
LIVEKARA

A Mobile App for Karaoke Lovers

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Introduction

What is This Project about?

Karaoke is a popular social activity with a long history. People love music and singing to express their views and thoughts to the world and share emotions with others. Since the karaoke machine was invented in Japan in 1971, it has spread over the world and become one of people's favorite activities. Nowadays, Karaoke lounges are very common to see around many cities. Groups of friends spend the night at the lounge to sing, eat and hangout. As mobile devices becoming more and more popular, karaoke mobile applications have become an alternative which provides more possibilities for people to sing karaoke. Today, hundreds of karaoke mobile applications are available on market. These applications are designed with different focuses, such as social networking, gaming, collaborating, or for kids in particular. Singers record songs through the application and upload their performance to the online community. Audience would listen to the performances and post comments later.

Project Goals

While these applications provide a good karaoke experience, the biggest difference between singing in a karaoke lounge is that singers and the audience are not interacting in real time. People singing in a karaoke place could perform directly in front of the audience while the audience could give feedback promptly, such as clapping, cheering, and waving hands.

LiveKara is a mobile application designed for karaoke fun--to enjoy live performance on mobile phones. Instead of recording and uploading the singing, singers could perform a live show on LiveKara. Similarly, the audience could enjoy live performances rather than recorded songs. Beyond that, LiveKara allows users to share emotions by sending live comments to both singers and the audience in real time. I hope this application can provide a fun mobile karaoke experience and make more and more people love karaoke.

Research

Karaoke as Culture

The word “karaoke,” a Japanese term meaning “empty orchestra,” is originally from Japan [1]. In Japan, karaoke bars are for both pleasure and business purposes. It is prevalent for Japanese salary men to hangout with coworkers after work. Instead of going home, they would go to restaurants, bars, or clubs to build business networks or to have a fun time after a day’s hard work. Karaoke was invented given this background and situation [2].

In Japan, a karaoke place is called “karaoke box” since it provides private rooms for groups of people to sing inside [3]. Usually, people would go with friends or colleagues as a group and rent a private room. A karaoke machine, accompanied by karaoke video with lyrics on the screen, plays each song. Sometimes, they take clients to a bar and sing with them to encourage them to sign a contract [4]. The cost varies depending on room size and how many hours the room is rented.

In America, the karaoke bar is as popular as the karaoke box. America’s first karaoke bar opened in Los Angeles in 1982 [5]. Rather than singing in a private room, people stand on stage and sing in front of the entire bar. In some karaoke bars, a DJ who takes song orders is in charge of the atmosphere. Apart from that, live band karaoke is also popular in America. In this type of karaoke bar, singers sing with a live band instead of the prerecorded background track. For people who do not sing, the karaoke bar is also a fun place for them to eat, drink and enjoy the music.

Karaoke gives everyone a chance to be a star. It is a way to release pressure and establish self-image publicly [6]. Through the selection of songs, karaoke performers position themselves psychically, socially, and culturally. Beyond that, it is also a social resource. When a karaoke performer is singing, he is positioning the audience as well as himself. It is mutual communication [7].

Visiting Karaoke



Midtown Tavern, Oct 05 2013

Karaoke bars are quite popular in Atlanta. On a weekend, I visited a bar in midtown with two friends. Like other bars, Midtown Tavern was full of people on that night. The DJ was busy getting people's orders and calling them to get ready for stage. Though not everybody gave a performance, they were all enjoying the mood and music. When a girl sang Adele's "Rolling in the Deep,"

the whole bar sang along with her. Some girls were even dancing to her singing.

During that night, I talked to few a people who performed at the bar. It was interesting to find out that, no matter whether the person was shy or outgoing, they all wanted to attract people's attention to their performance. They hoped to have the audience pay attention to or even sing with them.

