DECO3500/7350

Concept Proposal

Social Mobile Computing

[v1.2]

Team Name:

TakeUrHeart

Sign off and approvals

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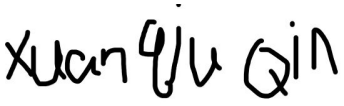
Xuanqiu Qin 44589769		4 Sep 2020

1.0 Introduction

Team “TakeUrHeart” will be designing and implementing an interactive communication channel that will facilitate the communications for couples in long-distance relationships, by adapting the computer-mediated technology such as video call and instant messages. Through our background research and user interviews, we found numerous existing solutions aiming at facilitating long-distance communications, while none of them could fully satisfy the need in long-distance romantic relationship maintenance. Our objective is to design a new long-distance communication channel that could fill the gaps in existing solutions for the purpose of maintaining and promoting the sense of closeness and togetherness in long-distance romantic relationships. Our design will incorporate novel concepts such as the computer-mediated communication channels that integrate functions of task cooperation and argument resolution to mitigate the pain points in long-distance romantic relationships. By the end of this semester, the team will be expected to design and create a digital interactive working prototype that adapts the social and mobile computing techniques as well as the thorough design principles and paradigms in the Human-Computer Interaction field.

2.0 Description of Domain/Problem Space

2.1 Rationale & Domain/Problem Space

The maintenance of long-distance relationships is commonly considered as an ongoing challenge for people who are having romantic relationships in a distant setting. This is mainly because geographical distance settings are the major contributors for having conflicts and arguments between a couple. In contrast, couples in different distance settings potentially result in completely different communication patterns as well as relationship maintenance strategies and conflict patterns that couples may confront. [1] The communication patterns or channels used would be completely different for couples in different distance settings. For example, people in non-commutable or international distance settings tend to use asynchronous communication channels such as SNS, emails, and IM, combined with infrequent video chat. By contrast, people in co-located and commutable distance settings are more likely to utilise communication channels that support a high level of synchronous functionalities such as phone call, video chat, and IM. [1]

Although the emergence of interactive artifacts that support intimacy communication shows a decent level of promise in contributing to the maintenance of long-distance relationships, the concept has not yet been accepted by the general public due to the deficiency shown in the real-life use cases. [2] On the other hand, computer-mediated communication technology such as video chat and phone calls is still the most preferred communication means among couples in long-distance relationships. [3] It is mainly due to the fact that video chat provides a sense of togetherness by allowing both partners to see each other in a real-time setting, which is a huge benefit for couples in a relationship since emotions and feelings are somewhat challenging to be conveyed to people on the other side of the screen without knowing their detailed facial expression, body movements and even hand gestures.
When it comes to relationship maintenance and communication in a long-distance setting, the problem space would be worth exploring, especially in the ongoing epidemic situation (COVID-19). The vastly spread epidemic has been an enormous factor that forced people to keep their relationships in a long-distance setting. (i.e. non-mutable or even international locations). As a result, couples in such distant settings have left no choice but to use computer-mediated communication tools to keep a level of intimacy in their daily lives.
The domain our team will be exploring is communication in long-distance relationships because although there are already several design solutions attempted to enhance the level of interactivity for communication in such long-distance settings. The proposed solutions still have a lot of deficiencies so that they were unable to be brought to real-life uses.

2.2 Room for Design

Team “TakeUrHeart” will be designing and implementing a computer-mediated communication channel with a considerable sophisticated level of interactivity that can be used between couples in long-distance relationships. When it comes to the communication in long-distance settings, we are attempting to solve the difficulty of either synchronous or

asynchronous communication due to the different time zones as well as conflict resolution strategies in a long-distance setting. On the other hand, strategies for resolving conflicts is also a significant focus for our project since the distance setting is one of the biggest contributors in determining the communication pattern in a relationship and consequently has a great impact on the conflict resolving strategies.

3.0 Description of Design Opportunity

3.1 Review of Existing Attempts

"FurFur"

When it comes to the specific design opportunity that our team has chosen to explore, it is known that there are already a considerable amount of existing artifacts with various levels of interactivity as well as the purpose of boosting the level of togetherness and closeness within non-collocated couples in romantic relationships. However, design solutions often do not fit well in the contextual environment of long-distance relationships. One of the examples of interactive artifact would be the robotic pet "FurFur", an autobiographical design exploration conducted by Chien et al. [4] The participant showed great interests during the first-time use of the system which was not surprising considering the robot's ability to imitate people's hand movement as well as voice. However, their interests were quickly lost because the robot only supports superficial interactive functionalities which means the user quickly loses the freshness after only a handful of uses. On the other hand, since the system attempts to simulate a pet in a real-life setting, the expectation from the end-user would be just as high as a real pet, meaning that only a small difference in behaviour would become a critical defect for the system.

