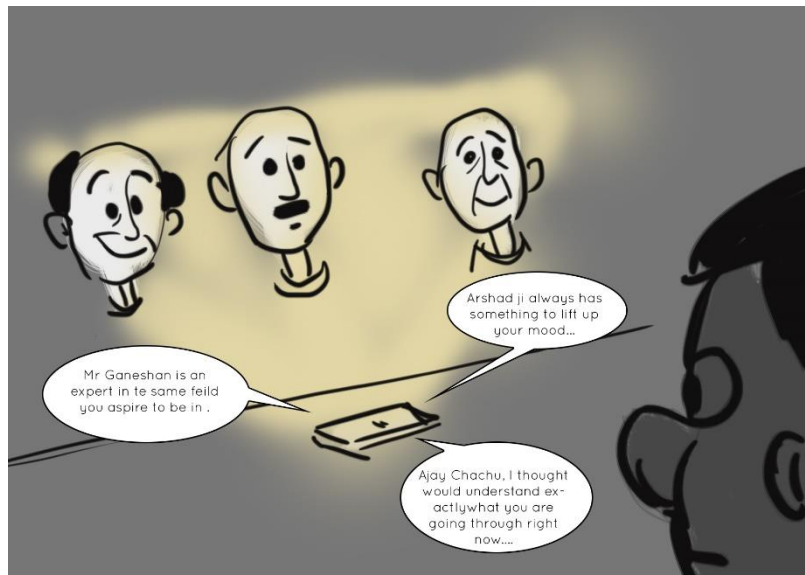
Reminiscers often begin to draw connections and quickly establish relations to people they view as similar to their dear departed. In this case In this case the device suggest contacts who may each share with Naveen, some bond that Naveen would originally share with his father.
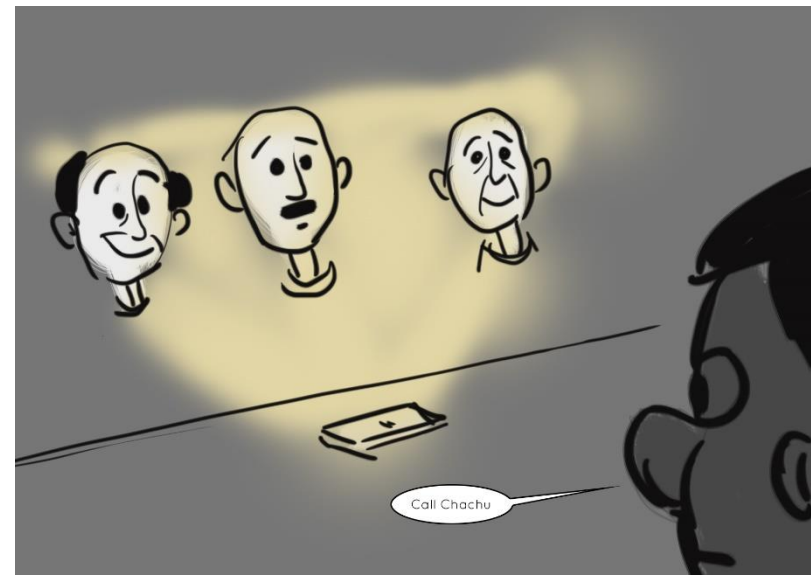
Naveen chooses to speak with his father's younger brother.
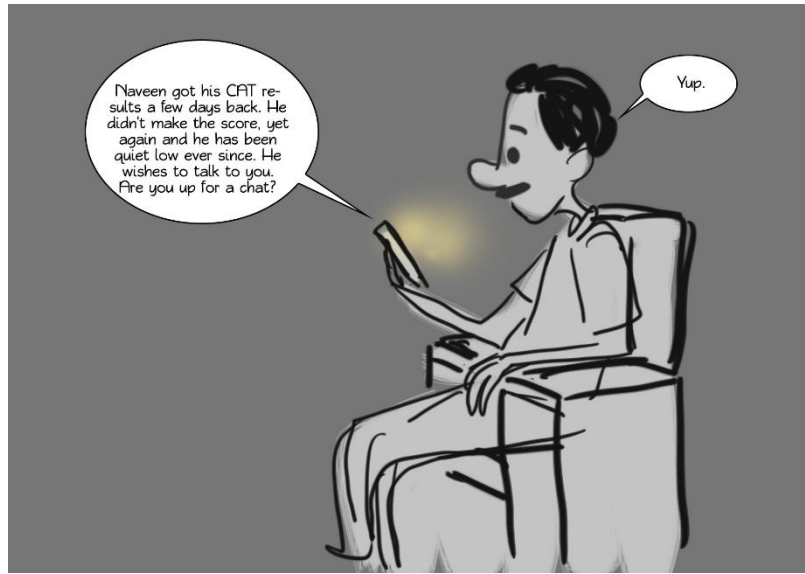
So the device connects to Chachu's device who in turn asks Chachu if he would be able to spare some time to listen to Naveen.

Chachu agree's and appears for a call with Naveen.

Inspiration from past and current technology

The following technology inspired the direction of the scenarios. These may not be perfect but it would be fair to assume that they would evolve to become more usable in the future.

Home Automation:

Home automation system can already be connected to wearable devices and operated through them, today. This system must enhance the overall experience, if it is included in the framework of devices that access data from Willow's database.

iSmell:

In 2001, iSmell was launched as a commercial device that could replicate most natural and manmade smell by mixing certain basic scent elements on the basis of code downloaded from the internet. This device which could be attached to the desktop to download scents, failed because it found very limited usage. (24). It could be useful for enhancing Willow's services and a host of other interesting applications, if:
a) It is reduced in size.
b) It is produced as a well-designed attachment to a wearable device.
c) It has the ability to deodorize as well.

Foodini: (25)

Foodini is a food printer that can print food with fresh ingredients.

Watson:

Watson is an artificially intelligent system developed by IBM. It processes data like a human, with the help of natural language processing and it can generate hypothesis based evidence and is constantly learning as it goes [23].

Known Constraints and Assumptions

- The users are active Lifeloggers who take an interest in gaining a better understanding of themselves through the data that they generate and/ or by recording their own thoughts, feelings and experiences.

- An individual will have the right to own his/her data and store/share/delete it as per his/her will.

- Interaction for reminiscing about multiple loved ones has not been planned for, in this project.

- In present times, it is difficult to detect arousal, specifically, negative arousal in an unobtrusive and readily accessible manner. However, for this project, we assume that such technology will be developed and be available for use in the near future.

- New evocative triggers may be added with newer forms of interaction with technology.

Prototypes

GUI developed for the system
Mailers

Initially interactions were drawn for well used media and in the later stages newer devices were designed for.

The mailers were designed as one of the touchpoints to convey the news of the departure of the lifelogger to those who don't know about it and have tried to contact the lifelogger via email or sms.

Dear Prashant,

We are writing on behalf of Rohit and are very sorry to be the bearers of sad news, but Rohit passed away last Saturday from complications following heart surgery. He had been experiencing chest pains for several weeks. The surgery was intended to alleviate the problem.

Following his wishes, a quiet funeral service was held by his children and grandchildren at his in the residance. Rohit was a modest, private man and wanted it that way. Deepa, and Rhea are holding up well.

You might want to:
• Offer condolences to the grieving family.
• Share your memories of Rohit with his family and friends.
• Know more about Rohit's life and passing.
• Leave a message about any matter and Deepa will get back to you on behalf of Rohit, at the earliest.

Peace,
Willow Services
Know more about services offered by Willow, here.

Dear Deepa,

We are writing on behalf of Rohit.

On the morning of 20th July 2010, he was thinking of you. He wanted us to send you this package today, so here goes..

Peace,
Willow Services
P.S: This package has also been saved to your Willow feed, you will find it on your Rohit and You page.

Mobile App

The Mobile App is the most basic interface that shows all the data that is available to the Reminiscer. It is the service breakdown arrangement if the more intuitive interactions with natural speech fail or if the user is unable to find what they are looking for.