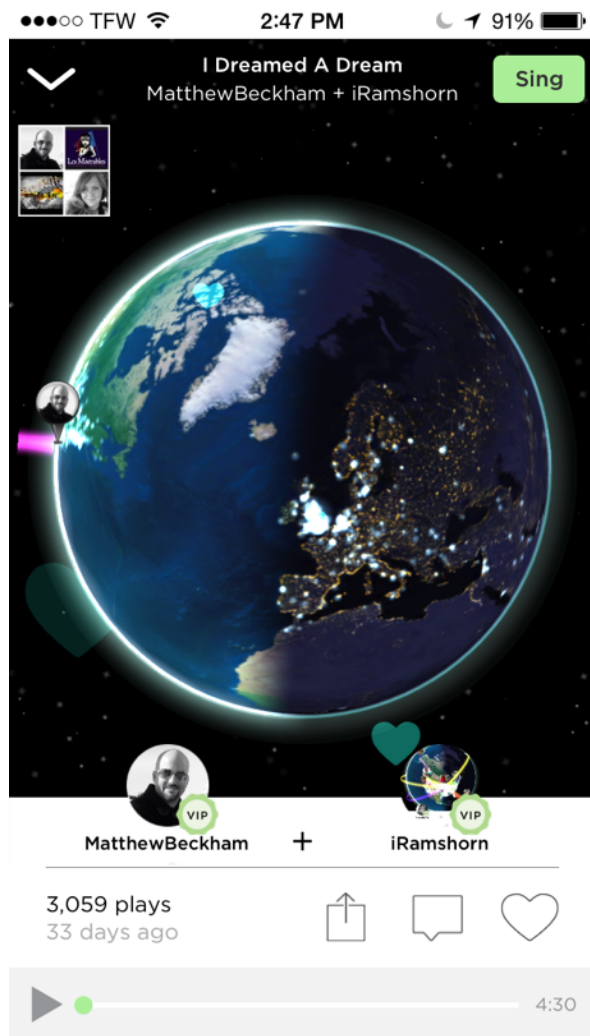


Cash Box KTV, Oct 12 2013

In order to know and experience karaoke myself, I visited this karaoke box with my friends on a weekend. We went to the place at night and spent 4 hours there. We rented a small room, then ordered snacks and beers. We all performed that night. Although people fear being embarrassed by a bad karaoke performance, karaoke box makes people feel relaxed and enjoy themselves since they may sing with people they know in private rooms. When listening to the performance,

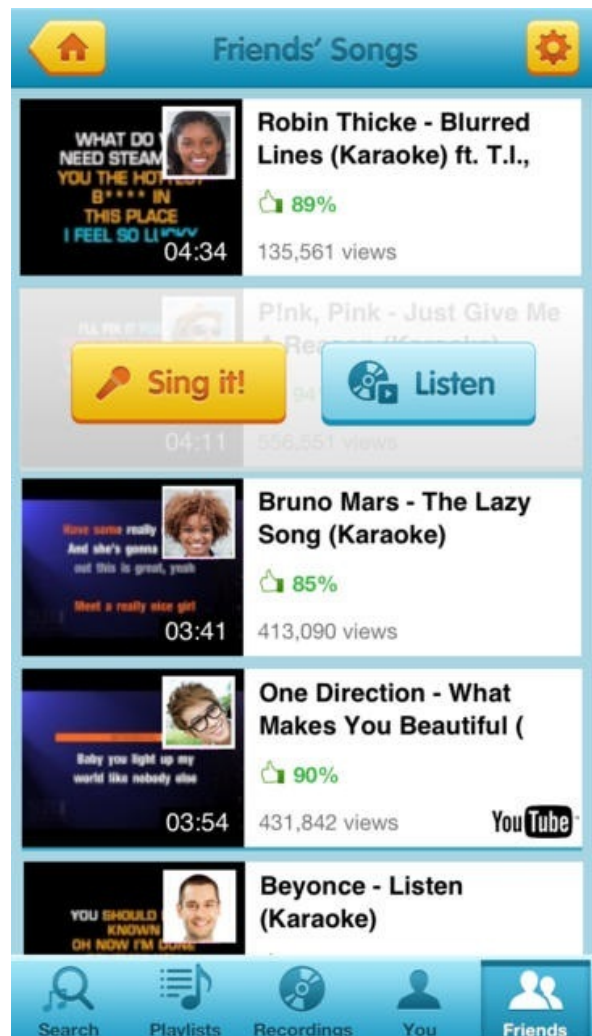
the audience used the tambourine and maraca provided by karaoke box to interactive with the performers. Among the people I went with, most of them prefer the karaoke box. Singing in the karaoke box can be very different from karaoke bars. In karaoke bars, people get on stage, stand under the lights and perform in front of strangers. However, in the karaoke box, there is no stage and people can sing in dim light and escape from the stressful stare of the audience.

