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Master's thesis

Academic Year 2013

COCO

A Novel Method to Enhance Public Meanings and Communications via Micro-Scaled Location Service

Graduate School of Media Design,

Keio University

Heng Xu

A Master's Thesis

Submitted to Graduate School of Media Design, Keio University in partial fulfillment of the requirements for the degree of

MASTER of Media Design

Heng Xu

Thesis Committee:

Professor Masa Inakage	(Supervisor)
Professor Hideki Sunahara	(Co-supervisor)
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Abstract of Master's Thesis of Academic Year 2013

COCO

A Novel Method to Enhance Public Meanings and Communications via Micro-Scaled Location Service

Summary

In recent years, social networks are becoming more and more popular in our modern lives. We post messages, upload pictures and check friends' news feed to pursue the up-to-date world. While we are addicted to our social graph, there is still a trend of communication among strangers, who do not know each other in reality and will not even meet in the future.

In this paper, I am trying to make an opportunity for users to interact with strangers going to the same place, an opportunity that they can get a more enjoyable moment with both the communication activity and the micro-scaled location itself. I utilize the interactive NFC tag to link the real and the virtual world between people in public place and aim to provide more possibility to let urbanites aware the environment and communicate with people in urban space. User test result shows this approach makes people feel interesting about the novel method of communication and eager to learn more about the meaning and significant information of such micro-scaled locations.

It is expected that this research would help people to explore more about the real environment than the virtual world, and to find the hidden connection and human capital during our ordinary life.

Keywords:

Micro-scaled location, Communication, Social Things, NFC, Social Networks, strangers

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During the two years' life and study in Keio Media Design, I am sure that what I learned and experienced would make my life a more numerous and wonderful one. I would appreciate it throughout my lifetime.

1. Introductions

In the recent years, our modern life is like being less engaged with the activity in the real world. We spend more and more spare time in social networks via the laptops and the mobile phones. This lifestyle leaves us with less time for sharing high quality face-to-face communication with our friends and families. In our fast evolving, highly technological world, not to mention strangers, we don't even spend enough real face-to-face time with our acquaintances. Actually, it is quite valuable to interact with strangers in our normal life. We see some reviews and comments about books and restaurant; we get information and knowledge from Wikipedia and Quaro. We trust these stranger-oriented services and get a lot of references and helps. What if we take these hidden connections into our real world, so that we could touch strangers who may have the similarity with you more or less, and have a cherish moment through something and somewhere in reality?

People visit locations and they want to leave messages. For example, there are many graffiti in every tourist destinations. Recently, it became big news that a Chinese middle school student made some graffiti on an Egyptian tourist site. People want to leave their traces in the places where they visited. Similarly, people want to see histories of a location. History is what gives meanings or significance to the location. For example, there are so many small temples in Kamakura. They are pretty much meaningless without historical significance. Sharing histories and meanings of the location is important. Furthermore, sharing meanings constitutes the community. [1,2] By sharing historical significance and personal emotions through a specific location, people who go to the place and see the information may able to have the trend of having the similar feelings and emotions, and get the empathy about the something.

Nowadays, there are many social networking service tools that connect people and locations. However, almost none of them are able to connect strangers through a specific location. In order to share the meanings, images, and feelings of a specific location and a communication platform among strangers, I made COCO.

Before I start the main part of my thesis, I am going to define some words firstly. In this paper, stranger means that people do not know each other in reality and will not even meet in the future. My target users are strangers each other, but that does not mean it cannot be used among acquaintances. In social networks, the relationship between (close) friends is defined as strong ties. The strangers, actually the familiar strangers here may have similarities more or less. For example, you and the other person went to the same place in the past is one aspect of similarities. The relationship among familiar strangers is like weak ties in the social networks. The Familiar Stranger has become an increasingly popular concept in research about social networks.

Throughout my research, I am trying to answer two questions.

1. Can I find an easy and effective way to get the users find, read and write the historical and meaningful messages about a specific location?

2. How to realize the communication activity among strangers and bring the value to users?

My research focuses on social potential public space. We utilize the interactive RFID tag to link the real and the virtual world between people in urban public space and aim to provide more possibility to let urbanites aware and communicate with each other. I hope this research would help people to explore more about the real environment than the virtual world, and find the hidden human capital during our ordinary life.

2. Related Work

2.1. Weak Ties and Familiar Stranger

Nowadays people have the Internet and social networks to keep in touch with friends. Such social networking services' ideas come from the six degrees of separation that the number of node between everything and everyone is less than six. According to the theory, we are able to connect whomever in the world through six people, which is called the social graph. The relationship between the direct friends is called strong ties, while after several virtual lines and the chain of 'a friend of a friend', the relationship is becoming more and more weak. An example of the weak ties is like the relationship between B and C, in which A and B are strongly linked, A has a strong tie to some friend C, but the tie between C and B is absent. Although B and C are not connected directly, they have the relationship more or less as they have the same connection A.

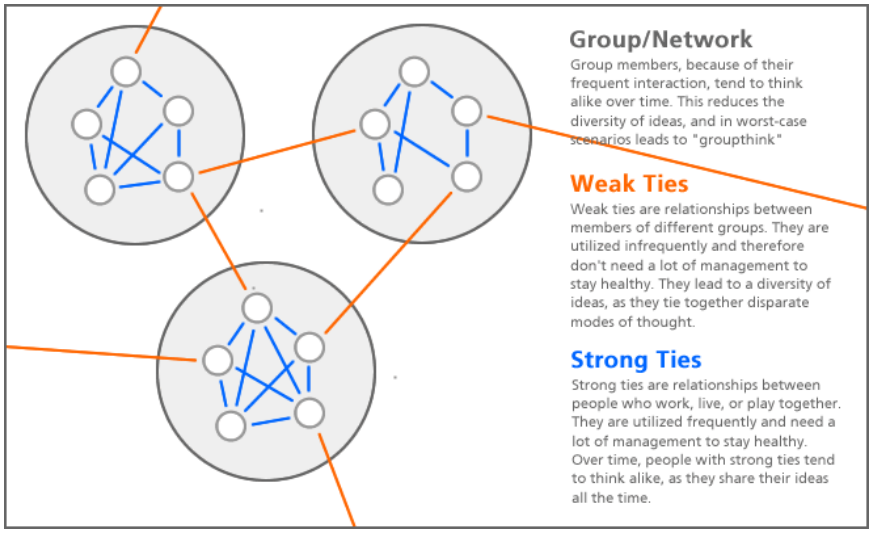

Figure 2.1: Weak ties and diversity in social networks. [3]

The up-to-date mobile devices make it easier to be connected to the world and our acquaintances. We post feelings and experiences, upload pictures

and check-in some places with friends and followers in the virtual world. We carefully protect our strong ties, as no one can live alone forever and we need the community. However, these sort of strong ties are not as effective as we generally think. Mark Granovetter's paper "The Strength of Weak Ties" (1973) is a highly influential sociology paper. It is concluded that weak ties enable reaching populations and audiences that are not accessible via strong ties. [4]

Weak ties are the relationships we have with people or things outside our own social networks. We do not utilize them often, but sometimes a weak tie of you supposes to help you find a new job with a higher possibility. Also weak ties gives us a perspective outside our normal groups, whose perspectives tend to similar as we learn and become familiar with the people we spend the most time with.

In Keio Media Design, we have already conscious of the value of diversity. We have students from all over the world with different background. Diversity is the key to creativity. We group a team, set a goal, do brainstorming and other work, and thus problem has been solved. Weak ties help explain how we continually explain diversity within our social groups, by communicating with those outside our close-knit social networks. In our life time, we have several touch points with them, in other words, everything or every friend is able to become a bridge to other networks. Social networking services is a way to provide us to activate these bridges, but how about in our real life, people we perhaps have meet several times in the street, or we happened to be in the same place. Stanley Milgram called them familiar strangers.

The familiar strangers, first identified by Stanley Milgram in his 1972 paper, [5] are individuals who are not directly connected to the others or do not have any interaction but have some similarity more or less. In the big world and virtual social networks, the direct connection for majority of individuals is tremendous quite fewer than the weak ties largely unknown

to each other.

Figure 2.2: Familiar strangers in a typical urban settings.

While we generally think of strangers as “entirely disconnected and far apart from us”, Simmel reminds us that “strangeness means that he, who also is far, is actually near”. [7] Today’s mobile communication tools make it rapid to transform our relationship to friends and known acquaintances wherever you are, thus we still lack platform or system to establish interactions with strangers and the unknown, yet encountered once or have the same shared experience and place people, the familiar strangers by such public urban settings. For example, while traveling or touring around the city, people maybe more likely to play with their weak ties. Special events will also add such opportunities.

New and potential interactions between individuals are dramatically increasing the capacity and efficiency of information flow within urban settings. [8,9] We can find such social capital in the traditional bulletin board system site or some digital online shopping site as the form of word-of-mouth or the reviews for a book, a hotel or a restaurant, etc. In this kind of cases, instead of close friends, people tend to trust strangers and

take their comments into consideration and make the decision. Other than the review system, people are also able to discover and grab the knowledge they want searching by services such as Wikipedia and Quaro. It is their community or users who are mostly strangers to each other that contribute to all the useful contents. People who see the contents have been connected to the contributor, although they never meet and suppose not to meet in the future. The touch point becomes their similarity, and affects them more or less in the future life.

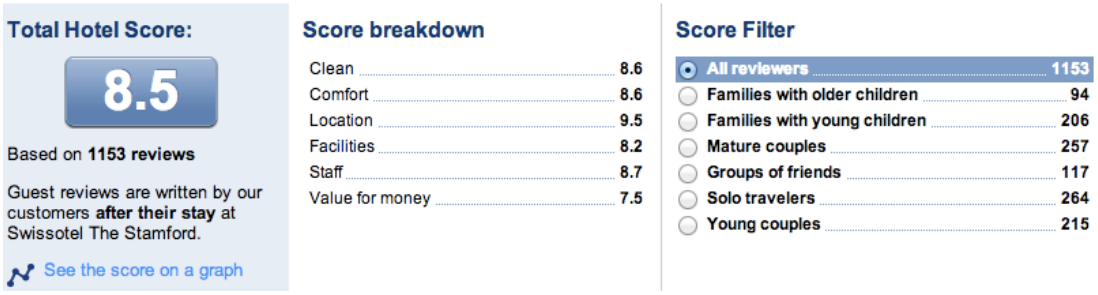

Figure2.3: A review system for hotels. [10]

2.2. Location Researches and Services

Location in geography is often used to notice and identify a point or an area in reality. In the recent years, with the development of the mobile communication device, more and more researches and services considering the location are released. In this part, I will introduce several directions of location researches and services to show the meaning of it.

