

Cafe Chat

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ABSTRACT

Noticed that people who go to coffee shops alone tend to isolate themselves with their mobile devices, we used interaction design and iOS programming frameworks to create an application called Cafe Chat that not only brings people to communicate face to face but also uses their devices to interact together in colocated space.

General Terms

DESIGN

Keywords

iOS, App, Mobile Computing, Bursting Mobile Bubble, Chat, Social, Interaction Design

1. INTRODUCTION

Cafe Chat is an iOS application that brings users together for face to face conversations at coffee shops. We defined the usage environment based on a personal observation that people who go to coffee shops nowadays tends to go alone or with people they are already acquainted with. It is likely that the person will use a mobile device by himself rather than communicate with other cafe goers, hence submerging inside a "mobile bubble." We introduce an idea of a phone application that will help mobile phone users to meet new people and promote a colocated interaction among them to break the "mobile bubbles".

The Cafe Chat application allows users to post a topic they are interested in and browse topics that other people at the same location have posted. If the interest match then they can walk to the table and start a conversation. In order to ensure the colocated interactions between mobile devices, the application also provides a game for users to grow each others' virtual coffee tree by scanning QR code of one another.

In the following sections, we illustrates the concept, prototypes, and final result of this project as well as the reflections of the design from users and designers.

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2. BACKGROUND

Mobile phones has made the communication convenient since they were invented. In 2007 [3], when Steve Jobs released the first iPhone, the whole world of mobile phone was changed. People use their smart phones for chatting, surfing websites, playing games in any single spare moment. However, it seems that more and more people who use smart phones during their daily life begin to create mobile bubbles for themselves. These users are more focused on playing their phones individually. The friends sitting next to them, however, might be ignored because they all focus on themselves.

Fortunately, this situation becomes awared by many people and many of them began to criticize this phenomenon. How to bring people back to their real life and increase the face to face communication for the mobile device users becomes a recent topic.

Cafe Chat was created then in order to breaking this "Mobile Bubble" situation mentioned above. And the theme of this app is based on the theme "bursting the Mobile Bubble" as mentioned by Lundgren and Torgersson [5].

3. WORK PROCESS

The process of developing the Cafe Chat application includes proposal selection, functionality design, user interface design, and implementation of the code.

3.1 Proposal selection

At the very beginning, we had three proposals for the "Burst the Mobile Bubble" theme. They are "Let's Hangout", "Are You Hot" and "Cafe Chat".

"Let's Hangout" helps students who do not want to eat lunch alone find someone to sit with. "Are You Hot" is an app which can search people around a user and rate their appearance.

Even though the final goal of these three proposals is bringing people together face to face, we decided to pick up the "Cafe Chat" for our project. Based on our supervisor's comments, "Let's Hangout" is only used for gathering people together and it is no longer used when people have found each other. And the "Are you Hot" idea might "have some integrity problems since one might not be interested in having other people commenting on them".

3.2 Functionality design

By using the Cafe Chat application, users can post topics they want to talk about with others. When the user composes a new topic, only the information of the topic title, the topic description and the table number need to be provided.

The "Water Tree" part is another important feature that exists in our application. It can be treated as a mini game that tries to bring people face to face and burst the mobile bubble. As people must scan another user's QR code to help their trees grow, they must setup a communication face to face rather than only click a "Like" button and chat via Internet.

3.3 User interface design

The design of the user interface is based on the iOS7 design principles, hence we aimed for flat, hierarchical, and minimalistic design [2]. The application has 6 pages for the displaying information. Several different versions for this application have been made before the final version. The basic colors for the first version are white and brown as Figure 1 shows because we wanted to have these colors relate to a "coffee" motif. Eventually these colors were given up and the colors blue, black and white were used instead because we found that the important "Water Tree" part seems to be ignored with only the brown and white colors. Moreover, even though the blue, white and black colors are not the perfect contrasting colors, we think that these colors could give clean feeling without having difficulty in identifying different elements for this application as Figure 2 shows.