The app has 3 main sections:

- Memories and data that belonged to the deceased.

- Memories and data that are shared by the deceased and the Reminiscer.

- Memories and data shared by other Reminiscers either specifically with the Reminiscer or with all the Reminiscer's in general.

Image 28 Landing page of The Willow App

Image 29 Content that the Lifelogger had publicly available.

Image 32 Content that has shared relevance to the lifelogger and reminiscer. (As seen by the reiniscer)

Image 31 Eulogies and other content shared by other reminiscers
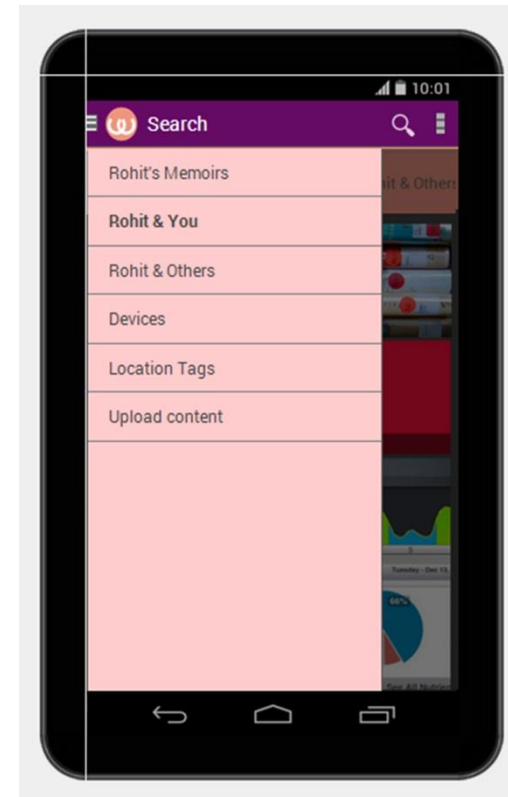
Image 30 Main Menu: other features like devices and tagging and accessing memories tagged to a location, and Uploading content

Google Glass Interactions

There are three main gestures for interacting with Google Glass: Tap -for selecting a particular option or for viewing the next level of options available, Swipe – swiping backward and forward for moving from one option to the other on the thread of options that may be displayed, swipe down to exit the deeper level of options to the higher level thread and Nod for waking up Google glass.
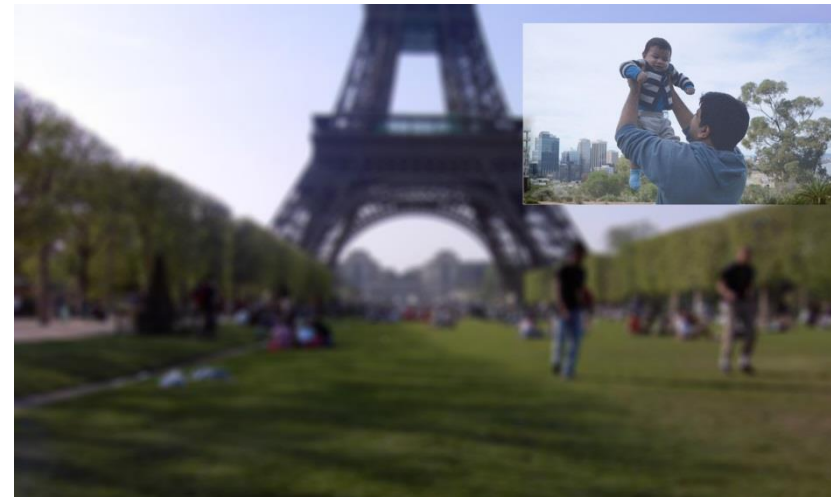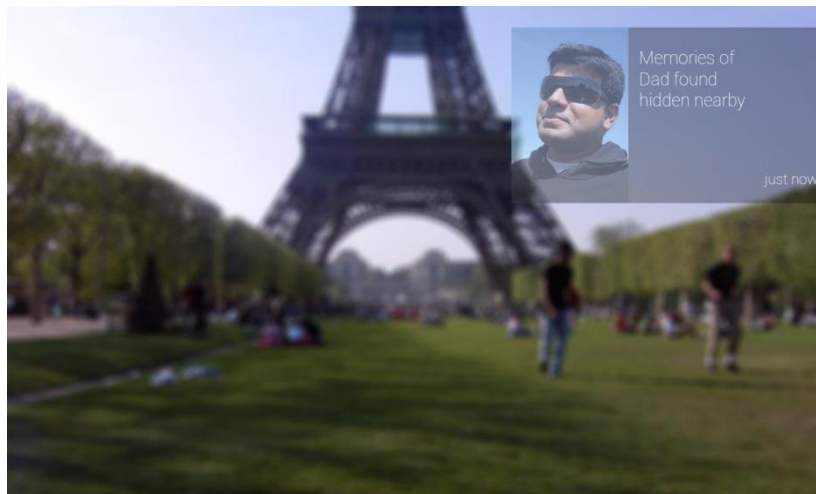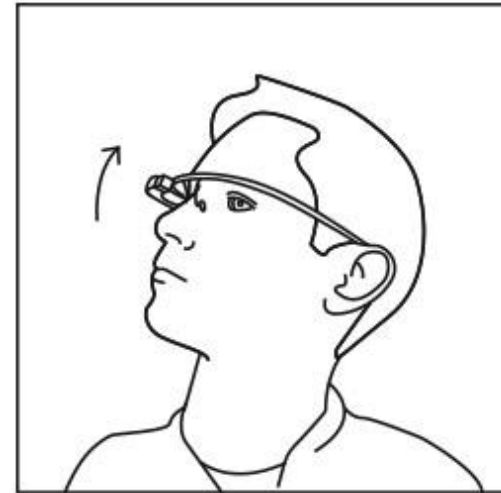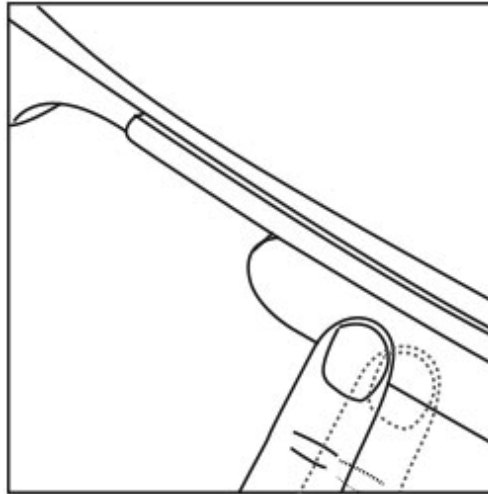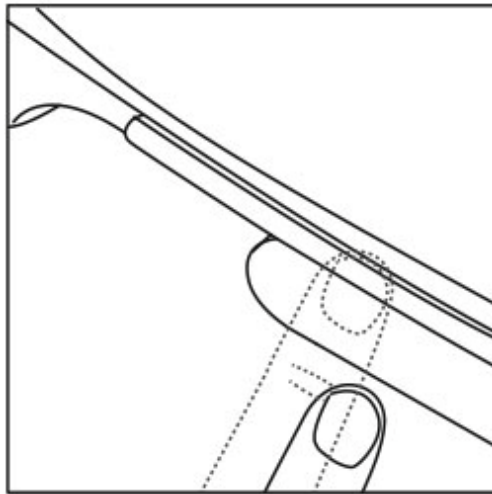
Science Fiction Prototyping (SFP)

Science Fiction Prototyping is a method used to develop and evaluate futuristic concept ideas. It was introduced by futurist Brian David Johnson and has been used quite heavily by Intel in order to forecast future scenarios and lifestyle choices in order to develop technical specifications for developing semiconductor chips suitable for that time. In this project this method is being used in an attempt to detail out service encounters in the near future.

The Afterglow

That Day

2nd August 2014

He was an organized and disciplined person and had always been well prepared for most situations in life, but this time, things were different. He was running short of time, his thoughts were too fast to track, almost flooding his mind all at once. As a curious young boy, he had read accounts narrating about what happens at such a time, but he had never taken them seriously. In a flash, his entire life played out before him. With all his might, Rohit drew in one last breath and then he slowly let go.