2.2.1. Mobile Tracking

With the feeling of the world becoming ever smaller through technology, we can see cameras hided everywhere, at red lights, in our workplace, in stores and even in our mobile phones to track our geography route. Sometimes we can use the location-tracking technology to monitor our lost assets like iPhone 'find my iPhone' to avoid loss. However, people are worried about the privacy as well, which is a serious security problem we

need to face with.

Find my friend - users can follow people and track where their iOS device (actually where they are) is. At the meanwhile, users can also share their location with the people they choose. Location is determined using GPS in the iOS device when Location Services are turned on. Notifications appear when a user requests another user to see where they are. The feature can be turned on and off at any time. [11]

Google latitude - Latitude allows a mobile phone user to allow certain people to view their current location. Via their own Google Account, the user's cell phone location is mapped on Google Maps. The user can control the accuracy and details of what each of the other users can see — an exact location can be allowed, or it can be limited to identifying the city only. For privacy, the user can also turn it off, or a location can be manually entered. [12]

GeoLife – It is a location-based social-networking service, which enables user to share travel experience using GPS trajectories. By mining multiple users' location histories, GeoLife can discover the top most interesting locations, classical travel sequences and travel experts in a given geospatial region, hence enable a generic travel recommendation. By understanding individual location history, GeoLife can measure the similarity between users and perform personalized friend & location recommendation. [13]

2.2.2. Check-In

It is the Internet services and social networks that make our life changes a lot at the moment. See the figure bellow, can you imagine the life without connection now? Surrounded by the technology ubiquitously, we use such services as they are always there. We seldom recall the life before, and the children now never know the vintage life.

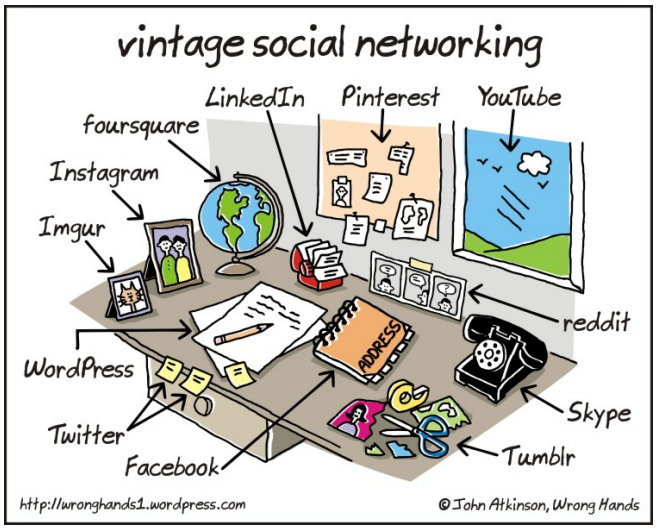

Figure2.4: Vintage social networking by John Atkinson [14]

Many social networking services, such as Foursquare, Google+, Facebook, allow users to "check in" to a physical place and share their locations with their friends. [15] Users can check in to a specific location by text messaging, integrated functional bottom or by a mobile application on a smartphone - all applications use the phone's GPS to find the current location.

Because of the feature that when people use such kind of location-based services, their location are specifically determined by the devices, more and more merchants and brands notice the business chance about the digital marketing, also known as one type of online to offline services - O2O. Usually the using process is about you go to specific restaurant and supermarket. Then you find some code or URL, or you check-in via specific mobile application, and access to get some deal or coupon. I will introduce a special dramatic event held recently of utilization for the O2O services as below.

REVLON Beauty & Love Museum [16] - The concept of the service is that the REVLON brand prepared the REVLON Beauty & Love Museum in a normal café, in which there are also many REVLON products and galleries. Once the visitor feels fond of something interesting or have some comments,

he can put the wristband given at the door before close to touch the NFC smart phone set nearby. This action will add one 'good' number to REVLON Facebook page, and at the same time, your comment will also appear on your personal page. By sharing in the social networks, it could be also a promotion and branding for REVLON. Smart phones integrated the NFC reader is comfortable for users to pull and push information with less steps, and enhance the interaction both the physical and virtual world.

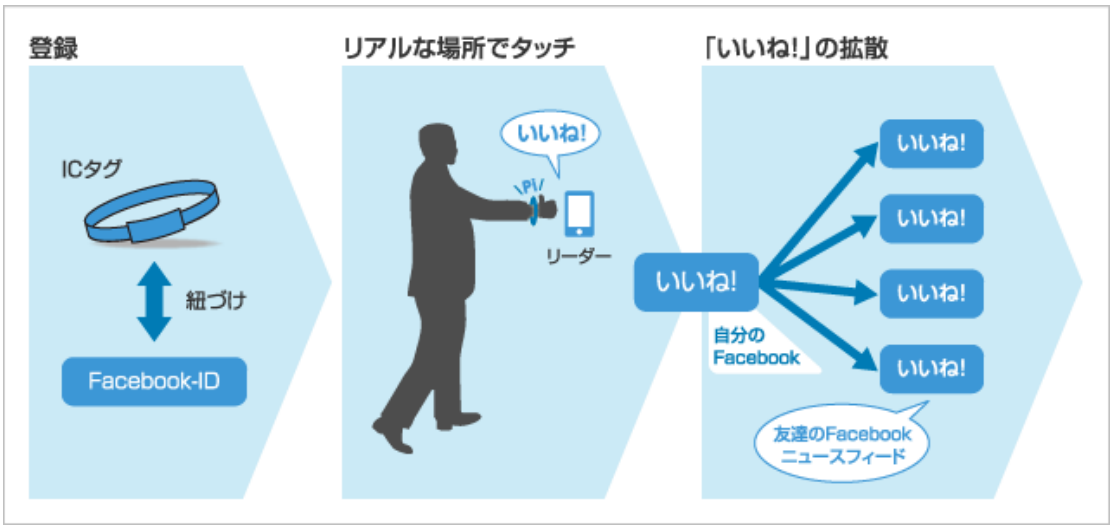

Figure2.5: The process of real 'like' promotion. [17]

2.2.3. Mobile Messaging

This class of services is a combination with SMS and mobile tracking. Short Message Service known as SMS is a text messaging service component of mobile communication systems. We all know that SMS is a kind of short and mobility for E-mail and easily used for chat. The mobile messaging services based on the location and your existing social graphs as Facebook or LinkedIn and aim to find connection and chat with friends nearby.

Sonar is one example for mobile messaging services. You log in via your existing social networks account, and Sonar helps alert you to friends nearby and chat or hang out with them. Also you are able to find some

like-minded people around you in the same time. It still mainly focus on your current connections. Never miss a connection here because it will be pushed to you. By telling you about who's here now, Sonar reveals friends nearby that you may have missed otherwise. [18]

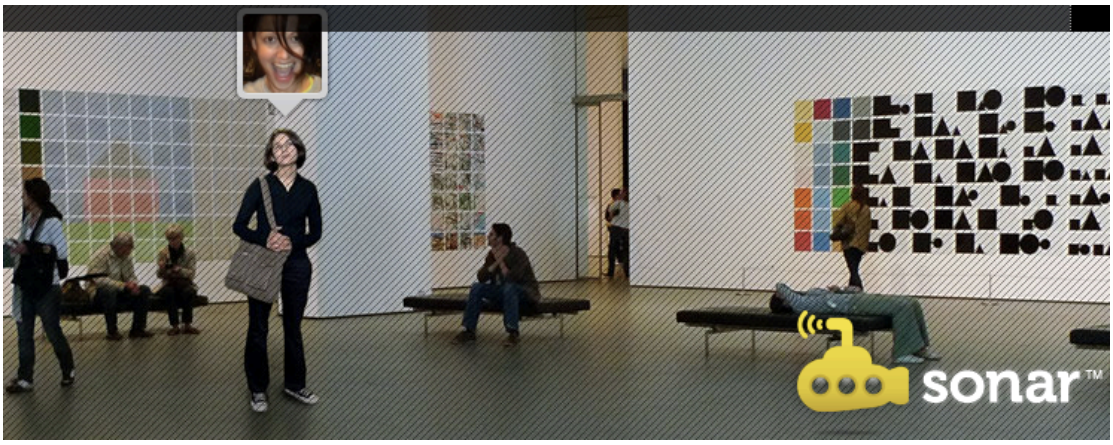

Figure2.6: Sonar Services [18]

2.2.4. Social Context

The meaning of social context normally refers to the psychological position that people react to other things and people differently depending on the immediate environment, situation and the story. For instance, although you like having ice cream, you are still mostly supposed to buy the hot coffee rather than the ice cream in the cold winter due to the low temperature. The social context could involve what is going on around, the time period, an event that is going on, social class or relations, etc. All of these things put the story into a perspective that would then drive the actions, thoughts and feelings of the characters. We live in a limited part in the huge world, if it happens to meet various people, things and environment, our life could be more astonishing. A lot of services and applications have been released for users to experience more life styles.

There is some similarity between the social context service and the mobile messaging service, but they aim different experience. While mobile

messaging find and enhance your current relationship everywhere, some kinds of social context services want to help users create new connection, which is the weak ties or the strangers. But these are also many problems as how to deal with the users' privacy, and the adventure through the service.

By our mobile phones, it is not only allow us to communicate with those we know at a distance, but also we are interested in exploring the implication of a loose connection nearby whom we do not know, the concept which I mentioned in the chapter 2.1.

GPS x Message 置き手紙 [19] – this is a Japanese application released either in apple's Appstore and Google play store. The concept of the service is a similar sense of messages in a bottle across the sea. In some dramas, we see that people in an island far away from the continent without any communication tool. What he could do is only to write some messages of SOS, put them into the bottle, and wait for the rescue team. Another scenario is about digital guestbook in the public shop. Around the location here, about the time and the space, new communication tool and find others' messages. Turn on the GPS and shake your phone to find the name of the location here.