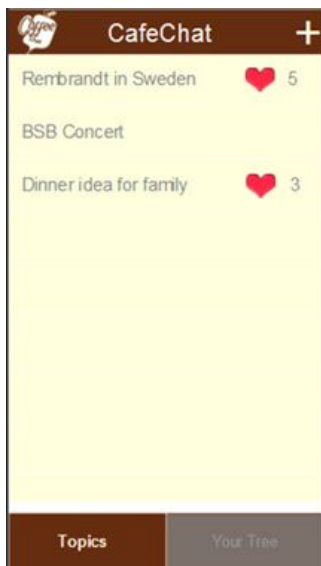


Figure 1: First version for the Cafe Chat UI

As from the figures above, the basic structure such as the icons, the buttons and the navigation bar has been drastically changed. Since at the beginning version, the UI only included the very basic elements that we need to have in our application. But throughout the development process, we kept researching for the suitable design patterns and adjusted our UI accordingly.

3.4 Implementation

As illustrated in Figure 3, two main components of the app are GPS supporting and Parse Cloud server supporting [3]. The app fetches the GPS coordinates of the device from a satellite when the user turns on the app. Based on the GPS coordinates, only the topics which are within 100 meters can be seen in the topic list. The Parse Cloud server is used to save the topic related data (e.g. user's device id, GPS coordinates, table number of the topic, numbers of likes of the topic). Every time when the user posts a new topic, the

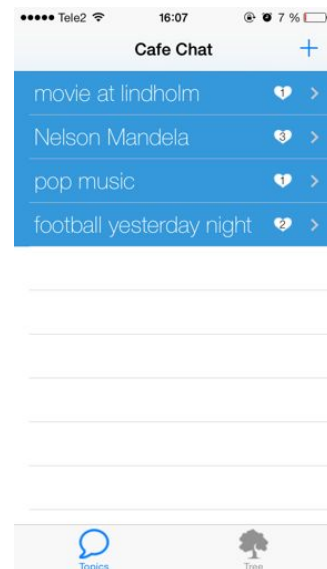


Figure 2: Final version for the Cafe Chat UI

topic data will be saved in the Parse Cloud server. And whenever the user refreshes a list, a request to ask topics within 100 meters is sent to the server and the server will send the requested data to the mobile device. As the topics which are posted yesterday are useless, the request also involves filter information to tell the server to only provide the topics posted in the past 30 minutes. The choice of 30 minutes time interval is because we assume people have a possibility to leave the coffee shop after 30 minutes. The user can check other user's topic by selecting the topic in the topic list. The user can also delete his or her own topic. This app does not require user sign up, thus we use the device UUID to verify whether the topic belongs to the device or not.

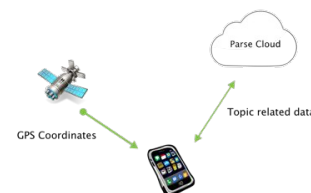


Figure 3: Architecture

In order to burst the mobile bubble, this app encourages users to interact with each other. Each user has his own coffee tree and has to interact with others in order to make their own tree grow. To achieve this goal, we came up with a strategy that each user has his own QR code image. To make their own tree grow, they have to scan another user's QR code images. The QR code image was created based on the device UUID in order to make every image unique. The implementation to create the QR code was based on the project from Daniel Beard [1]. In order to make it possible to scan a QR code, we used ZBarSDK [4] to implement the QR scanner.

The traffic of downloading images from the server is heavy, thus we chose to natively store the tree images in the device. The coffee tree's age information was also saved locally in order to select the correct coffee tree state image.

4. PROTOTYPING

We have done several prototypes when we were designing this application. These prototypes include both the code prototype and the UI prototype. We limit this paper to only show the UI prototypes as they are easily illustrated with screenshot images.