"Touch Trace Mirror"

Another artefact that supports long-distance communication is "touch trace mirror" [5]. It is an interactive communication channel that only allows asynchronous and collaborative messaging with the purpose of enhancing the level of relatedness and togetherness in a long-distance relationship. It is essentially a set of two mirrors and each of them to be placed in each partner's accommodation. It is potentially a good way of communicating with couples in long-distance relationships, but it is unlikely to be considered as the primary means of communication for them. As an asynchronous means of communication, it is evident that limited amounts of information can be conveyed between the two people compared to synchronous communication channels such as video chat and phone call.

"Connected Candles"

"Connected Candles" is another excellent example of an interactive artefact that was used to enhance the level of awareness and closeness for people in long-distance relationships. [6] It is essentially a set of candles, one of them being a real candle, and the other is an electronic candle. The system only operates with the internet connection enabled, while igniting the real candle can illuminate the electronic candle on the far end of the candle set. The system showed a decent level of effectiveness in contributing to the communication within couples in long-distance relationships, especially for people in different time zones since the system is an excellent example of utilising asynchronous communication channels for mediating emotional communication in relationships. [6] However, although the idea of using candles for mediating intimate relationships showed some promise among participants, the limitations and deficiency concerning the design concept quickly emerged after the proper testing phase with some real end-users. The author brought up the general

privacy concerns for using computer-mediated communication channels as the evidence for supporting such interactive design. Still, the unique feature was not enough to cover up its deficiencies in terms of the actual user needs. It is evident that the freshness of using the artefact would only last a few times of usage since its lack of interactivity. On the other hand, as an asynchronous communication channel, the communication pattern should be practical and meaningful enough to ensure that the end-user will be motivated to continuously use the system.

3.2 Project Aims & Target Audience

Our domain is communication in long-distance relationships, so the project aims to help couples who are in different places maintain their relationship. Therefore, our intended audience is couples in different areas. "Place" not only refers to different regions in the same country but also refers to different countries.

For couples in the same country and different places, although they cannot easily meet each other, if they encounter a more important holiday (such as boyfriend/girlfriend's birthday), they may go to the other half of the city; For couples in different counties, they cannot easily see each other. Therefore, when they have conflicts, due to various factors such as region, time, language, and academics, they are more likely to lack topics for mutual interests and have disagreements. Therefore, our main target audience is couples in foreign countries, followed by couples in different places.

We interviewed six couples randomly. Three couples were in different regions of the same country, and the other three couples were in different countries. Regarding the question "How do you communicate with others?" all six couples said they used chat apps, such as WeChat.

When asked about their most significant problem in communication, four couples said that they could not understand why the other half was angry. Sometimes when they chat with their partner, he/she will suddenly become mad, and the negative emotions will drive the other person, and the two will start quarrelling and conflict.

The other two couples indicated that they had no common topics with their partner. The main problem for girls is that they cannot understand what boys are talking about, and the problem with boys is that they don't know what girls say about cosmetics and superstars. According to the descriptions of couples Tina and Ming, when they live in the same place, the two people can talk about "Where is the restaurant better" or "What is the content of the lesson today". When the two people are separated, sometimes normal chatting will be very embarrassing, because when a boy tries to share his sneakers, but the girl can't understand; when the girl talks about their favourite lipstick for the other half, the boy does not know the difference between red.

Based on our interview, the main problem that our proposal wants to solve is how to help couples increase topics for mutual interests and resolve conflicts basic on the mobile application, which will be discussed below.

3.3 Concept Description

When we came up with the concept, we mainly considered three parts, one is how to help couples produce a common topic, and the second is how to help them resolve conflicts, and third is promote synchronous communication.

The first idea we put forward on how to increase a common topic is to design an app with a teamwork model. This model is based on the chat app and is similar to additional functions. This function can provide couples with some simple small tasks, for example, both parties complete the poker game provided by the system, or each person uploads a photo and writes the story behind it, etc. These little tasks can help couples find some topics for mutual interests to communicate. They will no longer not know how to generate topics because they are in different places, through the chat app, they can start small conversations from simple topics, such as "What do you think of my photos" or "today we can choose to do other tasks".