***
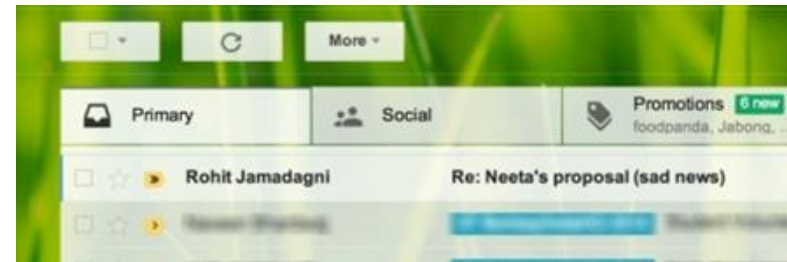
The news

6th August 2014: 4 days later

Within moments of clicking send, Prashant received a reply from Rohit to the mail he had just sent. This made Prashant curious, as he pointed the cursor to the subject to open the mail, he caught a bracketed remark on the end of the subject line; it read "sad news". He held his breath, as he clicked to open the email and his heart raced. It took him a while to process the contents of the mailer

A numb silence enveloped his body and mind for a couple of minutes, or was it ten minutes? It was hard to tell. This was not happening. His friend of 25 years was no more. Recovering, he picked up his phone to call Rohit's wife Deepa, but then paused.

Re: Neeta's proposal (sad news)   Inbox   x

Rohit Jamadagni <rohit.jamadagni@gmail.com>   10:28 PM (12 minutes ago)

to me

Dear Prashant,

We are writing on behalf of Rohit and are very sorry to be the bearers of sad news, but Rohit passed away last Saturday from complications following heart surgery. He had been experiencing chest pains for several weeks. The surgery was intended to alleviate the problem.

Following his wishes, a quiet funeral service was held by his children and grandchildren at his in the residance. Rohit was a modest, private man and wanted it that way. Deepa, and Rhea are holding up well.

You might want to:
• Offer condolences to the grieving family.
• Share your memories of Rohit with his family and friends.
• Know more about Rohit's life and passing.
• Leave a message about any matter and Deepa will get back to you on behalf of Rohit, at the earliest.

Peace,
Willow Services
Know more about services offered by Willow, here.

Rohit Jamadagni
Add to circles

Show details

'It would probably be better to send his condolences through the options offered by the service that had sent the mailer. 'It would give her the space to find my message when she is in a state to accept it and also allow me to better phrase my feeling in this difficult situation.' he thought. He then clicked on the link that read "offer condolences to the grieving family" and left Deepa a recorded message. In the days that followed, Rohit remained on Prashant's mind, memories of nights spent pouring over books, in preparation for the next day's quiz. His thoughts shifted to Rhea, Rohit's teenaged daughter. He had never met her. But his heart went out for her. Nothing would be able to make up for her loss. He wished to share his memories of Rohit with her, hoping that in these stories she would someday find more of her father. Would she be able to see the wonderful friend that Rohit had been to him and revel in their exploits, when she herself went to college? So it was decided, he would scrape up all the memories he had of Rohit, from the deep recesses of his mind, to share with Rhea.

As soon as the weekend arrived, he went up to the attic to gather photos that they had clicked in the good old days, when they were undergrads at IIT Bombay, videos of Rohit dancing at his wedding. There, in his box of belongings from his college days; he even found a caricature that Rohit had made of one of their Professors, back then. He uploaded all these fond memories accompanied by enthralling tales about the boisterous young Rohit, party planner and event manager supreme to the link that was the service had provided.

He then looked through photos of Rohit that had been publicly available; the mailer service, Willow services had made a collection of it, along with articles about his business and his blog feeds. It seemed like a well put together arrangement. "So like the resourceful Rohit, to have made arrangements for us to remember him even though he is no longer with us." thought Prashant. He silently wiped a tear.

***

Secrets from the past

May 2019: 5 years later

When Rhea was visiting the Eiffel tower, her glass popped a notification.

It was from Willow, a service she been using to fondly remember her father, Rohit ever since he had passed away. It said that the vicinity memories of her father ever since he had passed away. It said that the vicinity held memories of her father.

Rhea was intrigued she tapped the notification to find directions guiding her a few step away from her path to the side lawn of the tower. She stopped at the location indicated and looked around. The glass then began to display images of her infant self and her father, from the time when they had visited the monument together.
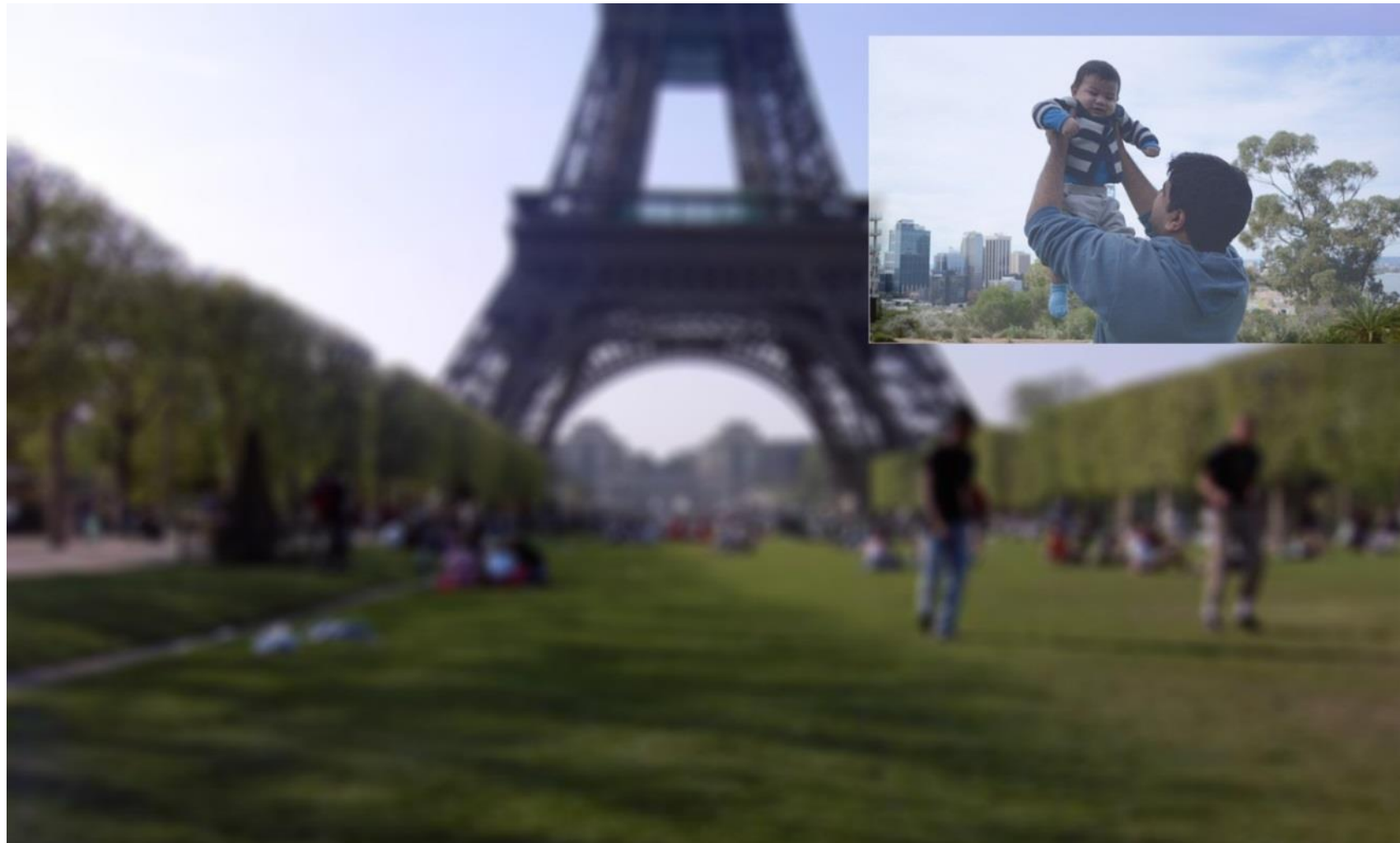
A string of pictures that had been taken at the same location, with the same view from about 20 years ago were on the display. A smile played on her lips as she gazed at images of her father holding her in his arms with a mix of pride and affection..