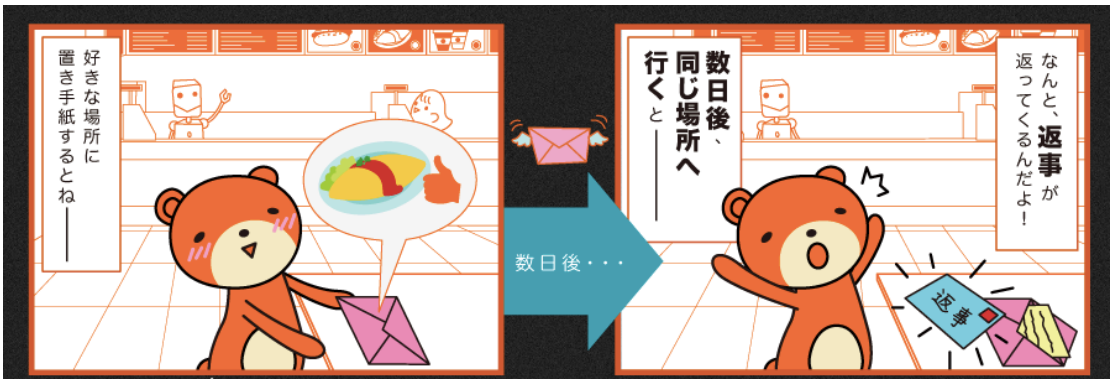

Figure2.7: The image of 置き手紙. [19]

Unfortunately, the methodologies of GPS for pinpoint place, the account, the database of places, the interface and the usability make few people

continuously use it. Furthermore, it is not about the real-time communication, but people come to the same place in different time, and plus they should know the service. Only fulfill all the above requirement will users use the service.

Another kind of social context service is to make a simple way for users find people nearby and connect with them via messaging of voice, text chat and profile picture. This is a direct way for users to meet new people, share status, interests and feeling with people nearby. By the application, users consist of a community and are able to rediscover their neighborhoods. But sometimes we are worried about the sexual and dangerous purpose of some users. I will also explain several examples as following.

Banjo – it is a new fun way to explore what's happening anywhere in the world right now and users can discovery across social networks real time. Users can explore places, activities and adventures around the world, connect with people never knew before; find something new every time you explore, visit a specific event or curious of experience somewhere new, give users a sixth sense about the world around you. Banjo's such kinds of features can also be seen in other similar applications, such as Skout, Highlight (remember the weak ties' feature), Yobongo.

Figure2.8: The feature of Yobongo [20]

The main concept for the kind of social context is that connecting with people in the real world is much harder than it should be nowadays as we

focus more and more on our mobile phones when in the street, on the train, in the restaurant, or even on a vacation somewhere. Mobile devices are more powerful than ever before, but the way we communicate face- to face hasn't kept pace. But such communications towards strangers should make communicating more efficient and fun, also with meaning and affect us in the future. What is more, in the years of 1990s that the Internet boom began, there were services called chat rooms. Such social context service is an upcoming application that let users chat with people nearby, and bringing them back to chat room concept.

When searching this sort of services, I also realize that they all have a problem that is not an easy one to solve. They want to create a real-time communication tool centered users nearby. But if people around them are not always on the same application, or the location is not available by current application, you would not jump on and get thrown into the same chat room where you could talk to the one in the room.

2.2.5. Location Information

People visit somewhere in a city, in other countries, or in a place that they are not familiar with, but they want to see histories of the location. History is what gives meanings or significance to the location. For example, there are so many small temples in Kamakura. However, they are pretty much meaningless without historical significance. Sharing historical of the particular location is important and helpful for visitors to get deeper understanding of the place and leave unique experience. These kinds of location information are hidden really closely and concentrate in our real world.

Figure2.9: どこでも博物館プロジェクト [21]

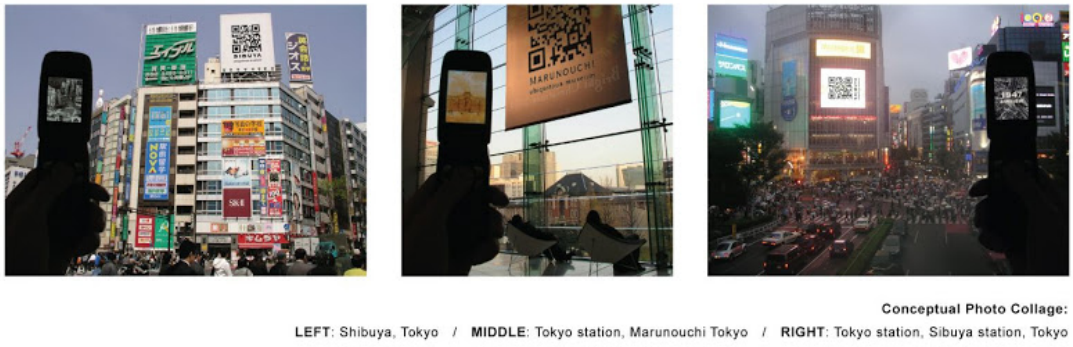

Figure2.10: Ubiquitous Museum Project [21]

Ubiquitous museum project [21] - ten years ago, there was an interesting project called ubiquitous museum, which makes it possible to get historical information about particular places, such as poems or pictures prevalent in the place during the 1700s period by jumping to some web pages via shot the QR code from your mobile phone. It proposed people to flexible think the history stories long and long ago. It makes a textbook looks attractive. Now ten years later, at the year of 2013, we could not only think about getting historical information, and the interaction activities among the location and different people have become indispensable.

FILM + photography = FILMography [22] - it is an ongoing art project by Christopher Moloney that matches scenes from movies with their real-life,

present-day locations. He has recreated film scenes in New York City, Los Angeles, Toronto, Chicago, etc. The film scenes are also one historical information of the specific location that people can aware them by watching specific movies.

Figure2.11: FILMography Project [22]

Dear Photograph [23] - It is a similar method project compared with FILMography. In the case of Dear Photograph, that idea is to take a snapshot, which is usually one featuring one or more people and dating from the film-photography era, and holding it up against the original setting so that past and present blend into a new work of art. The images contributed by the site's readers are wonderfully evocative. Looking at the family photos of strangers was never so transfixing.

Figure2.12: Dear Photograph Project [23]

2.3. Real Project

Students at KMD engage in real projects collaborate with real partners, which have a strong impact on society. Last year, I joined a sub-project of social entertainment called social things, which comes from Ericsson's social web of things concept.

2.3.1. Social Web of Things

People are already familiar with social network, but there is also a trend for social web and Internet of things. Now more and more projects involving interaction design for large networks of connected products and services. The challenge was to come up with a graphical user interface, which was both scalable and easy to understand.

Figure2.13: The image of Internet of Things. [24]

The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. Ashton commented in June 2009: "Today computers and, therefore, the Internet are almost wholly dependent on human beings for information. The problem is, people have limited time, attention and accuracy, all of which means they are not very good at capturing data about things in the real world. Ideas and information are important, but things matter much more. Yet today's

information technology is so dependent on data originated by people that our computers know more about ideas than things. If we had computers that knew everything there was to know about things, using data they gathered without any help from us, we would be able to track and count everything, and greatly reduce waste, loss and cost. We would know when things needed replacing, repairing or recalling, and whether they were fresh or past their best. The Internet of Things has the potential to change the world, just as the Internet did. Maybe even more so."[25,26]

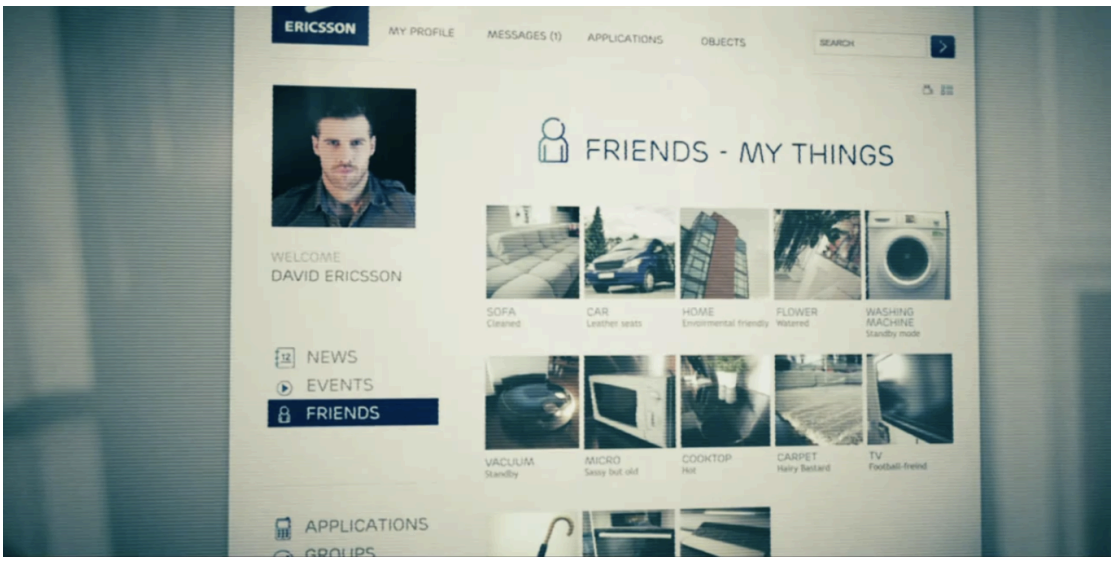

Figure2.14: Social web of things concept video via Ericsson. [27]

People in general find it hard to relate to technical networks and do not feel comfortable managing them. Instead we should set up the Internet of things as a human network. We have a relationship with our things, and our things have relationships with each other. Ericsson proposed a concept named social web of things in 2011, a social network for your device. Things you own at home like sofa, washing machine, TV become your friends, as a scenario of my home network and my networked staff. It helps to make life easier and more enjoyable. They believe that in the Networked Society, things everywhere could be connected to make our lives and

businesses more efficient and more enjoyable. The devices become social, just as we are. You have a social network, and your devices will have a social network as well. [27]

One day, we set up the internet of things as a human network, providing a possible future that, things will have 'friends' - and post messages, follow news feeds, and even chat with other things and/or friends." we take this concept into our social things project. We aim to connect things we own, things we find in public spaces, as well as people using artifacts and places to design a memorable moment of experience and share with people around. We want to create additional layers of emotional connectivity beyond Internet of things and smart things.