Related Work



Sing! Karaoke by Smule

Sing! is one of the most popular karaoke mobile applications. It provides a huge catalog of songs, with the hottest hits and an array of genres. Sing! is oriented to build social networks and find people around the world who have the same music taste as you.



Yokee – Free Karaoke!

Yokee is an iPhone app that lets its users to sing karaoke with YouTube for free. It turns the mobile phone into a karaoke machine by importing thousands of karaoke videos available on YouTube. Users may sing, record, and add sound effects to the singing.



Red Karaoke – Sing & Record

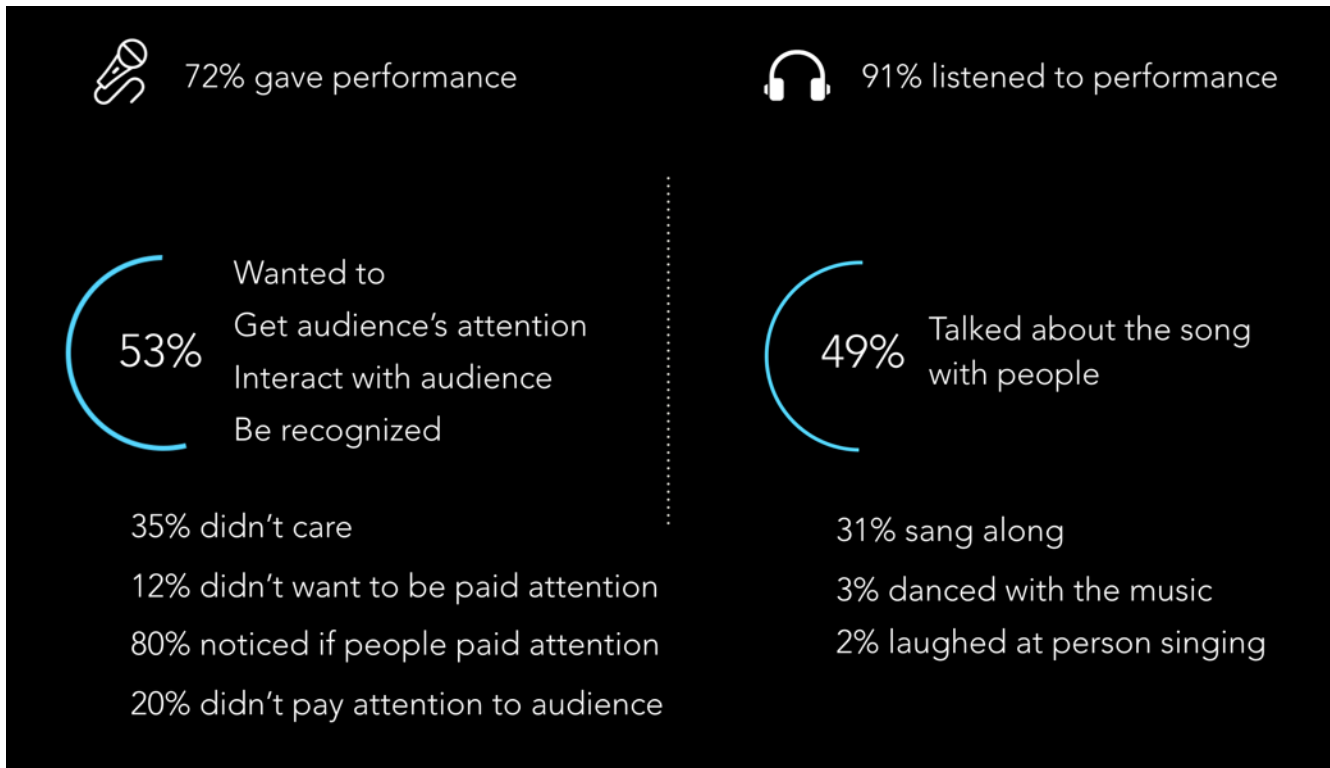
Red karaoke users enjoy thousands of instrumental tracks with synchronized lyrics, in multiple languages and music genres. They can also sing and record their performance both in audio and video by activating the camera on their phone.