Suddenly, Rhea felt more intimately connected to her surroundings, the courtyard of the Eiffel tower no longer felt like a foreign place but more like a long lost friend.

***

Aug 9, 2014: A week later

Deepa was devastated. Her dearest friend and husband Rohit, was no more. She had deeply loved him and he too, had reciprocated her love. Now, 7 days later, she had opened her laptop and was checking her email. Willow had sent many messages from acquaintances and friends over the last few days. One message from Prashant caught her eye.

"*Dear Deepa*,' Prashant's voice was soft and steady. " *I was shocked to learn about the sudden passing away of Rohit. He had been my very close friend throughout. And as I had told you once, his friendship was very valuable especially during times of financial stress in my life. I am forever indebted to him for being such a nice individual and a caring person. It is difficult for me to imagine a life without his loving presence. You had always been a devoted and empathic wife. I pray that you and Rhea get the fortitude to deal with this tragic situation–in grief-Prashant"*

Listening to this sincere condolence, her eyes welled up. It had only been 7 days and she had not yet come to terms with her loss. His memories were still fresh in her mind. It

was just a day before he passed away that he had joked with her about the grey in her hair. Now, he was somewhere out there, out of mortal sight. Did he still think about her and Rhea? He had been a loving husband and a great father. She stifled the sobs that arose deep in her throat.

Plans for a memorable day

15 July 2020: 6 years later

It was early one Saturday morning; Deepa sat down by the coffee table, drying her hair with a hand towel, deep in thought. It also happened to be her birthday, but she had long moved on from celebrating such events. Her husband, Rohit had always made sure that this day didn't go unnoticed. Every year would be a new surprise. Even though his work demanded that he travelled most of the year he had always made sure that he'd spend this day at home. With Rohit life was full of surprises.

But 6 years ago, all this changed. 'It's a minor surgery; he should be able to get back to work in a week or two.' The doctor had said. But post-surgery, Rohit spent the entire month in the hospital; it had been a complicated affair Deepa took a month off from work to be by his

side. She'd let Rhea spend her evenings with him. Doctors refused to comment, they said they were trying their best. But Rohit's condition only got worse. When he passed away Deepa had little time to grieve. She had to take charge of everything, all by herself. Being a single mother wasn't easy. Years had sped as she had tirelessly balanced her career and home life.

The beep of a notification on her phone woke her from her reverie. She had received a new mail. She couldn't believe her eyes.

Deepa paused. Did she want to read this now? Is this even real? Confusion and emotion threatened to take over, but she drew a deep breath and clicked hard. She could deal with it, whatever it was. The last 6 years, had made a much stronger woman out of her.

Rohit Jamada...

rohit.jamadagni@g...

7:55 AM

Dear Deepa,

We are writing on behalf of Rohit.

On the morning of 20th July 2010, he was thinking of you. He wanted us to send you this package today, so here goes..

Peace,
Willow Services
P.S: This package has also been saved to your Willow feed, you will find it on your Rohit and You page.
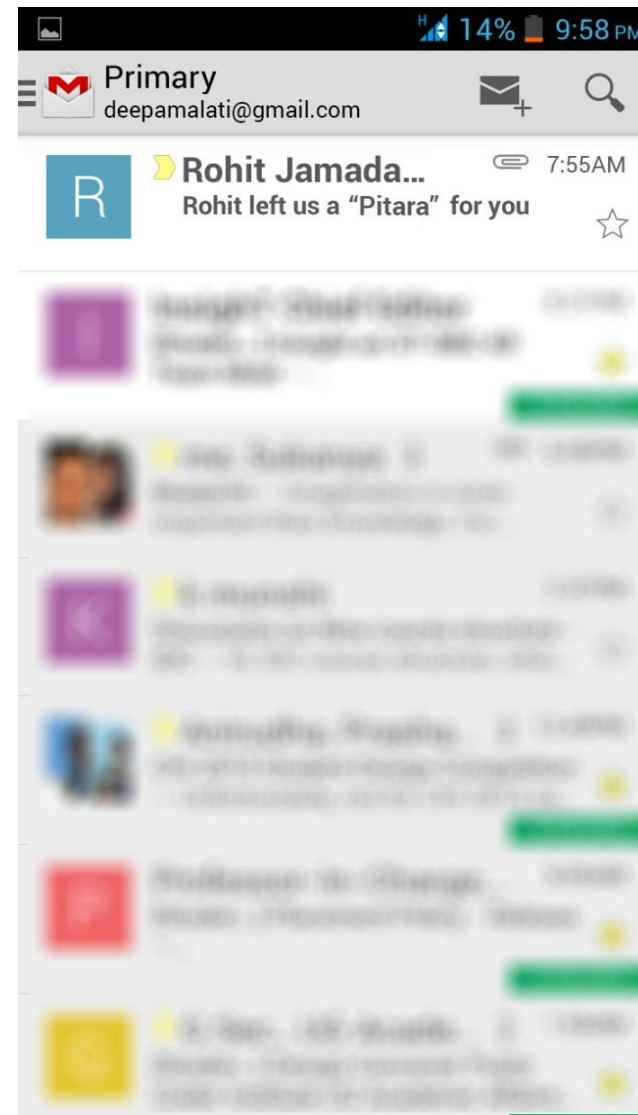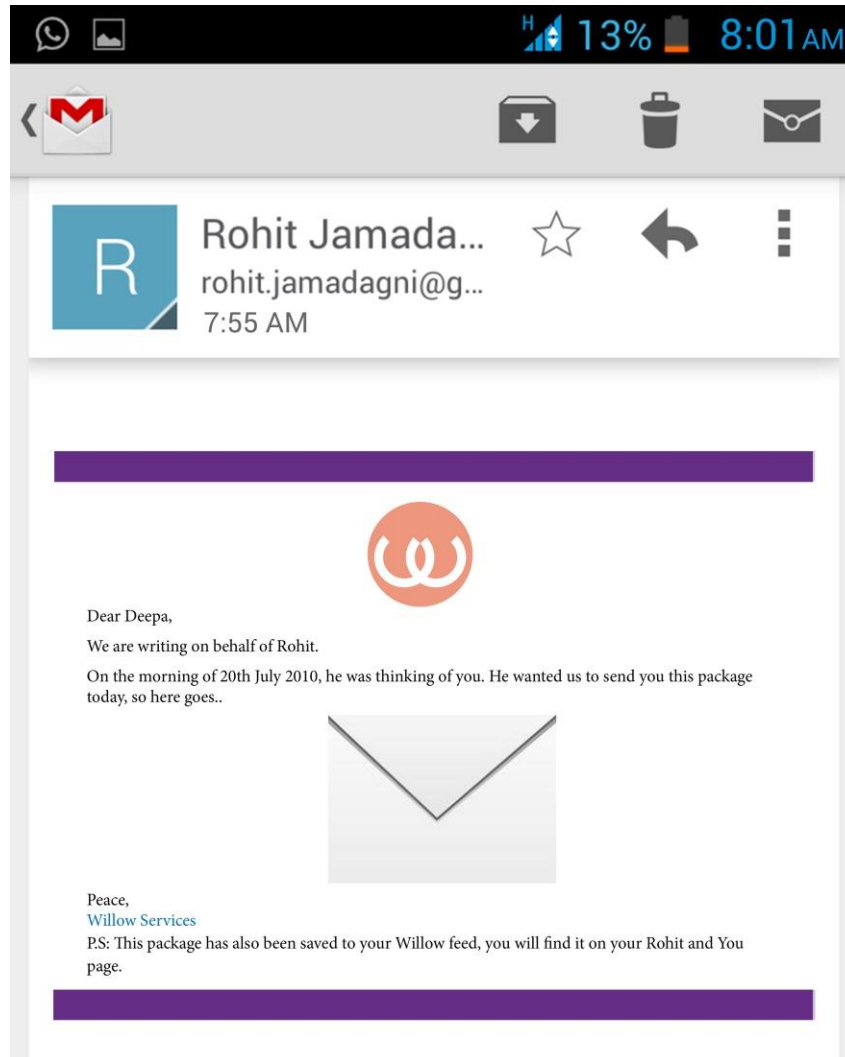
The envelope held a scan of a handwritten note that read:

Happy Birthday my dearest,
Today will be a memorable day. I promise.