This function also has a ranking function, each time you complete a task you can get one point, daily and weekly statistics of all the data near the male/female area for ranking, the top-ranked couples can get special decorations such as avatars and id special effects.

The second idea is about how to resolve conflicts. Because the couples are in different areas for a long time, they cannot know the mood and state of their partner. Once talking about some topics at the wrong time, it is very likely that they will have conflicts. Therefore, the ideas put forward about this situation are still based on apps that can chat, and consider making a message board function.

When the couple has a conflict, the chat function will be temporarily closed, and the two can only communicate through the message board. The message board is used as a non-instant communication tool. Users can think about what they need to express during the typing process as a calming period. When one party puts his own problems and grievances on the message board, the other party can view and reply. The setting must be replied within one hour after one party puts a message. Otherwise, the ranking function mentioned above will lower the ranking and indicate the reason.

During the calming period, both parties cannot use the chat function, but the chat interface starts to play the memoir. The memoir was set up by both parties in the past to play some photos, voices and shared stories of two people together. This function is designed to remind two people of each other's strengths and past experiences when they are in conflict, and avoid impulsive emotional breakdown.

After two users resolve their conflict, click the love symbol on the message board to return to normal mode. At this time, a badge will light up, and the user can edit the notes on the badge to record, and the badge can be viewed in the future.

The third idea is focused on how to promote synchronous communication. According to the interviewee, the communication between lovers in long-distance relationships is often more frequent, this refers to online activities such as text, message and videos etc. And, the communication of topics between lovers is more reflected in daily chat, like asking them what they ate or what they did today. So, we can recognize that couples would like to synchronize or share their status in real-time, rather than waiting for each other to send a message to know. One of the potential design spaces can be focused on an app that can specifically design the function of synchronization of activities tracking with others, which means, they can see the track of their companion online in real-time. It will maximize the effect of tracking, allow activities to penetrate into social mobile, shape the presence and visibility of activities. For instance, when the other person chooses to open the 'sharing', the respective status bar including time, location, and information will appear on the interface. The information content of the status bar can only be filled in by the partner, which means it shows the partner's transmission information, allowing the couple to quickly and synchronously understand each other's status. This idea is to realize synchronous communication through the other companion's filled information.

3.4 What sets it apart from Existing Solutions

There are numerous existing solutions for long-distance relationship maintenance based on computing technologies, with some directly aiming at assisting long-distance relationships and others that function as general long-distance communication tools. The existing communication software or digital artifacts can be of many forms, like textual, graphic and tangible. Some existing applications introduce randomized elements or approaches in long-distance communications, like the message from the sender would be transmitted to the receiver at a random time of the day, hoping to mitigate the delays in long-distance communication by explicitly making it asynchronized to reduce the expectation of communicators. Hong (2018) has written a literature review on current long-distance communication tools, with special focus on long-distance romantic relationships. Nonetheless, there are various aspects and features of our design that differentiates it from the existing design solutions for long-distance relationships.

Firstly, our design focuses on maintaining and promoting long-distance romantic relationships through communication and cooperative tasks achievement, rather than merely being a long-distance communication tool. It is necessary to understand that communication between couples is a means of maintaining intimate and romantic relationships, not the goal. From our background research and interviews, we found that the core element in romantic relationship maintenance is to create mutual understanding and interests between partners constantly. More often, developing mutual understanding and discovering mutual interests are achieved by doing things together rather than talking about things together. Based on this concept, we designed a mobile application where tasks could be shared and achieved between couples. Doing tasks together will allow couples to build mutual understanding and tolerate the inefficiencies in long-distance communication.

Secondly, our design aims to tackle the issues of "argument" between partners that is widely regarded as one of the most prominent pain points in long-distance relationships. A sense of

security is critical in maintaining romantic relationships, especially in long-distance ones. Couples would often doubt whether his or her partner is cheating behind his or her back, and he or she has limited means to confirm the loyalty of his or her partner due to the long-distance nature. Couples would often require each other to send their current location and current stuff he or she is doing to check their loyalty on their relationship, while asynchronized long-distance communication sometimes makes the matters worse as a delayed response from a partner does little help to clarify the situation. In our design, apart from conventional textual or graphic communications, couples could send each other their daily location trace and activity list so that their partner could be rest-assured. Such features could greatly reduce the frequency of “arguments” between long-distance couples.

4.0 Plan of Work

This paragraph indicates that our project produces a work plan that details our design process. It is necessary for teammates to identify what specific tasks respond to different process stages to stick our design process into the plan. According to our domain we choose, the details of the working plan show as below.