Just Sing It

Just Sing It is a mobile application known for its gaming and reward system. After finishing recording, users may challenge their friends by sending the recording to them and let them guess what song it is. Users who are featured with diamonds can be rewarded by real rewards.

What Do People Think?



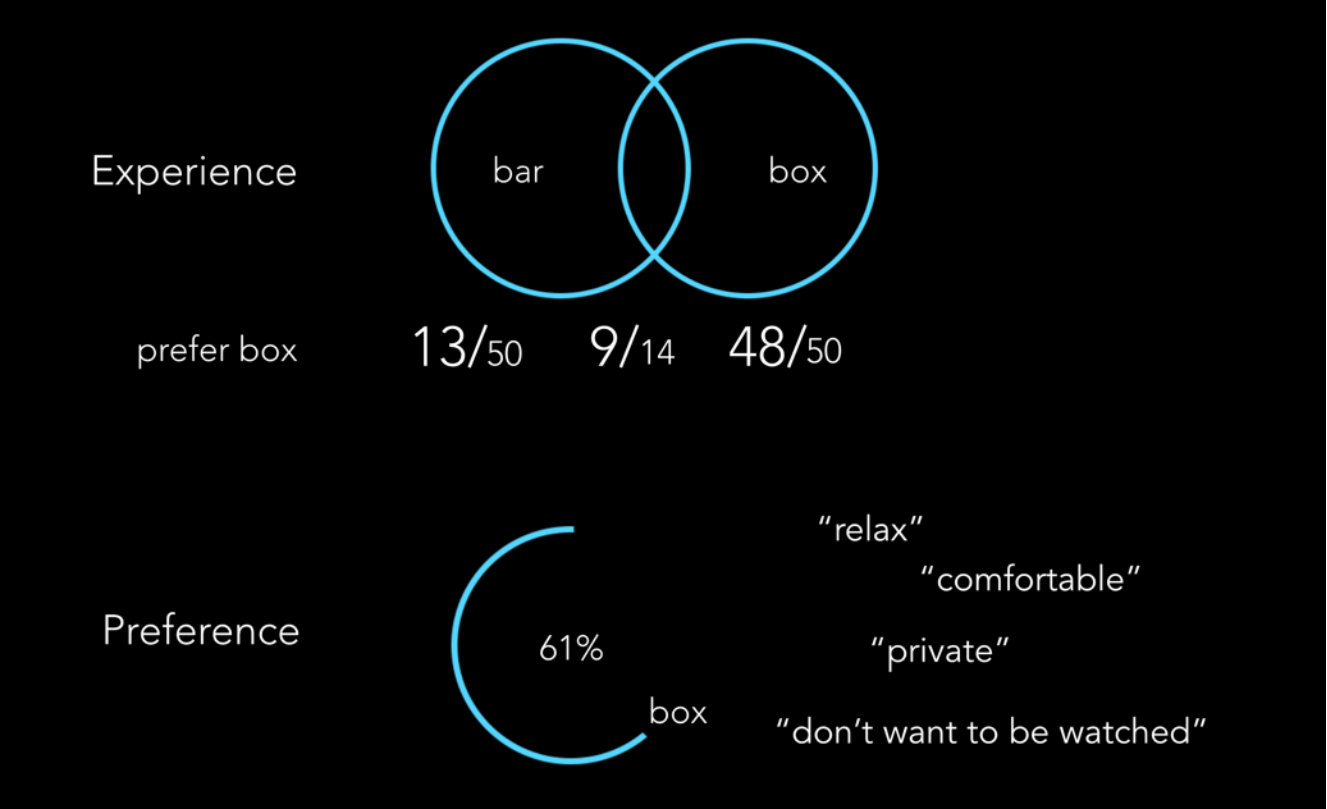
With the goal of building a real karaoke experience, an online survey was distributed to collect people's opinions and experiences about karaoke places. As a result, 139 responses were received in which the age ranged from 21 to 40, and 64% was male. To ensure the validity of the result, 25 responses were discarded since they had never been to any karaoke place. Among the remain 114 responses, 50 of them had only been to karaoke bar, 50 of them had only been to karaoke box and 14