Love,

Rohit.

Within the envelope there also lay, a Pamper-yourself massage coupon from a popular spa franchise, a voucher that could buy anything in Women's wear worth ₹ 20,000

(as of 2014) and a dinner reservation for 2 at The Taj Mahal Palace. He had planned it 6 years in advance for her.

That evening she and Rhea dined at the Taj, in celebration of her 50th birthday and a man she couldn't have been more grateful to have had in her life.

Evaluation Plan

A semi structured questionnaire will be presented to the user after they have viewed the prototype. The questionnaire shall be evaluating the design on a given set of parameters. Some part of the questionnaire would be statements to which the user must respond on a five-level Likert scale while the other part would be a set of open ended questions. The users' reaction shall also be captured while viewing the video prototype.

Recruitment plan:

- 4 individuals between the age group of 40 to 60

- 4 individuals who have lost a close relation to death by natural causes before August 2010.

- 4 Subject matter experts from the fields of Psychology, Computer Science and Electronics.

Questionnaire for evaluating the SFP:

1. You found the characters believable.

☐ Strongly Agree
☐ Agree
☐ Disagree
☐ Strongly Disagree

2. You found the scenario and interaction realistic.

☐ Strongly Agree
☐ Agree
☐ Disagree
☐ Strongly Disagree

3. You thought it was creepy.

☐ Strongly Agree
☐ Agree
☐ Disagree
☐ Strongly Disagree

4.   You would sign up for this service in Rohit's role
☐   Strongly Agree
☐   Agree
☐   Disagree
☐   Strongly Disagree
Why?

5.   You would sign up for this service in

    a)   Prashant's role:

    ☐   Strongly Agree
    ☐   Agree
    ☐   Disagree
    ☐   Strongly Disagree
        Why?

    a)   Deepa's role
        ☐ Strongly Agree
        ☐
        ☐ Agree
        ☐ Disagree
        ☐ Strongly Disagree
        Why?

a)   Rhea's role

    ☐ Strongly Agree
    ☐ Agree
    ☐ Disagree
    ☐ Strongly Disagree
Why?

1.   How could this service have been better?

2.   What did you find least believable?

3.   Any doubts? Suggestions? Comments?

Evaluation Feedback

First Iteration
4 users

Question	
You would sign up for this service in Rhea's role.	
You would sign up for this service in Deepa's role.	
You would sign up for this service in Prashant's role.	
You would sign up for this service in Rohit's role.	
You think such a scenario can take place within the next 5 years.	
You found the scenario believable.	

Legend: ■ Strongly disagree ■ Disagree ■ Agree ■ Strongly Agree

Second Iteration

9 users

You would sign up for this service in Rhea's role.

You would sign up for this service in Deepa's role.

You would sign up for this service in Prashant's role.

You would sign up for this service in Rohit's role.

You think such a scenario can take place within the next 5 years.

You found the scenario believable.

0%   20%   40%   60%   80%   100%

■ Strongly disagree   ■ Disagree   ■ Agree   ■ Strongly agree

86
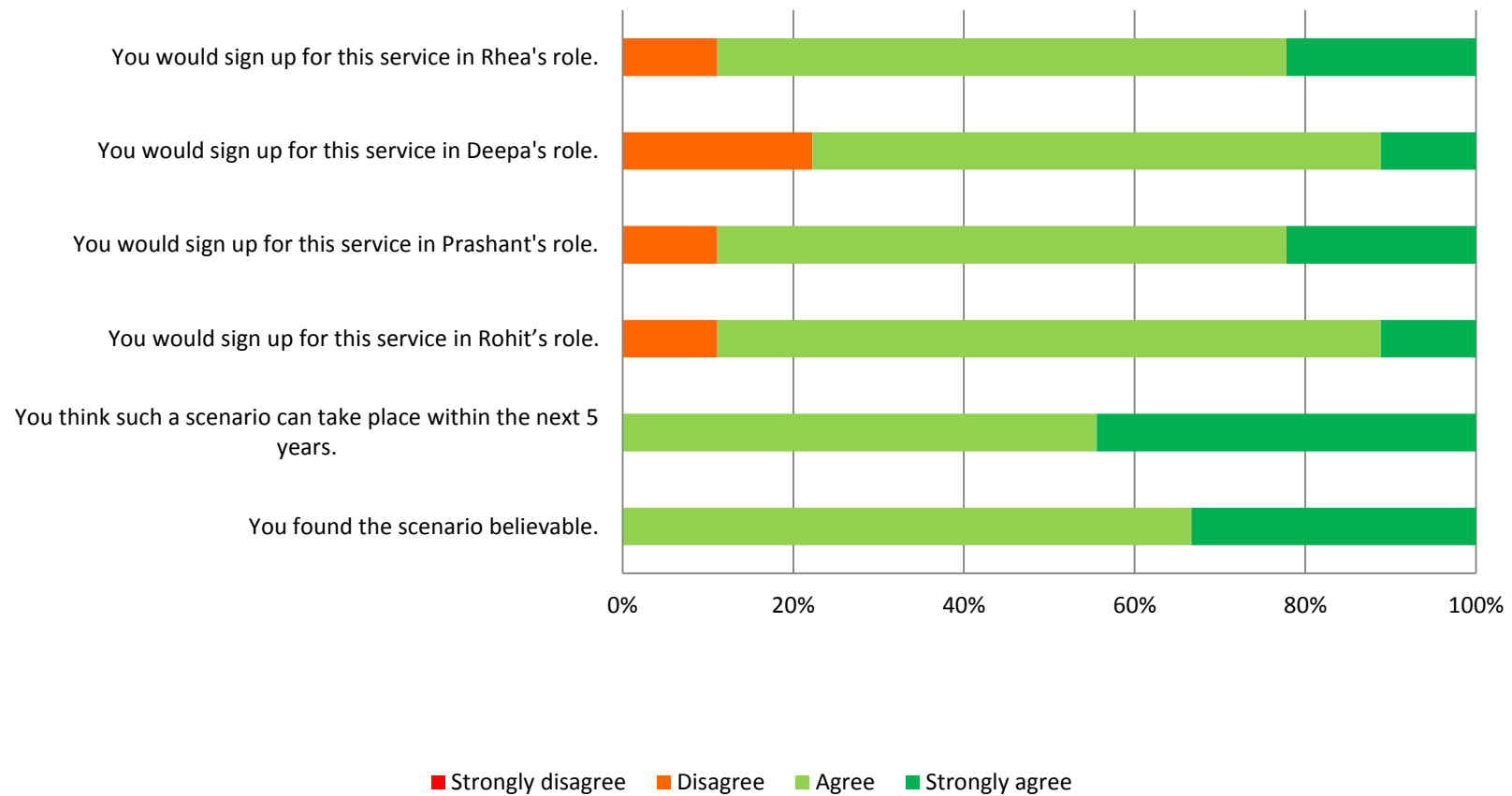
Graphic novel

Overtime, the service blueprint had been informally discussed with many designers. But one of the most critical part that it was unable to thoroughly convey was the context. In the science-fiction prototype, there was challenging to detail out scenarios without making the prototype a lengthy read and thus, scenarios that today's user might easily relate to (without detailed description) and closer to the current time were selected for the given medium.