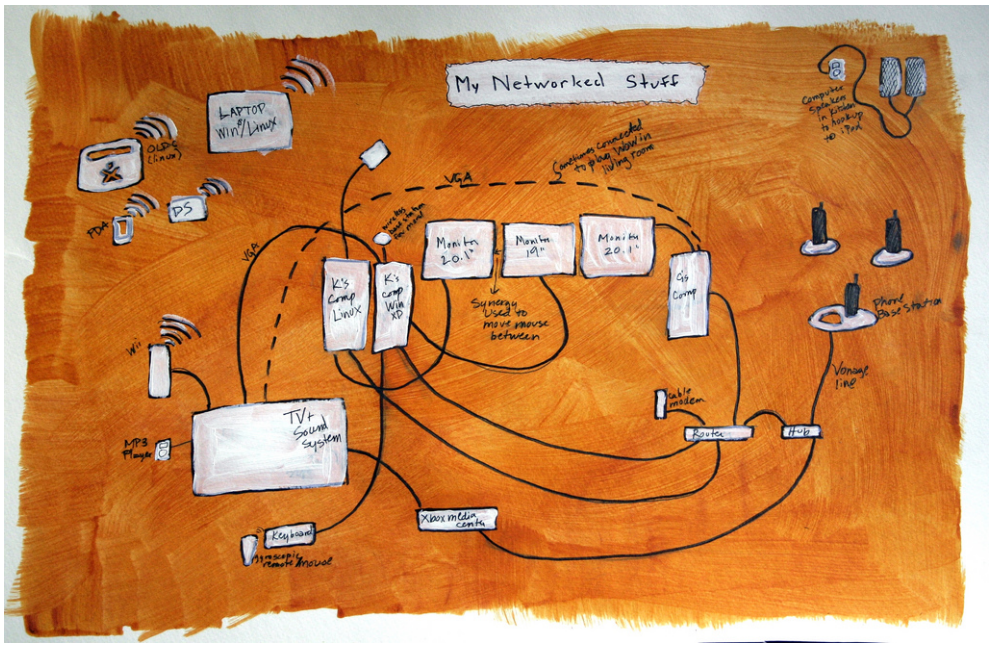

Figure2.15: My networked stuff via Ericsson. [28]

2.3.2. Social Things Project

The goal of the project is to create additional layers of emotional connectivity beyond Internet of Things and Smart Things. While Internet of Things delivers connectivity of various artifact and environment to be connected, it does not currently account for capturing and sharing

emotional component of people using the connected artifact and environment. The concept of Smart Things also aims at convenience and practicality; it lacks the emotional component of human activities.

The project plan now focus on the preliminary research and prototype developments to demonstrate how connected things, environment and people may provide a platform for designing memorable and magical moment, particularly to design for celebrating someone such as birthday, anniversary or seasonal celebration.

The target venue is the so-called "Third Place" public space that can be used for private and intimate purposes. We will re-design restaurant and its surrounding neighboring environment for the prototype. The restaurant will have both indoor and outdoor settings, such as garden, patio, or partially using parks or plaza. Candidate artifacts include but not limited to lights (including candles), plants, tables and chairs, utensils such as forks, knives and plates, artworks such as paintings and sculptures, and menus. The project considers restaurant staffs (i.e. waiter, chef), host of the event, guests, but could also include people sharing the "third place".

2.4. Overall

There are many social networking service tools that connect people and locations. Almost all the mobile application services that aim to connect people around you is a native application, which means only people around you are using the same application can they be connected. What is more, concerning the meaning of specific locations, most of the services can only let you to get information. However, almost none of current services connect strangers through specific locations, make the location more layers of meanings to people and leave emotional moment on users, and COCO makes it possible. Thus, for the social things real project that I participate in, as we aim to connect people in the restaurant via some urban

interaction settings, my research could be a previous study to learn the users' mind preference and trend of activity.

3. Design

3.1. Concept

3.1.1. Motivation

This is a new era of universal designs with rapid emerging technologies, and we normal people have to get used to the fast pace of development of information world. Unfortunately, most state-of-the-art technologies only focus on one or two specific areas. In spite of the fact that many practical problems could be solved by those technologies, they were only mastered and utilized by a few specialists.

My interests to the social networks started from five years ago, when the social networking service (SNS) boomed with becoming more and more heat. I was surprised by the entirely new means of communications among friends, friends' friends, and the same human networks. Nowadays people also use several sort of life log services to record ordinary lives. They use blog, twitter, foursquare, Intragram, etc., to share with friends.

I made a research on social graph before, and was addicted by the story of six degrees of separation. At that time, I began to learn how people's emotions spread towards the social graph via those social networking services. I hold the opinion that it is important and essential to do the researches on emotion exploration. By studying the emotion of individual from the psychological point of view, we can understand how individuals are affected by emotions, physically and psychologically. Such kinds of studies are not only fun but may also help us on the treatment of certain mental diseases. Besides, the study of emotions in a group benefits the formulation of public policies in social organizations, and it also provides better understanding of various social phenomenon.

This study enhanced my continuous interests on the social networks for

many years, and helped me to detect and to observe users' activities, thus to reveal some underlying rules in communications and emotions. But all these happen in the so-called virtual world. Although users share the experiences and feelings, upload photos with stories, it is still hard for others to imagine the real landscape, environment, atmosphere, experience in our real world, just as a photo of a travel spot can not equal to experience that you go there in person. After enrolling Keio Media Design graduate school, I tried to focus more on our real world lives, things, locations and people's communication activities.

I participated in social things real project, which came from Ericsson's social web of things concept, whose concept was to aim connecting things we own, things we find in public spaces. People use artifacts and places to design a memorable moment of experience and share with people around, and help to create additional layers of emotional connectivity beyond Internet of things and smart things.

Gradually I became concerned more about the concrete items and locations, and the stories among our lives. Everything and every location may have their own stories, even a book, a letter, or the area around a telegraph pole has a timeline history. Many cherish experiences happen in specific locations or things. For example, the reasons that you bought one item, or a present from particular people, or a memorable event or a ceremony accompanying with the location is to record the treasured moments. However, after two or three years, or even longer time, you will forget those moments and the stories behind them. People highly tend to feel depressed after doing your best on catching those stories but finally failed. In addition, other people who have used the item or who have been to the place before will also treasure the item or the place, which I have addressed several researches and services in chapter 2.2, concerning about the capital of the location, next to the value of the weak ties and communication with people unfamiliar in chapter2.1. In addition, I have done some fieldworks and

researches towards locations.

3.1.2. Observation and Fieldwork

Graffiti is writing or drawings that have been scribbled, scratched, or sprayed illicitly on a wall or other surface in a public place. [29] Graffiti ranges from simple written words to elaborate wall paintings, and it has existed since ancient times, with examples dating back to Ancient Egypt, Ancient Greece, and the Roman Empire.

Figure3.1: Graffiti in Shibuya

Other than the modern artistic expression, Graffiti may also express messages of social, personal and political. People visit locations and they want to leave messages. For example, there are many graffiti in every tourist destinations as well. Recently, it became big news that a Chinese middle school student made some graffiti on an Egyptian tourist site. People want to leave their traces in the places where they visited.

Figure3.2: Graffiti on the wall of some famous tourists.

In our ordinary lifetime, we may also see some messages. On the table, people carve messages on the back. So only the ones sit in a certain direction could see it. They are written to show different meanings such as love, dream, philosophy, some network languages, buzzwords, work off one's anger on feeling and emotion, etc.

Figure3.3: Desk Culture

Controversies that surround graffiti continue to create disagreement amongst city officials, law enforcement, the owner of the items and people who tend to leave the messages or the artwork in public locations. There

are many different types and styles of graffiti, and it is a rapidly developing art form whose value is highly contested and reviled by many authorities while also subject to protection, sometimes within the same jurisdiction. [29]

As children playing hide and seek, there seemed to be so many places where we could hide and never be found. Some people may also have the experience that put a message or a letter in a bottle, and bury it into soil in a location or let someone take it. After many years, to take it back and see the message and letter could make you feel time and space crisscross.

Similarly, people want to see histories of a location. History is what gives meanings or significance to the location. For examples, there are so many small temples in Kamakura; they are pretty much meaningless without historical significance. Sharing histories and meanings of the location is important. Sharing meanings constitutes the community. [1,2]

Figure3.4: Love Station Project – Koi Yamagata Station. [30]

Here are some other examples that I found in the fieldwork.

This is a picture of Koi-Yamagata Station in Tottori Prefecture where few people reside, now has a bold new makeover. It has been given a hot pink paint job and a heart-shaped monument for love. The idea to color the station in pink emerged from a project beginning last year (2012) to

promote Japan's four stations whose names contain "koi," meaning love in Japanese, as "love stations". [30]

The operator hold an event on Sundays to mark its renovation with a motif of love, featuring bright shades of pink and heart designs, in hopes of attracting romantically minded visitors. The young and the old visit the station as a place for memory of successful love. During the event, a couple from Okayama Prefecture hung the first of what the operator hopes will be many votive tablets featuring a written declaration of their love.

Another example, "Akihabara random attacker incident", was an incident of mass murder that took place in the main street of Akihabara in 2008. Later in the same date, a makeshift memorial is created by passers-by every year. Many people left the flowers to the incident location, praying for peace and safety.

Figure3.5: The Akihabara massacre for two years. (2010) [31]

Ema (in Japanese word, 絵馬) are small wooden plaques on which people write their wishes and pray for someone or something. Then people left it hanging up at the shrine, where the kami (spirits or gods) receive them. Many have the word gani (願意), meaning "wish", written along the side. In ancient times people would donate horses to the shrines for good favor, over time this was transferred to a wooden plaque with a picture of a horse,

and later still to the various wooden plaques sold today for the same purpose.

Figure3.6: Prayers in the temple.

Love padlocks (also known as love locks and wish locks) are a custom by which padlocks are affixed to a fence, gate, bridge or similar public fixture by sweethearts at an increasing number of locations in the world to symbolize their love. [31] Couples go to these locations, wishing this action would lock their love forever. It is not only a faith, but also a forgetful memory for them, and they can aftertaste the experience several years later.

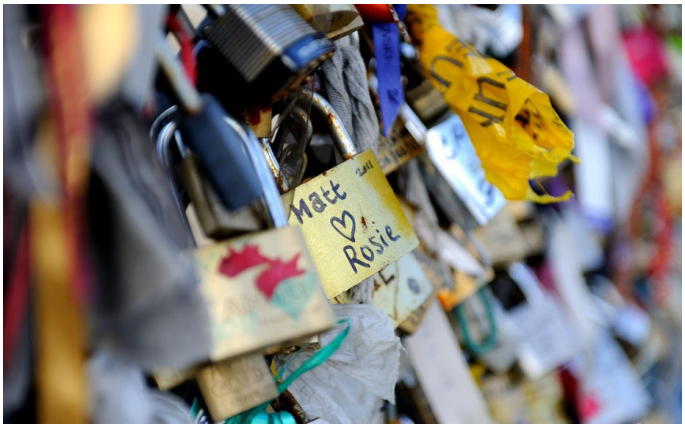

Figure3.7: Love padlocks

Figure 3.8: Parisian bridge where love gets 'locked' forever.