of them had been to both. These number brought a balanced view on bar and box to this survey.

Among 72% of the responses who did a performance at karaoke place, 53% indicated they would like to be paid attention to, and 80% noticed consciously or unconsciously if audience was paying attention to them. This suggests most of the singers care about the audience's reaction to the performance.

When a singer was giving a performance, 91% were listening, talking about the song or singing along. It is worth noting that 49% were talking about the song with people. This result indicates that people are highly involved in the performance and they have a strong desire to share thoughts and comments about the song, promptly, when they are listening.

in a private space. For those who preferred karaoke bars, they stated that bars could be more socially oriented and it was fun to see others' singing. From these comments we can see that being social contributes to a big part of the karaoke experience but many people feel stressful and tense at the thought of being seen singing.



Though responses indicated a balanced experience with bar and box, 61% of them preferred the karaoke box because they feel comfortable to singing with friends

Ideation

To bring the user to life, personas was created for design considerations.

Persona 1

Name:	Jason Sisko
Age:	17
Gender:	Male
Relationships:	Parents separated, lives primarily with mother and one younger sister
Education:	High school student
Location:	Seattle, WA, USA
Status:	Primary user
Domain Knowledge:	Stereo Systems - Approximately 4 years
Technical Experience:	Computer Skills - Has used computers since very young, early adopter Plays video games, creates videos (has YouTube channel)
Attitudes/Values:	Enjoys customization, pushing limits of hardware/system potential
Learning Style:	Prefers to learn by hands-on exploration of system, but finds reading manuals helpful for more complex systems/tasks
Disabilities:	Vision - Near-sighted, but 20/20 with corrective lenses Mobility - No issues, hikes/swims Dexterity - Good hand-eye coordination, a relatively competitive gamer
Hobbies:	Plays FPS's, listens to old school Hip Hop, Electronica
Goals:	Short-term - Looking for part-time work to upgrade hardware Long-term - Likes making films, programming
Tasks:	Sings Top Hits, becomes higher level user, knows many friends with similar music taste
Requirements:	Functions that quickly accomplish goals, easy ability to access song catalog and build music social network.



Persona 2

Name: Kristin Skinner
Age: 41
Gender: Female
Relationships: Married, 2 Children
Education: BS in Journalism, Master's in Education
Currently: Working in Publishing and Education
Magazine Editor (16yrs)/Educator (12yrs)
Location: Current primary residence – Bristol, England



Status: Secondary User
Domain Knowledge: Journalistic writing - 15+ years
Technical Experience: Computer Skills - 15 years in corporate and educational settings
Attitudes/Values: While not a technophobe, prefers to keep gadgets efficiently unobtrusive in daily life; prefers a simple, seamless experience.
Learning Style: Visual/Audio learner, will not tolerate in-depth manual reading.
Disabilities: Vision - Near-sighted, did vision correction surgery 3 years ago
Mobility - No issues, does yoga/pilates
Dexterity – Good condition, can type in speed of 72 WPM
Hobbies: Plays cello, bikes, listens to Country, Classics
Goals: Would like to take a cruise, or sail in the South Pacific in next 10 years
Tasks: Musically exploratory, listens to people's singing
Requirements: Would like to be able to maintain effortless playlist. Functions that accomplish goals in a simple manner, without too steep a learning curve.