In order to communicate the context around service encounters and clearly illustrate scenarios that may not yet be technically possible (but possible in the near future); a graphic novel was created.

1
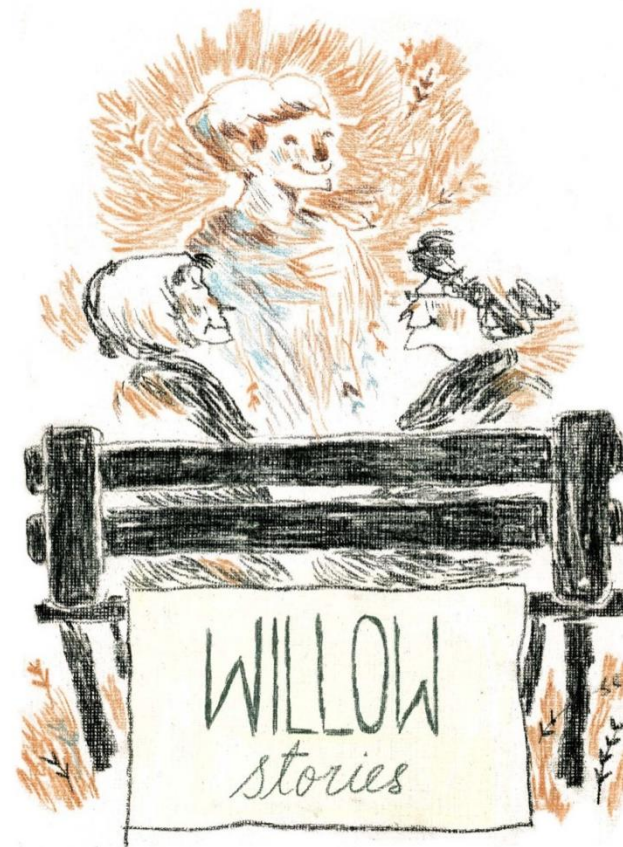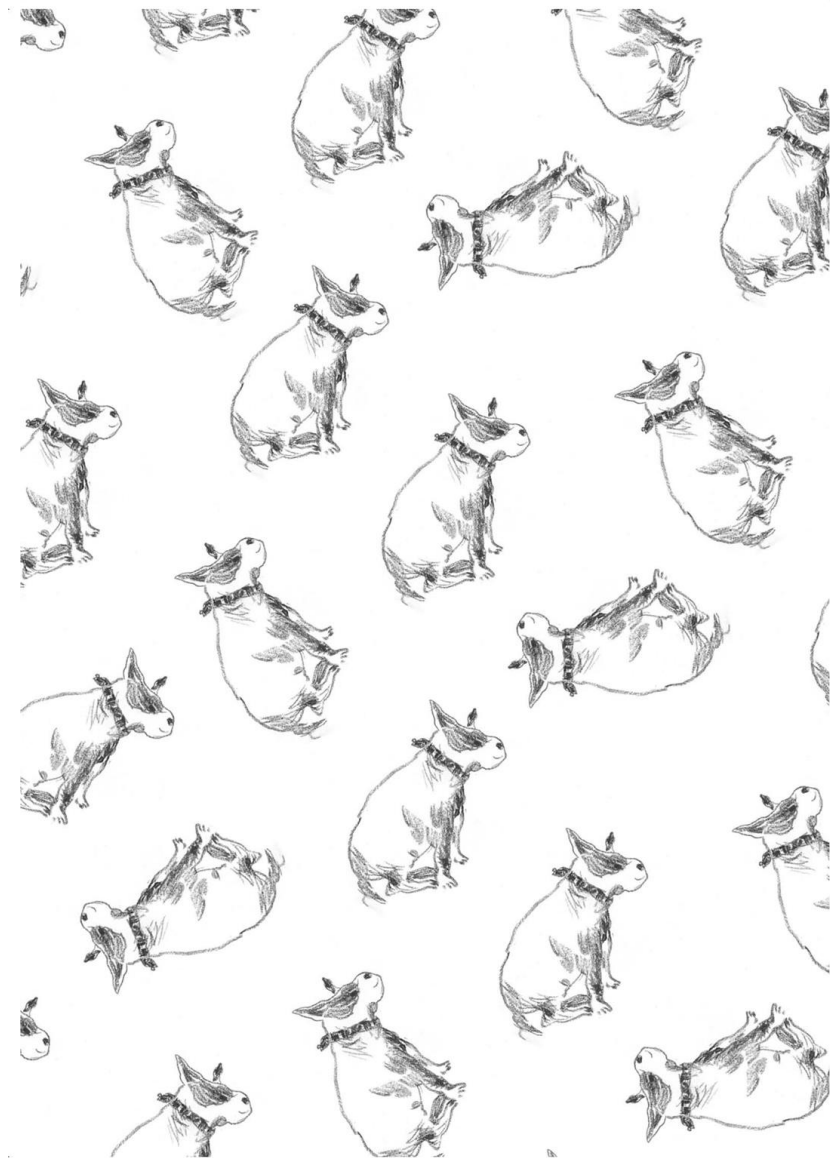
WILLOW
stories

Concept
Sukanya Nirmal Mudaliar

Illustration
Sumit Kumar
Anagh Saha
Swati Addanki
Md. Umear

3

About Willow

Willow is an online service based on the near future. The service caters to users in two roles, the Lifelogger and the Reminiscer. The Lifelogger, in this service, is a person who interests in capturing their own life to reflect upon it, draw conclusions and solutions from the reflections and act upon the decided solutions. Willow helps the Lifelogger to:

- Collect all of the data he generates on a day to day basis, through social media, online interactions email, skype, mobile apps that help him monitor and regulate his health, finances, etc. It also draws data from his lifelogging devices like Misfit Shine and practices like journal writing.v
- Reflect on his own life and activities in order to find ways to optimize his time and performance in all aspects of his life.
- To enlist and plan for his goals and aspirations.
- Use that data, with the consent of the owner, to enhance the experience of remembering them when they pass away.

Upon the Lifelogger's death, the Reminiscer, who may be a friend or relative of the Lifelogger, who after accepting the loss and grieving upon the passing of the Lifelogger chooses to cherish his/her memories, fondly. Willow serves the Reminiscers by sharing with them the data of the lifelogger, as per his/her wishes and by enhancing their reminiscences of the deceased Lifelogger with the help of devices and systems that they use in their day-to-day lives. Willow does so, with great sensitivity, by taking into consideration the following factors while interacting with the Reminiscers:

- The details of the exchanges between the deceased Lifelogger and the Reminiscer.
- The recent activities of the Reminiscer.
- The affective state of the Reminiscer.
- Public and personal data available to the Reminiscer

Bridges

Rhea had just moved to Ramnagar. Ramnagar also happens to be where her father lived in his college days. She has been using willow services since her father's death five years ago. Today is Rhea and Timmy's first time walking around the new neighbourhood.

Rhea takes her dog for a walk near Ramnagar, where her dad used to study in college, many decades ago.

Rhea gets a notification on her glass

The map guides them to a place nearby

Found memories of dad nearby.

Rhea reaches her destination and she is surprised to find out about the place...

She finds out photographs of her dad, when he used to live here 30 years ago...

She browses all these photos through her glass

Suddenly, she stumbles upon a photo of her father and his girlfriend.
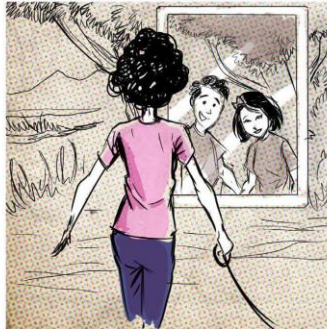
Timmy begins to bark and pulls her away towards....

Rhea spots an old lady who looks familiar.

Confused Rhea asks her...

Rhea remembers seeing her in the photographs with her dad

Rhea and the old lady start talking about the times when her father was young and they were together.