Family restaurants or cafes are so-called the third place (separate from private home and public work place) that people use more often. In such space, people act as eating outside and talking at home. It is in the restaurant that many cherish stories are taken place, for birthday party, dating, ceremony, propose. People are so happy that they want to share and talk the moment with others. For instance, leaving post-it on the wall, and taking pictures to memorize.

Figure3.9: Cherish moments in the restaurant.

Memories happened and attached on real place. All the examples that I mentioned above show kinds of vintage social networks about communication without interaction. While some kinds of messages come with issues, and are purposely or unpurposely destroyed shortly, it makes me start to think about, what if we make a hidden connection among people who go to the same place, and make a communication platform for them. With the platform they do not need to see each other to share. Being experienced is a wonderful experience. I want to help people treasure every moment more than before by enriching their communications. Lovers and friends can enjoy their shared time from past to the future, and enjoy a more excellent life.

3.1.3. COCO

We keep walking through the real and the virtual world. We need to memorize the very moment in our life. However, relationship between urban spaces is still weak today. How about we take these hidden connections into our real world, so that we could touch strangers who may have the similarity with you more or less, and have a cherish moment through something and somewhere in reality? In order to share the meanings, images, and feelings of a specific location and make a communication platform among strangers, I made COCO.

COCO's concept is that COCO connects strangers (instead of friends) through specific locations either by sharing feelings or by adding or creating new meanings or images to the location. It is a user generated content communication platform based on real micro-scaled spot, providing historical information of the spot, with stories of the location and stories happened there later. People can also add their own feelings and experience of the place or emotions related to it. The key words for COCO are strangers and micro-scaled spots. It is necessary for people to explore more about the real environment than the virtual world, and find the

hidden human capital during our ordinary life. In the Chapter 2, I have mentioned that there are already many services to connect you friends and your close relationship, COCO aims to expand people's networks and find hidden connections never knew before. Compared with ordinary so-called place, micro-scaled spots make more sense about the historical meanings of locations.

It will make a storyline for each micro-scaled location around our life by integrating the timeline function into real word. It will be a platform for real space applications, which connects items, persons and environments. It might bring the most fascinating experience to the users. It is also a communication tool located in our public place, interfacing both groups and individuals, and buildup social connections to strangers who have the similarity to go to the same place, encouraging people realize and get to know each other. By such kind of interaction with strangers, people may get a new point of view and emotional feelings among these locations. Making the micro-scaled location a specific one where people get to be aware of the others and keep less distance. Nevertheless, the same location may mean different to different people by different point of views.

I am going to show one scenario of COCO in the restaurant.

In the restaurant, once individual finish the order, there will be several leisure minutes. Other than playing with our smart phones, there is also an option to let them detect and explore the surrounding place. People upload the picture about what they are eating, or type today's moment log and feelings to others. If you find one of your known acquaintances' picture, or a famous person's message before, that will be an amazing surprise. You are also able to see some tips that people left, about the food, about some events nearby, about the stories happened here. For some window seats, the landscape outside is what you can only see on the specific seat. Also the landscape changes as time passes by. It makes sense that you see the same landscape but at different season and moment. The decoration of the place

may also change from time to time as well. It is a good tool to find historical information.

3.2. Method

When I first thought about methods to connect people nearby in urban public space, social networking services such as Facebook, LinkedIn flash into my mind, with more communities and users accessing from anywhere nowadays. Almost all the location services use GPS to locate users' location information. In addition, these kinds of services are all native applications for mobile phones. Only the ones who downloaded the same application can they use the service and communicate towards current community in the application. There should be a way that you do not need to do much previous process, and user can easily jump to the service and start to use and experience immediately.

Then I started design my prototype. First is the interface, about what to show for users, and how people start to use COCO service; Second is the entrance that how people notice and realize COCO service and get enrollment of it.

3.2.1. Timeline Display

COCO platform could be a website or a phone application. Some contents or memory stories about this item/location can be added and edited on a webpage. I noticed one of the famous web services called Twitter and its timeline function, [40] which is a new method to show the contents on Internet. The timeline function includes many merits for our lives. For example, you can tell your life story with a new kind of profile, from the beginning, to the end. You can also express yourself by showing all the things you have done to your friends or someone else. Another example is that the world' biggest social network site, Facebook, have changed their users' homepage to a timeline format by the end of year 2011. [42]

The contents that users generate will be displayed by timeline, and they could also type some personal information, such as nickname and E-mail address to COCO service. My design principal is about easily and quickly learning and using, and this is only a prototype for my personal research, so COCO does not need many complicated functions and beautiful interface decoration. Only the most important and direct message will be showed on the webpage, with simple graphic interface design.

3.2.2. NFC and QR Code

The other design part of COCO that I need to think about is the service entrance. How to get users concerned about the service in real world. Ordinarily, for long distance, digital magazine and newsletter are pushed to our mobile phone and Email address, so that we get news and information. However, for short distance, in some supermarkets and shopping mall, traditional product and cloth pops make customers recognize the product, and then they may start to study and generate interest of it. Now we have more technology to do the same thing, NFC and QR code technologies are attached to real place, and make it easy for users to get information.

NFC (Near Field Communications) is a way for two devices very close to each other to communicate. [33] NFC smartphone can be paired with NFC tags or stickers, which can be programmed into different tacks, such as a change of phone settings, a text to be created and sent, an application to be launched, or any number of commands to be executed. Following picture shows practical current uses for NFC since it does not rely on a company or manufacturer but can be utilized immediately by anyone anywhere with an NFC equipped smartphone and an NFC tag.

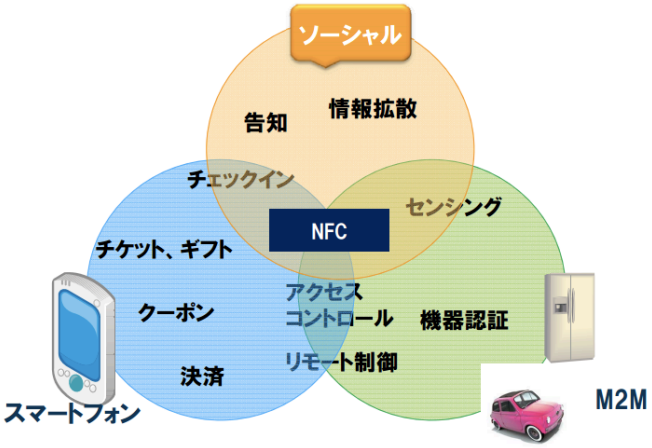

Figure3.10: NFC Function [33,34]

The Figure3.11 shows that there are three modes for NFC, which are card emulation mode, reader/writer mode and peer-to-peer mode (P2P). Here, in my system, I am going to use the reader/writer mode.

スマートフォンのBluetooth、バーコード読み取り、NFC機能利用時の違い

	Bluetooth	バーコード/ 2次元コード	NFC
情報の取得方法	Push	Pull	Pull
	Bluetoothが ONであればよい	カメラで撮影	NFCアンテナ部を 対象物にタッチ
通信距離	中(～10m)	短(数cm)	短(数cm)
位置・場所との連動	アンテナ設置 場所に依存	モノの場所 に依存	モノの場所 に依存
情報確認までの スマートフォン操作	少ない	多い	少ない
利用時の端末初期設定	要 (ペアリング)	無	無
伝達可能な情報量	多い	少ない (＜数千文字)	少ない (＜1Mバイト)

Figure3.11: The comparison among Bluetooth, QR code and NFC. [35]

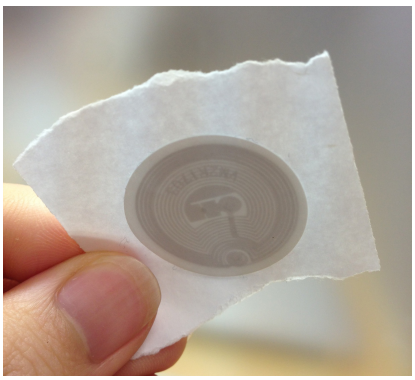

Figure3.12: NFC Label/Sticker/Tag

QR code (Quick Response Code) is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan; a barcode is an optically machine-readable label that is attached to an item and that records information related to that item. It becomes popular outside the automotive industry due to its fast readability and greater storage capacity compared to standard UPC barcodes. [33]

Figure3.13: A normal QR code model. [33]

For COCO, it is the NFC/RFID tag (also with the QR code) that locates on pinpoint place. Once you use a device to touch the tag, you will jump to the virtual place to find the hidden connections, which could be items (ex. table) / a micro-scaled location page as our Facebook personal page to show pictures and messages left here before.

The reason that I chose NFC and QR code is that they are closely attached to the real space. People who only go the specific locations are they able to see the tag and access the service. Compared with other technology for locating, they are better for pinpoint and micro-scaled location, which is

also an important part of my research. People who use this service can make a hidden inner-connection with people go to the same place, then touch the tag in the same area, starting a communication. They can also leave a quiz or a question to people who touch the same tag later. It is about the stories and pictures and messages that only you go to the same pinpoint place can touch and read the information, and also leave something there.

3.3. Prototype

From the very beginning step, I made a paper prototype for COCO, imagining to steak the NFC tags to a plant with a pot in a public office or KMD project room. Many people take care of the same plant, but it does not belong to anyone. Sometimes passengers also show interesting to the plant. People can check-in when you water the plant. Also you can see who water the plant before and its watering time, so that you do not need to give it water again. Moreover, you can upload pictures of the plant appearance in different seasons, and share the love and maintenance experience about the plant.

I sketched a very simple webpage for the plant, including the picture, the title, the share function, the time; you are able to type your name and what happened here, or just check-in to show you have done something with the plant. [41]

3.3.1 Hardware Part

All the contents and services are based on the Internet. For the hardware part of COCO working prototype, I want to make a working entrance via NFC or QR code. For NFC entrance, I chose Arduino board, NFC shield and tags. The Arduino board is used to control the NFC shield, and then it can read and write information in tags and cards, communicate with NFC

phones. You only need to touch, and then you are connected to the virtual world. For devices without NFC function such as iPhone, I also planned to make a QR code entrance beside the NFC one, using open source QR code generator.