4.1 First Prototype

The first prototype was designed using markers and a white board during a brainstorming session as shown in Figure 4. After a short discussion we made a sketch using the service from FluidUI.com. Here we made a draft design of important pages and their connections and then continued to make it more clear for a better understanding. At this time, the most important part for us was to decide what functions should be included in our application and how could these functions be linked with each other. Thus we only created the most basic UI elements that need to be included in our design at this website. The connection between screens is shown in Figure 5

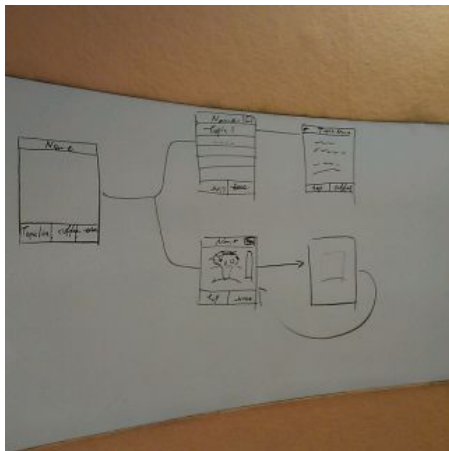


Figure 4: The basic elements contained in the first prototypes

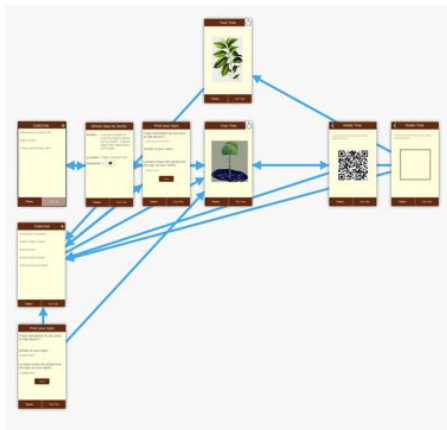


Figure 5: Connections between screens

4.2 Prototypes on the UI design

After the basic elements have been decided, we began to work on different types of UI for our application with the help of Adobe Photoshop, and the prototypes for the main pages could be seen from the following Figure 6.

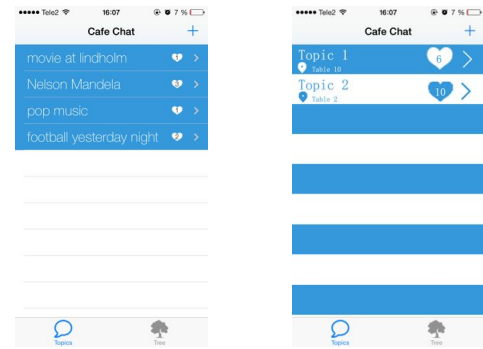
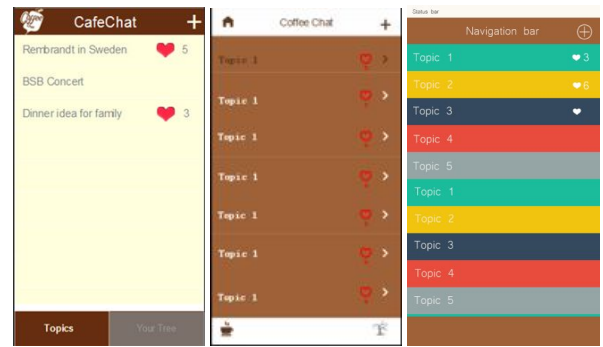


Figure 6: Different UI versions for the main page of Cafe Chat

4.3 Icons

Besides the whole screen design, we have also designed the icons that need to be used in our application. The like icon, the chat icon, the tree icon, the location icon and the description icon and so on as shown in Figure 7 were all re-designed from some existed icons in order to fit our design for this application.



Figure 7: Icons for the Cafe Chat UI

These icons corresponded to both the theme of our application and the basic colors that we decided for this app in our opinions. And they could represent the meaning and worked well when we tested our application during the developing process.

5. RESULT

5.1 Final version

The final version we developed for Cafe Chat application has 6 pages as show in Figure 8. And the style, colors and basic structures of the 6 pages are consistent with each other and no direct conflicts are found.