8

9

Earthly Records

On a Sunny day in 2014, children playing cricket giggled secretly, looking at the nerdy young man walking around making weird gestures with a phone in hand. Rohit had been at it for the last fifteen minutes, trying to get the perfect arrangement, a special gift for a special day.

The children couldn't contain their amusement, at the peculiar young man who walked about holding up his cellphone, by the lakeside.
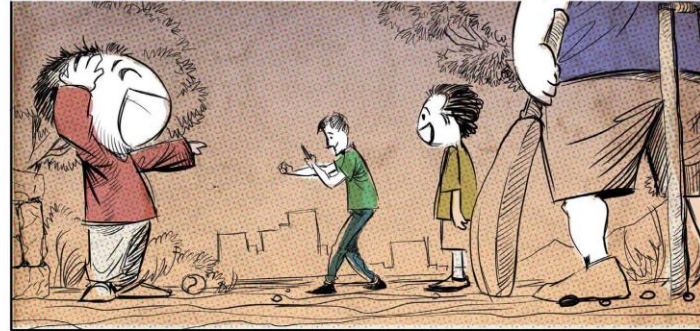
Rohit is trying to fix the photographs of him and his girlfriend on the location

He selects a few photographs and fixes them in air...

He fine tunes the photographs by arranging the angle

Rohit then brings his girlfriend to give her a surprise on her birthday.

Through his phone he shows her the Augmented reality photo gallery in the space
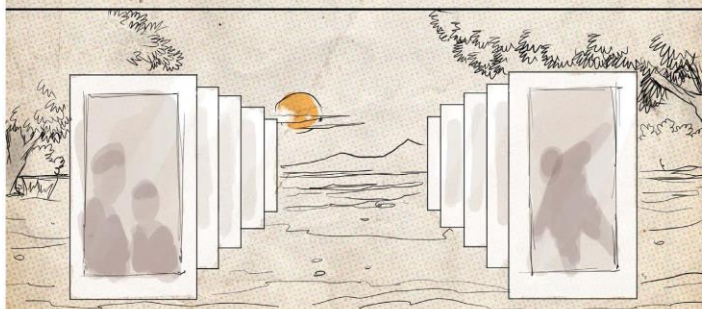
They see the photos evenly spaced out in the surrounding space through his phone camera

Now, 30 years later Reeta sees all those memories again by help of her Glass.

She browses through all the photos that Rohit had fixed at location

She feels nostalgic when all the memories return to her....

12

13

93

"Daadu"

Neeraj stumbles into a room carrying carton of art supplies, excited to turn it into his own personal studio. He scans the spacious kamra that used to belong to his grandfather up until his sad demise 4 years ago. His gaze rested upon daddu's old, dusty rocking chair that still stood beside the window.

Upon moving back home for the Summer ...
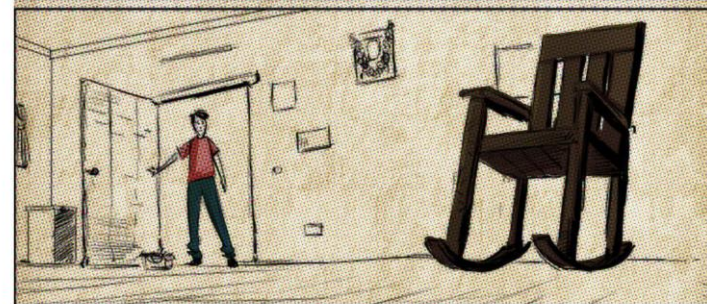
Neeraj stumbles upon a room that belonged to his grandfather up until his sad demise 4 years ago
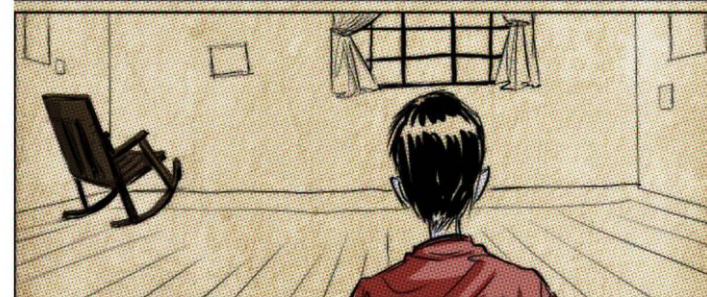
His gaze rested upon daadu's old rocking chair that still stood beside the window.

He slowly proceeds towards the chair The familiar wooden texture sends his mind whoozing past years of playing around this chair while Daddu would rest on it.

He takes out his mobile and commands..

DADDU

Pictures of him and Daddu taken on this location began to show through the Willow App

On the main menu there are more videos, puts on the headphone..
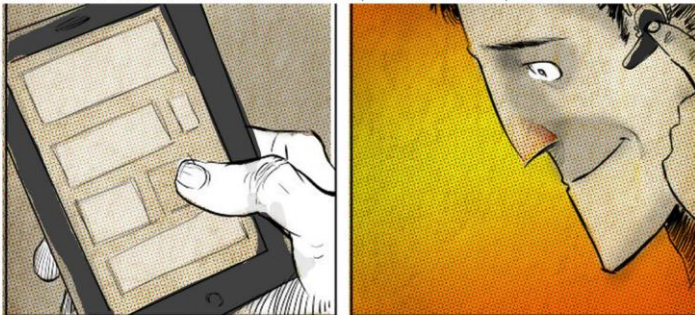
He selects one of the videos that his sister had recently uploaded
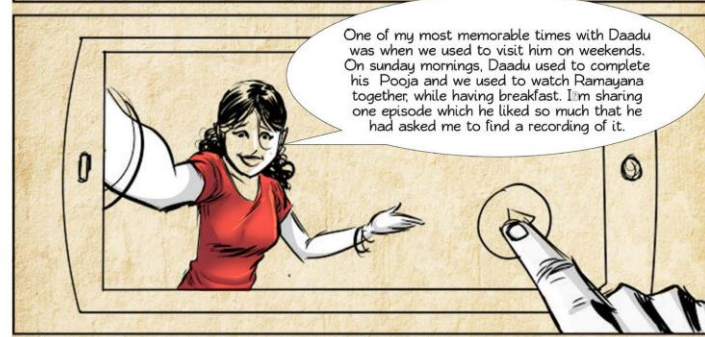
One of my most memorable times with Daddu was when we used to visit him on weekends. On sunday mornings, Daadu used to complete his Pooja and we used to watch Ramayana together, while having breakfast. I'm sharing one episode which he liked so much that he had asked me to find a recording of it.

Ashish had attached an incense aroma attachment to this video which Neeraj accepts it

and the same aroma of the inscence sticks that Daddu lit for his puja emanates from the phone,,