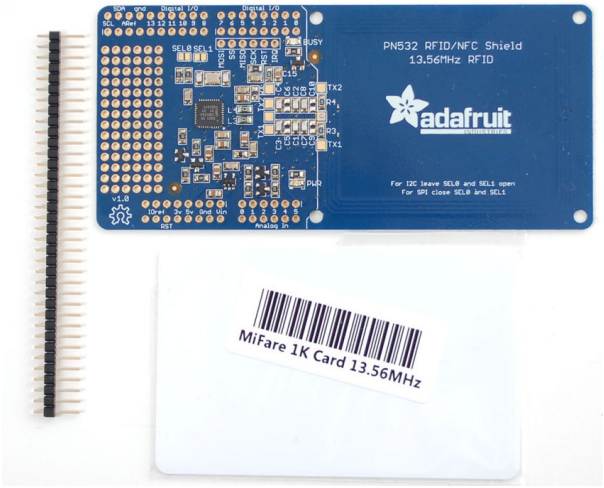

Figure3.14: Adafruit PN532 NFC/RFID Controller Shield for Arduino.

In order to read and write NFC tags, I bought Adafruit PN532 NFC/RFID Controller Shield for Arduino. The set includes: the Adafruit NFC/RFID PN532 shield including a tuned 13.56MHz strip line antenna, 36-pin 0.1" header for attaching the shield to an Arduino. We also toss in a Mifare Classic 1K card (the same function with small tags).

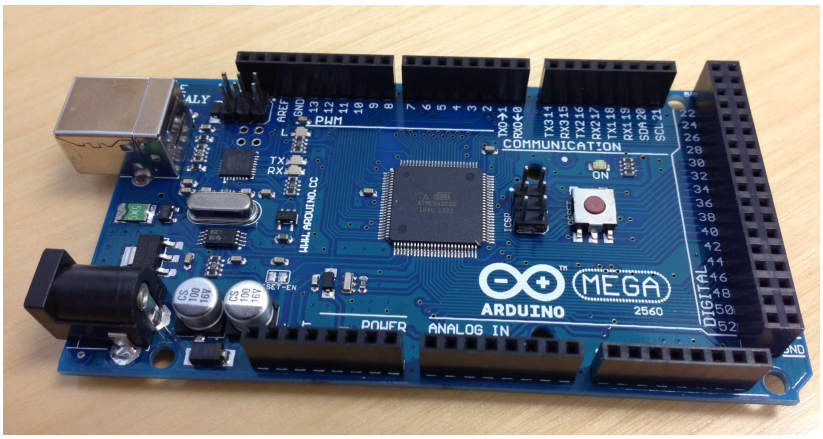

Figure3.15: Arduino MEGA

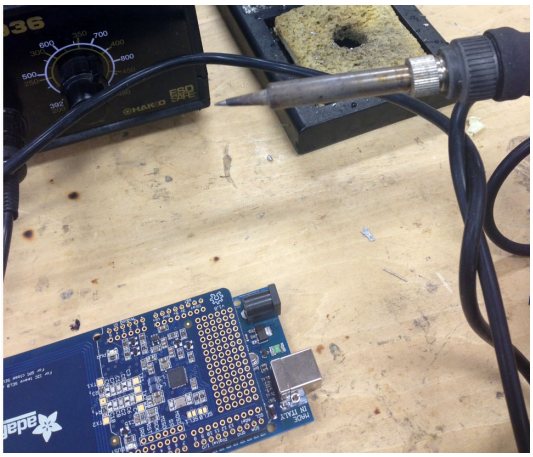

Figure3.16: Hardware work.

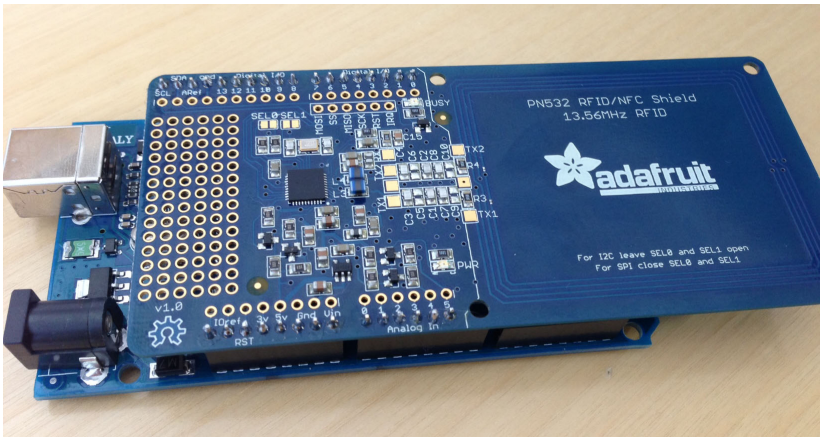

Figure 3.17: Arduino MEGA and Adafruit

3.3.2 Software Part

For the software part of working prototype, I design a simple, easily-start UGC web site with time order display. It has no account function so that whenever people find it, they can start to use it immediately. You are able to leave message of feelings and experience. Last but not least, I also add share function to existing services as Facebook and Twitter.

I built the website as follows.

Frontend - HTML+CSS+JAVASCRIPT

I use html to build the prototype. In the prototype several CSS-decorated DIVs is used so different functionalities are clearly and elegantly put together.

When a user publishes a new post, the JavaScript's embedded in the web page will firstly check if username and message is correctly provided. If not,

warnings and directions to correct will pop up. If provided correct information, the web page uses native form function of HTML to send a POST request with the message to the web server.

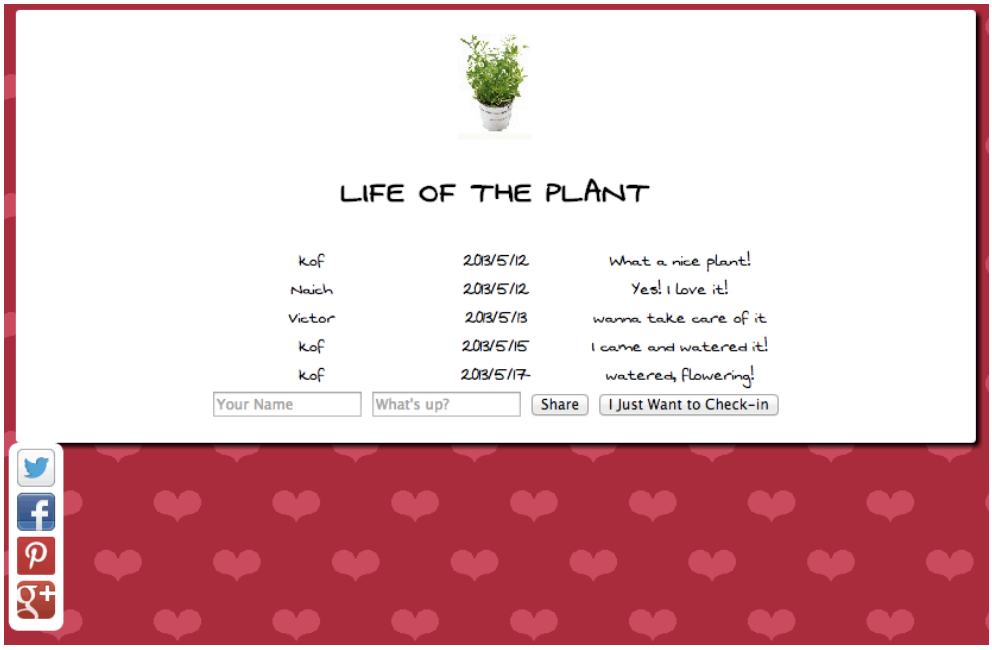

Figure3.18: A normal HTML page

Backend - PHP+MYSQL

When a request comes to the sever, the PHP server checks if it is simply a GET request to view information or a POST request to post new messages. If it is a GET request, the web server uses php-mysql functions to get corresponding data from the MYSQL database and push it to the user. If it is a POST request, the server will do one more step before the data retrieval, which is to insert the incoming message to the database.

I design a MYSQL table and give each individual web page (a unique place) an identification (PID). In the table, each line contains the username, message, time and the PID. When reading and inserting, this PID helps divide messages from different pages apart. On the other hand, if needed, we could set some pages with the same PID so they could share the same message stream.

1	**mid**	int(11)
2	**tid**	int(11)
3	**name**	varchar(128) utf8_general_ci
4	**message**	varchar(128) utf8_general_ci
5	**time**	timestamp

Figure3.19: MySQL table of messages.

3.4 Implementation

I did field experiment in real space using my COCO service, to see if some problems or troubles occurs, or whether the NFC tag match the NFC phone well or not, and if users are able to access COCO successfully and smoothly.

3.4.1 Access

For the entrance of COCO, I use the Arduino board to control the NFC Shield, and to control the shield to write URL links to NFC tags. By the NFC mobile phones, you only need to touch, and then the browser opened and you are able to see the COCO webpage. For open source QR code generators, it is also quite easy to access the pages. You only need to shoot the code, and click the URL link.

3.4.2 System

To provide service for COCO website, we bought a VPS from Sakura Network Inc. The VPS is installed with Ubuntu 12.10 operation system, which is a widely used Linux distribution. We use an SSH tunnel to connect to the VPS.

The website is based on LAMP structure, in which L stands for Linux, A stands for Apache, M stands for MySQL and P stands for PHP. It is very easy to install these services in Ubuntu by apt-get command. Now our web server is reachable by IP address. To make user easier to remember our

website, a domain name is bought on GoDADDY.com.

Then the website files are uploaded to the server through SCP tools. We also installed Phpmyadmin to provide a GUI to the MySQL interactions. After building the right SQL table and configure the SQL password. Our website as service is ready to be used.

3.4.3 Process

The process of coco is pretty easy. First stick the tag on an object or a specific place. Then unlock the NFC phone, close to the tag, closer and closer, the same as we touch Suica reader in the train station. Next, you will feel a slight vibration. The browser is open and it starts to jump.

A few seconds later, you will find the browser has loaded the web page successfully, and you are able to type anything on the page.