Design Considerations

LiveKara is a mobile application designed to provide a live karaoke experience and be accessible to karaoke fans who like bars, boxes, or singing alone. The name “LiveKara” is a combination of “live” which is meant to put emphasis on the live experience and “kara” which is a shortened form of karaoke. It gets both singers and audience involved in the performance simultaneously and people may send live comments that can be viewed by all who are watching the show, including the singers.

Gamifications

To enhance entertainment of the karaoke experience and encourage social engagement, gamification design is applied to LiveKara. Each user who joins the community is titled as “newbie.” The expertise levels are: newbie, novice, skilled, expert, community star. Users may achieve higher levels by collecting “♥” (hearts) from singing and listening. As a singer, users may go 'solo' or 'duel,' which is competing with another singer. Double hearts

will be rewarded for doing 'duel' mode. During a performance, audience may vote hearts to singers. A singer will lose hearts as punishment if he or she quits before all of the audience leaves. As the audience, users may be rewarded hearts randomly based on how much the users remain interactive with the performance, for example, sending comments. The reward is designed as a random event because the audience does not want to be forced to stay or comment for collecting hearts. Instead of fighting over rewards, we hope both singers and audience can feel relaxed and enjoy the performance.

Duel as Part of Social Experience

LiveKara encourages singers to give competitive performances. Once a singer selects a song, LiveKara will search for users online that may be matched with the singer. If no match is available, another song that can be matched will be recommended based on similarity or his or her personal song list. To encourage a greater audience for the performance,

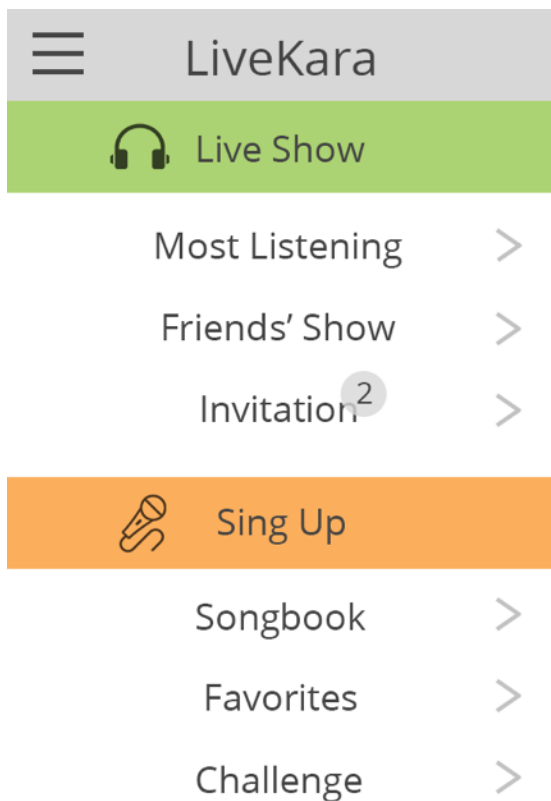
singers have a 1-minute preparation period to invite people to join. The audience can also invite people to join. Otherwise, people may join through the live show list, which is a list of songs that are on the air or songs in the 1-minute preparation period. In a duel, two singers would sing the song one after the other, instead of singing together, because the music may lag for one of them.

Live Show

When a duel performance starts, a 5-second countdown and the first singer's name will be on the screen. A background track will be auto-played accompanied by lyrics flowing vertically on screen. Considering the length of a song, a shortened version is applied to each duel since twice the full length can be too long. As the performance continues, live comments can be shared in the form of running text on screen. Comments runs horizontally without crossing lyrics, while the color, size, and speed of comments can be changed in settings. As an option, user may mute all comments if the comments distract him or her. Though singers may not send comments as much as the audience, it is necessary to allow singers to send them during the break in a

song. Considering that people would want to know which comments are from singers, the singers' comments can be still on screen for 5 seconds to be distinguished from the audience's comments.