रामायण
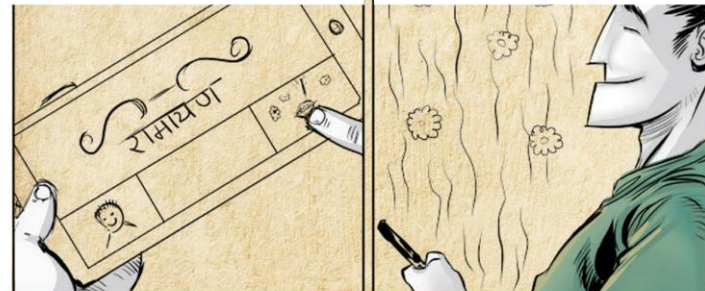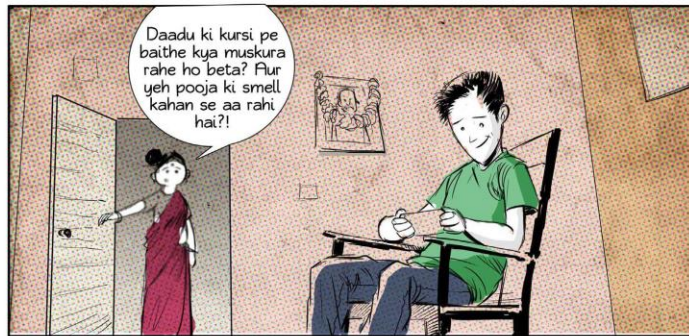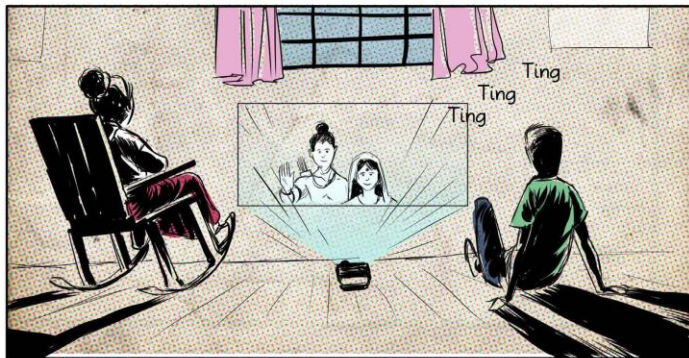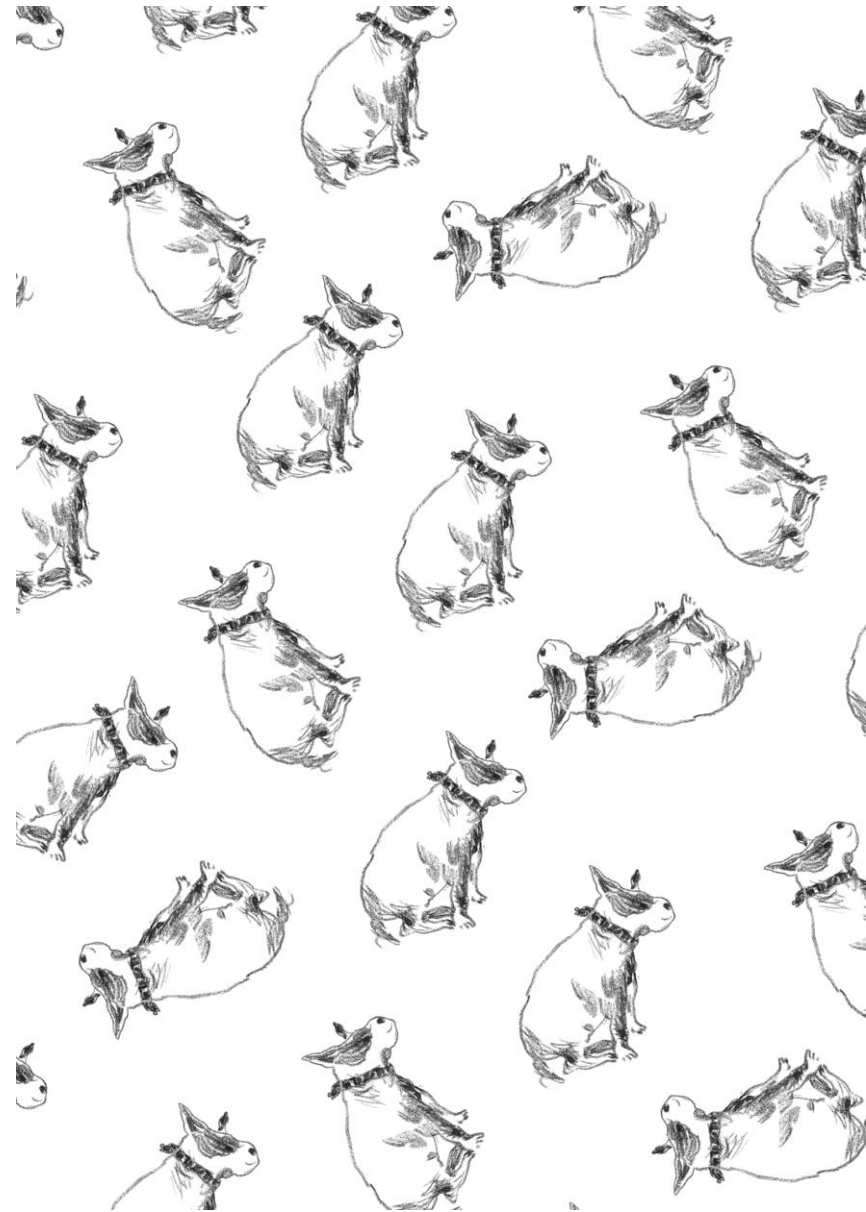
Experience prototyping of an encounter

In order to further illustrate the details and usage of design and to test whether the encounters would play out, as planned when the actions are performed, video prototyping of scenarios was planned. This prototype would be viewed by users and subject matter experts, and evaluated at two levels. How well are the actors relating to the scenarios? How well does the viewer relate to the scenarios?

(Please refer to Appendix for a link to the video.)
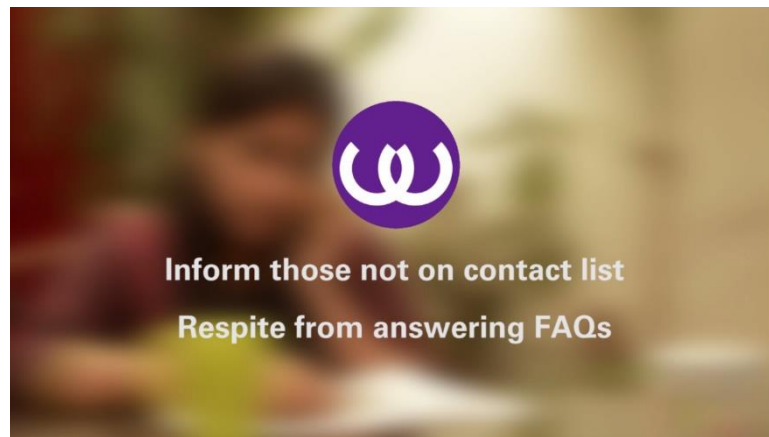
Conclusion

The project started with an intention to allow people an opportunity to exit their lives gracefully and respectfully. But through secondary study it soon became evident that the primary users were the relatives who were left behind. The key challenge has been that death is a grave, irreversible change and it is often very difficult to look beyond the shock and the pain to a time when memories could be cherished and the past could be celebrated. It was also an interesting challenge to design for the future. Every interaction with a prospective user was extremely valuable, however the participatory design approach proved to be most helpful to understand the mood of the users. The initial ideas were quite crude and insensitive, but through participatory design, a suitable tone for the solution was established. The insights from the PD sessions led to more sensitive and polished ideas. The ideas of people from diverse backgrounds helped to give the project a clear direction.

Subsequently, the concerns and ideas of people were mapped by using service design tools. As the nature of the design solution had to be temporal and required consideration of multiple touch points, the service design approach was taken up. The use of electronic devices and human touch points were mapped using service ecosystem. The service was planned by using a service blueprint framework. Finally the project now holds blueprints to services for two user roles, both of which need more details that can take shape with time.

Since the ideas were meant for the future, the Science fiction prototyping method was used. It helped in receiving constructive feedback from users and led to fine tuning of the interactions in the specific encounters.

It is possible that more such encounters can be similarly prototyped and evaluated.

Other opportunities within this system

- Designing interactions to reminisce about multiple loved ones

- Detailing out touch points on the life logger side of the system

- Planning a business model around this system

Feedback from jury?

- The premise of the project is very interesting and imaginably challenging.

- The level of detail of the project was not uniform.

- The scenarios used in Sci-fi prototype were not futuristic enough. The liberty to come up with futuristic ideas was not completely utilized.

- The use of participatory design approach and sci-fi prototyping method were interesting.

Resource Acknowledgements

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Appendix

Images

Figures:

Software and other tools:

- Adobe Creative Suite

- Microsoft Office suite

- Google URL shortener

- Google Scholar

- Justinmind Prototyper Pro

As-is User Journey and the proposed Service Blueprint (Lifelogger)

These can be viewed on the following link:

http://goo.gl/ugpvVN

Experience prototype of an encounter

https://goo.gl/yjn75o