5.2 Testing

The final design was presented to five subjects who are not familiar with interaction design for user experience evaluation. The result shows that the subjects immediately noticed that our design is for iOS7 and we received a positive feedback on the aesthetic of the UI. All users also understood which part is clickable and which part is for text input. However, one subject did not know at the first glance that a topic on the list is clickable because an arrow icon at the end

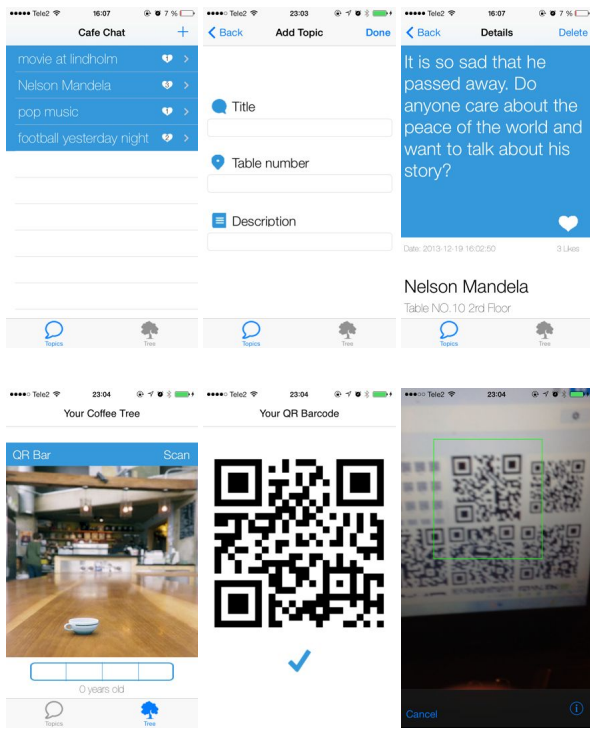


Figure 8: Final pages designed for Cafe Chat (from left up to right down they are the main page, the add topic page, the topic detail page, the water tree page, the QR code page and the scan page)

of each topic mislead her to think that she supposed to swipe the topic to the right, but since the design was still intuitive for the other four subjects, we decided to keep it. Overall, the results show that the UI design acquires the quality criteria of understandability and usability.

For the functionality we implemented all main functionality to work. The user is able to perform the following tasks with the app:

- add a new topic
- view a topics list
- click on a topic from the topic list
- view a description of the topic
- like a topic
- delete a user's own topic
- generate a QR code
- scan a QR code from another phone
- visualize the growth of the coffee tree

6. CONCLUSION AND FUTURE WORK

In conclusion, this application could complete the tasks that we are aimed to do with our mobile devices for bursting the mobile bubble. It encourages people who visit coffee shops to meet by their common interest in a topic and interact with each other via the

"Water Tree" mini game. The interaction design for this application generally works well after we did the test on users. There are no critical bugs when users were using this application.

Moreover, the interface design for this application is generally consistent with each other. No obvious conflicts in the UI design have been found at this moment.

Even though this application could work without big problems, there is still room for improvement. For example, the accuracy for the location of the device could be improved so that the user who is posting the topic by using this application nearby would not be ignored due to the wrong calculation of their locations. Also, the life scale of the tree could be increased from the current 4 scans to be 10 or so.

7. REFERENCES

- [1] Daniel beard's programming blog @ONLINE. <http://danielbeard.wordpress.com/2012/03/05/qr-code-encoding-on-an-ios-device/>. Accessed: 2013-12-20.
- [2] ios human interface guidelines@ONLINE. <https://developer.apple.com/library/ios/documentation/UserExperience/Conceptual/MobileHIG/index.html>. Accessed: 2013-12-20.
- [3] Parse could code guide @ONLINE. https://parse.com/docs/cloud_code_guide/. Accessed: 2013-12-20.
- [4] Zbar iphone sdk @ONLINE. <http://zbar.sourceforge.net/iphone/sdkdoc/>. Accessed: 2013-12-20.
- [5] S. Lundgren and O. Torgersson. Bursting the mobile bubble. In *First International Workshop on Designing Mobile Face-to-Face Group Interactions, European Conference on Computer Supported Cooperative Work, ECSCW'2013*, 2013.