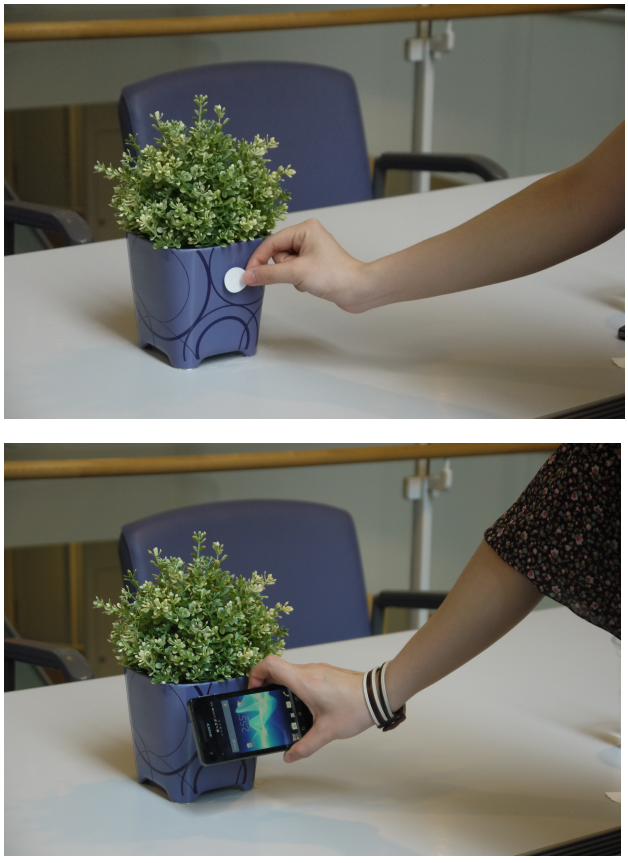

Figure 3.20: The Process of COCO (1)

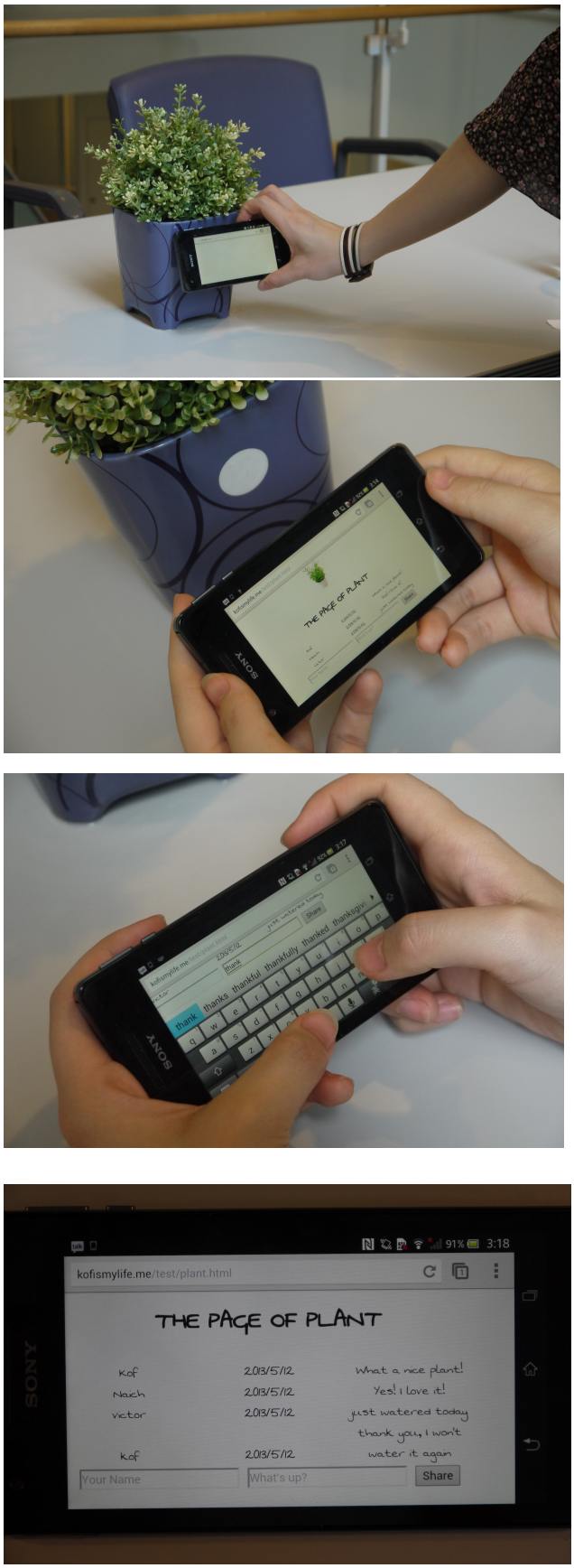

Figure 3.21: The Process of COCO (2)

After typing, your message will be showed in the page.

3.4.4 Results

In the whole process of implementation, most things go all right. The problem I encountered with was that the NFC tag I used is really small, only when the tag match the chip area of the phone can I successfully access to read the information in the tag. It took me a little time to detect which part of the NFC mobile phone to touch. But after several times of tests, I got used to it.

After done the implementation of COCO, Next step is to use the prototype doing user testing.

4 Validation

4.1 User Study Concept

Pragmatically, interaction design has three elements, input, users and output. This applies for my COCO case. Obviously, the input is the COCO system. The users are the volunteers who try COCO. And the output is what kinds of action are provoked in the users. The user test is done by means of this output.

User test is a test for hypotheses. Before the user test, I made a hypothesis that with COCO, people can read, add or create meanings and share their feelings about a specific (micro-scale) location by leaving messages and connect with strangers. For example, in the restaurant scenario, if one can use COCO to leave messages or pictures, say, at a public space, it is expected that people sit at the table after him will be influenced by his messages or pictures. More generally, it is hypothesized that the pictures or messages he leaves by means of COCO can influence other people's behaviors in one way or another.

Dialogue analysis is used to test whether people share their feelings and meanings about specific locations by leaving messages and connect with strangers. To ensure objectivity of the dialogue analysis, coding was used. Words that indicate feelings are coded. For example, "love", "like" "boring" "wonderful" etc. In this paper, I operationally define feelings with codes and define connections as interactions. Thus, if people interact (replying to messages or push "I like it" button) with stranger's messages, they share their feelings with strangers.

4.2 User Test Design

As COCO service does not aim to replace all the graffiti in the public, in my opinion, the perfect place for COCO is where we have the social connection with strangers, such as tourist spots, parks, restaurants, big classrooms with students in different classes, etc. I chose three spots for testing, KMD project room, one Tully's coffee and one KAMAKURA temple. The image of testing environment is showed in Figure4.1 and Figure 4.2. For example, concerning Figure 4.1, I created a webpage for the table, wrote the webpage URL link information into the NFC tag, and stick the NFC tag onto a real table in KMD project room. In the same time, I also made a QR code for the table, using the same information in the NFC tag, and put it into the paper of Figure 4.2. I tried the same steps into different micro scaled items. The whole image is as the Figure 4.2. In the user test, if users have the NFC phone, they can use their own phone to touch the tag. If they have not got the NFC phone, they can shoot the QR code on the paper to access COCO service.

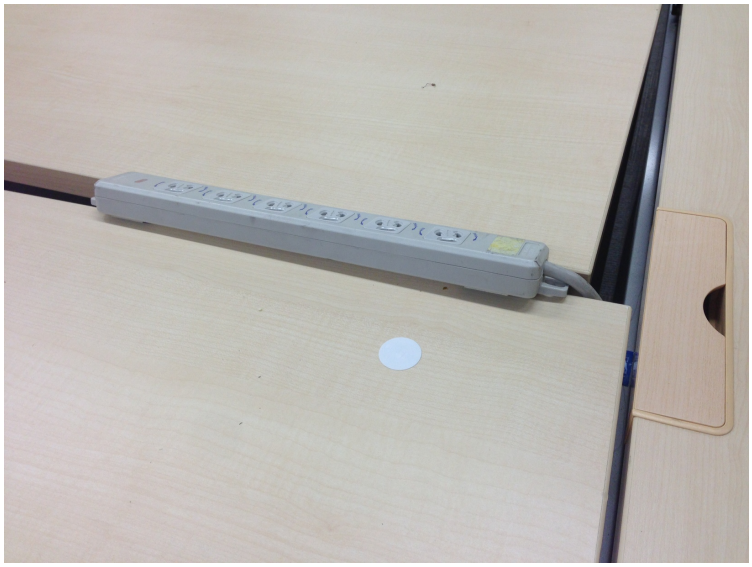

Figure4.1: One NFC tag sticking on the table.

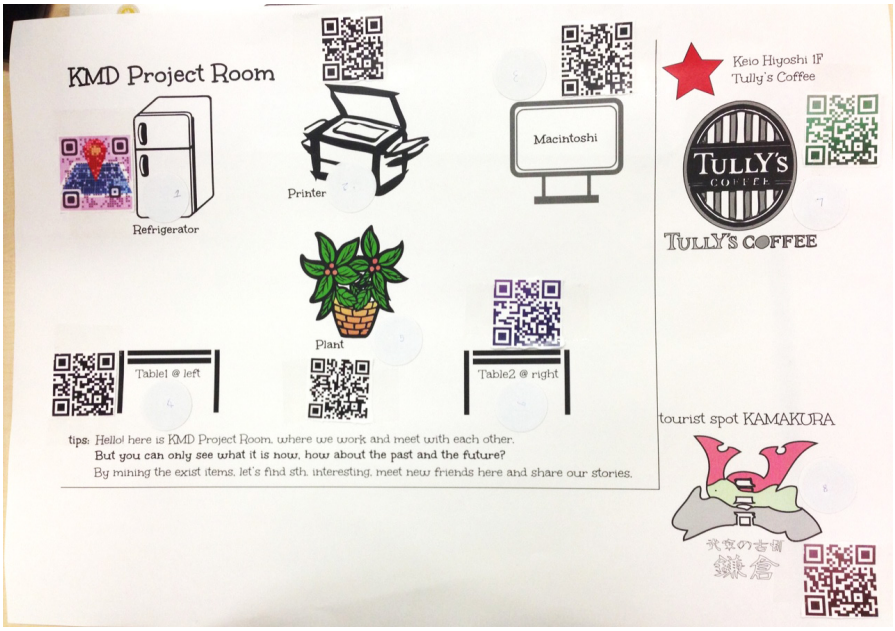

Figure4.2: Environments for the experiment.