Week5: initial insights and investigation
Teammates start to investigate what specific insights could be found and related to our design space. The team should investigate two target users, one of whom has a long-distance relationship and another is single. For the users who have a long-distance relationship, the team tries to explore what reason could affect their relationship. For the single, the team tries to find how they think about long-distance relationships from their perspective. At the end of the week, the team analyzes data and summary the insights
Possible methods to use:

- Interviewee
- Observation
- Research Online

Week6: low fidelity prototype
The teams should build a low fidelity prototype at the end of this week. The prototype should contain brief details of proposed social mobile or technology to support our aim. At this stage, low fidelity prototypes do not fully represent the final prototype but gather feedback from testing users.
Possible tools to build:

- Paper
- Adobe XD
- Mockplus

Week7: Undertake evaluation
At this stage, the team starts to evaluate the prototype with testing users. The information that the team gathered from this evaluation will be used to analyze what specific issues could be related to our design.
Possible methods to use:

- Card sorting
- Co-design
- Design walkthrough

Week8: Medium fidelity prototype
The team should revise the conceptual design related to the feedback they got from the previous evaluation. And, The team started to build the version of the prototype which is close to the final version.
Possible tools to use:

- inVision
- Adobe XD

- Keynote

Week9: Iteration Evaluation and revised conceptual design
This stage is going to continue to evaluate our prototype. And, The evaluation should be focused on testing the usability Scale of technology. In addition, the team should also consult with tutors to identify possible potential designs that can be used.

Week10: High fidelity prototype
The team needs to progress the design into the final stage, which includes building the final version of the prototype of main functionality and interaction that performed on the prototype. The prototype should perform clear visualisation and understandable design for users.
Possible tools can be used:

- Keynote
- inVision
- Adobe XD
- MockPlus

Week11: Revise Final version of the prototype
Before the final demonstration, the team should summarize feedback and information got from the whole evaluation. In addition, the team tries to identify possible weaknesses of the prototype and revise part of functionalities.

Week12: Final Prototype Demonstration

5.0 Our Team

Kaite Zhu:

By the end of this project, I have been putting higher expectations for my technical skills for working on a complete set of projects as well as the design principles that will be applied during the initial design phases. Particularly, the project would be a great opportunity to demonstrate my ability and understanding to apply the previously acquired programming knowledge to the field of social and mobile computing with regard to facilitating the communication within couples in long-distance relationships as well as strategies for conflict resolution. During the past experience with university projects, it was evident that the main focus of research is back-end programming, database design, and also UX design. As a result, these past experiences allow me to focus on multiple areas of the current project, especially the opportunity to utilize frameworks such as SpringBoot with Java and ReactJS with JavaScript.

Yiping Xia:
I expect to learn more concepts of design thinking and how to implement it in the project. And, I would like to achieve and understand how social mobile technology supports human interaction whilst adapting to changing different environments. In addition, It is necessary for me to learn how this project can apply design theories and methods to challenges caused by specific domains (like how social technology engages with users). I have sufficient experience in building paper prototypes since I do a lot of work on designing the layout, wireframe of website and app in previous courses. I would like to contribute more work on building prototypes into the team. However, I am not really good at coding.

Yonghao Wu:
In the past projects, I usually did both design and code while I was more on the coding part. Apart from that, I am also interested in project management methodologies like agile and scrum, and have led a few web and mobile development projects in several other courses. In terms of interface and interaction design, I usually apply various methods and approaches in HCI technologies, like the Glass' Law, Cognitive Load and Colour coded visual clues. Nonetheless, there are a few areas of personal improvement that I found necessary. Although I am familiar with the coding languages like Java and Python themselves, I need more experience in manipulating frameworks like Spring Boot and React. Also, I need to develop my skills of using industrial-standard prototyping tools like Adobe XD and Figma. In this project, I will contribute to interaction design, stakeholder research and user testing.

Xuanqiu Qin:
In the past, my usual role was a designer, I am responsible for designing prototypes and UI. In this project, I am responsible for designing and testing prototypes, and also work for interview and user surveys. I'm proficient in the use of Adobe Xd and can design with ai and ps. But I am not good at programming and conducting team discussions, I usually wait for the leader to assign tasks to me in the team. I hope that here I can put forward some of my own ideas and participate in the discussion. In addition, I also hope to learn some programming skills and ideas of how to build a good prototype for other members.

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