The user test process is as follows. Before the test, let testers do a survey about their personal information and some basic questions about related services and opinions for my concept. After the first survey, I talk about the basic COCO concept and function to users. Then let users try to use COCO service. They can choose either the NFC one or the QR code one, or both. After their trials, I prepared another survey for them, and have a gentle discussion with them about the COCO service.

4.3 Details of User Testing

I did the user test in three spots, with fifteen people in all. Ten of them did the test in KMD project room, three in the Tully's Coffee, and two in a KAMAKURA temple. Almost all the users were not familiar with the NFC service, but they learnt it quickly and tried to access COCO at once. Only one people tried the QR code, which showed that, people already know about the QR code, when they learn an easier one, no one would go back to use the old method. For familiar items and locations, users typed some deep feelings and thoughts about them. For the tourist spots, they also

typed what they thought at the first glance.

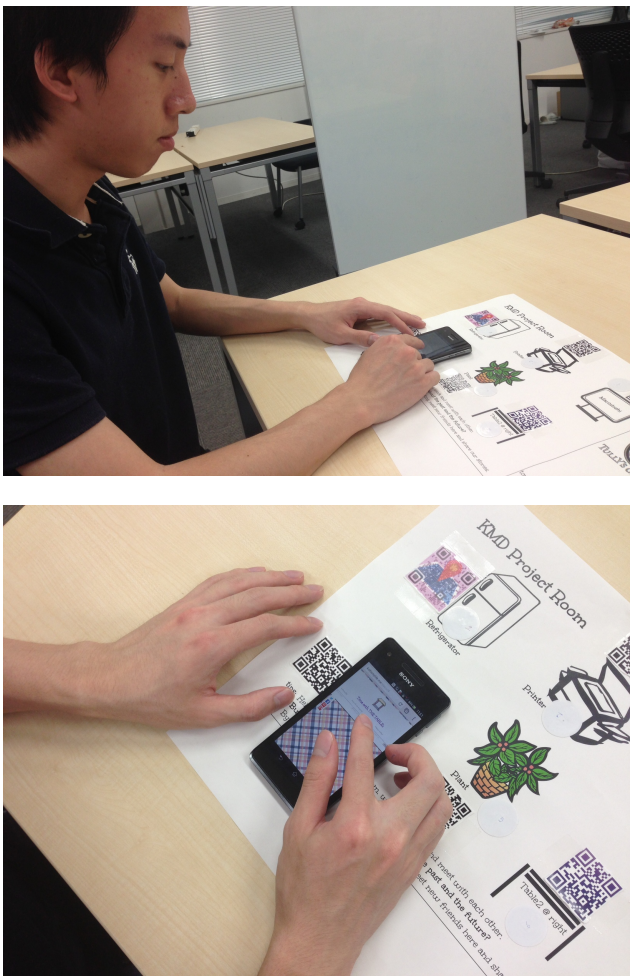

Figure4.3: Testing in KMD project room.

In KMD project room, the testers are all graduate students in KMD. We have two enrollments in one year, and we have two years' graduate students and several PHD candidates. In the project room, although we were in the same graduate school and met some schoolmates for several times, we never knew and talked to each other before. In the test, some users typed their ordinary lives about the specific locations and items, some typed to the computer, in order to inform the person who come later some tips or messages. It is expected that if COCO becomes a long-term experiment in KMD project room, the students enroll later would see the project room more than a research and meeting location.

For Tully's Coffee, it is the third place after homes and working places. It is a public place that people go there to talk with families and friends. Usually in such places, people are divided into different groups without interaction from one to another. But if there is a platform that connected several groups, or let them left messages there and after taste several years later, it is what COCO is trying to do. In the user test, a housewife with her single friend typed blessings to each other and reviewed about the café shop with the coffee they like and they do not like. When the third tester saw the former messages, he ordered a cup of coffee again, and typed the taste later. Also he added his blessing to the messages before, although they never met each other before, but they happened to have the same seat.

In KAMAKURA, I chose a flowerbed in front of the main temple. The flowers in temples are often beautiful that people take their cameras to shoot the flowering moment. After the two users shot the flower and planned to leave, I asked them to do the COCO user test. They typed about their image of the temple and the flowers, and also desire to upload a picture. Because of some technology limitation, the COCO only has the text function.

4.4 Evaluation

In the previous works, such as Foursquare, Twitter, Facebook, and papers, if people post the places others visited, they will see it and perhaps they communicate on Facebook or when they themselves meet and talk in some places. Communication itself is an output. Here, if people communicate because of COCO, which means that is a confirmation for the hypothesis that posting provokes communication.

I would analysis the results of surveys and interviews to evaluate if the user test for COCO could reach the concepts. Also I would like to do

analysis of the dialogue that users typed by COCO service. For example, the word "love" is an emotional term. If here, people say, "oh, I love it", I could say people's emotions are provoked because of COCO.

The first survey before test showed that (1) every user has mobile phone, which means, most people can access COCO service by their mobile phones, although not all of them are smart phones. (2) Most users use social network services everyday, others at least 2 or 3 days. (3) While everyone has memorable places, the traditional location based services such as foursquare is not popular. (4) Everyone has ever got references from strangers more or less by various platforms such as Wikipedia and some Question and Answer sites. From the above, we could find that (1) although we had got many benefits from the strangers, the value of the communication activity among them does not show much attention. (2) People really want to treasure their memorial spot and desire to share some special experience not only with friends, but also with urbanites who you never know before. (3) It makes sense to combine the communications among strangers with people's memorable places and significant locations.

The survey after the user test showed that (1) users feel interesting and surprised of the possibility that COCO provides and its novel kind of connection and communication among strangers. (2) Normally they are willing to use COCO in some specific places, if COCO is a real released service. (3) After reading the historical information of a specific place, it is possible to change their first thought of the micro-scaled location more or less, and made them feel great and generated more feelings about this location. (4) From this survey, it is concluded that people have the trend to explore and feel more about the surroundings and the information hidden by the location. (5) Communications among strangers and their value still need to be defined in the future, not only by similar COCO services, but also some unknown or unfound services and tools.

I also made lots of interviews and discussions with users about COCO

service. Some of them said COCO is really easy to use, and if it could have more types of contents as pictures and videos would be better. It is about historical information of specific places. Numerous database is quite essential for COCO to achieve the expected effective. Some users also talked to me about their personal experience in their high school. They saw some interesting messages left in toilets, on tables, and they were desired to reply these messages but unfortunately they could not. Another user talked about personal feelings when he left the dormitory in his university. At that time, he liked the dormitory room and wanted to leave some tips for students who would live in the same room later. He wrote a letter but did not know where to put. By COCO, he said this action could be realized. Another tester said that, "It is definitely a great way to leave notes to public without malign a mess on public property. It is clean, efficient and convenient in this digital age. It just needs a lot more evaluation to determine the effectiveness of the service."

The limitation of COCO user test is obvious. I tried NFC tag to locate the micro-scaled location, which is a novel method. And my concept is quite big, which need a long-term experiment and more revision and promotion for the prototype. Additionally, to show the efficiency of communication model among strangers, more functions are required in COCO prototype system.

The result for the evaluation of the user test is that, as a prototype, although there are still lots of unfinished parts and it is really a rough prototype, it works well to appeal users and promote the communication in the local area, which could be helpful in nowadays' society. Users are able to see historical information and share feelings of specific location, and make some interaction with strangers, about their feelings, about some useful tips, about experience happened there. In my opinion, the result of user test is pretty good. Users feel interesting about COCO, but the interface and usability need more promotion, and find more possibility for the concept as well.

5 Conclusion and Future Work

COCO is a novel method to enhance public meanings and communications via micro-scaled location service. COCO made it, at least most part of them. It makes possible to connect people of similarities more or less through specific locations, to interact with people you never met or knew before, to see some historical and significant information of your memorable locations, and you see and feel more than the items or the micro-scaled locations' appearances, then your get more meanings of the locations, and your public social communication with others, especially with strangers enriched.

In the Chapter one, introduction part, I have mentioned that I am trying to answer two questions throughout my research.

1. Can I find an easy and effective way to get the users find, read and write the historical and meaningful messages about a specific location?
2. How to realize the communication activity among strangers and bring the value to users?

The answer to the first question is the interactive NFC tag with COCO platform service. The answer to the second question is remained. For the future work, perhaps more possibilities will happen around the COCO system. In order to show the efficiency of communication model among strangers, the face-to-face method is more clear and direct. For examples, in restaurants, different groups interact together at the same time, and for some social events, people are able to be provoked by some social settings and get to know new friends directly.

The smart life needs s a large chasm to jump. This understanding has been one of the guiding forces in my design of COCO - to start with one commonly used household item and make it smart, easy to use and accessible to everyone. Without no doubt, in the process of innovation, we

will meet hundreds of difficulties, and we must to succeed them if you want to achieve your goal and get the future key.

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Appendix

Surveys and Results One

A Questionnaire before user test

1. Age: 20~24 x 7, 25~29 x 5, 30~35 x 2, above35 x 1
2. Gender: F6, M9
3. Mobile: smart phone 13, normal phone 2.
4. How often do you use social networking services

   Everyday. 8

   Every 2 or 3 days. 4

   Only check when others push. 3
5. How often do you use location based services (Foursquare, Facebook check-in)

   Only in some kinds of places (restaurants). 2

   Only in special places. 4

   Only when others forced me. 3

   Never. 6
6. About services like reviews, Quaro and Wikipedia, did you trust them or influence by them before?

   No.

   Yes, but seldom referenced or inference. 2

   Yes, sometimes. 7

   Yes, get a lot of good ideas and help. 6

7. Do you have some emotional moments or memorable places that you want to treasure?

   No. 1

   Yes, one or two. 2

   Yes, a few.8

   Yes, a lot of.5

A few more questions after the user test

1. How you feel about the service?

   My dream service! I would like to use it. 4

   Interesting, but need more improvement. 10

   No comment. 1

   Not interested.

2. How is the usability? It is comfortable to use or not?

   No.

   Yes, but not good than most current services.1

   Yes, the same as current services. 7

   Yes, better than most current services.3

   I have no idea. 4

3. How you feel about the place ['s social status] currently?

   Better than before. 6

   Great, but I want better. 7

   Unchanged. 1

   I don't care. 1

4. How you feel about this kind of communication with strangers?

   My dream service! I would like to use it. 2

   Interesting, I would like to use it, but need more improvement. 7

   Interesting, I can try in some special occasion and place. 5

   Not interested.

   No comment. 1