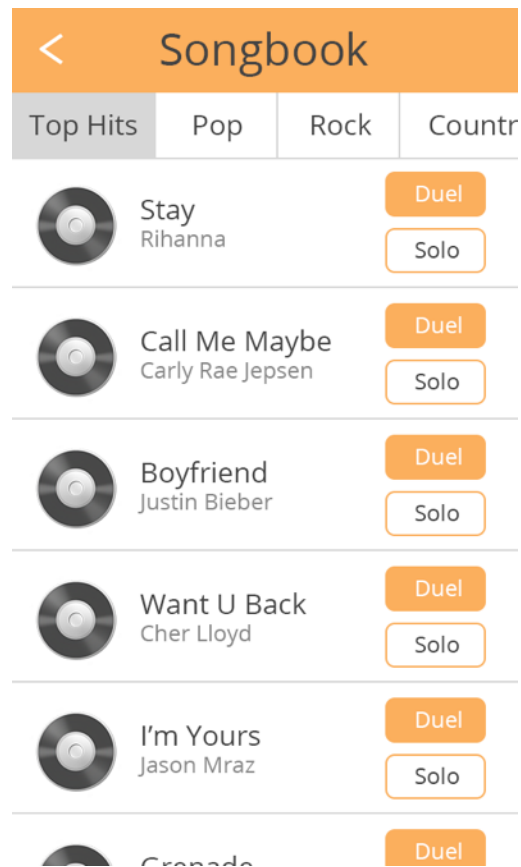
Design



Singers' Flow

The homepage consists of two sections – live show and sing up. For example, to set up a duel, the user should choose a song from Songbook and tap on the Duel button to sing this song.

LiveKara would match singers seeking to sing the same song. Once matched, 1-minute countdown would auto-start. Singers may use this one minute to invite audience.



In a duel, the singer on the left would sing first. During the show, singers can see who the audience is voting for by looking at the number by the heart icon. Also, they can see the audience's comments in real time. Tapping on the comment toggle button can mute or unmute live comments. A headphone icon on the top right corner of the page with a number indicates how many people are listening.

<

Fireworks
Katy Perry

🎧 0

t

1981

t1981

♥ 0

VS.

👤

Tony

♥ 0

🗨️

🕒 in 0:59 sec

Invite Audience

Live comments...

Send

<

Invite

👤

Patrick

Invite

👤

Andrew

Invite

👤

Kayla

Invite

👤

AnJie126

Invite

👤

Bruno

Invite

👤

FuseX

Invite

👤

Aria

Invite

Done

<

Fireworks
Katy Perry

🎧 38

t

1981

t1981

♥ 24

VS.

👤

Tony

♥ 0

🗨️

I love your voice!

Perfect :-)

'Cause baby,

you're a firework

Come on show 'em

what you're worth

Make 'em go, "Oh, oh, oh"

As you shoot across the sky, I, I

Please come to my show

aaaa....OK

Anybody watched the MTV?

Live comments...

Send

<

Fireworks
Katy Perry

🎧 38

t1981 WINS!

You earned 21 ♥ in this duel!

t

1981

t1981

♥ 21

VS.

👤

Tony

♥ 17

🗨️

Please come to my show

Perfect :-)

I love your voice!

aaaa....OK

Anybody watched the MTV?

Helloooooooo

Live comments...

Send

Audience's Flow

To listen to singing, tap on Most Listening on homepage to go to live show list. Performance on this list is in order of start time.

The audience may join in during the performance. Audience members may vote for one or both of the singers and can always change their vote before the end of the show. Similar to the singer's page, audience members can tap on the comment toggle button to mute or unmute live comments.

<

Skyfall
Adele

38

VS.

LS_Sarah

FuseX

24

0

I love your voice!

Perfect :-)

Let the sky fall

When it Crumbles

We will stand tall

Face it all together

At skyfall

That skyfall

Please come to my show

aaaa....OK

Anybody watched the movie?

Live comments...

Send

<

Most listening

VS.

LS_Sarah

FuseX

Skyfall by Adele

now 38

VS.

Tony

t1981

Wonderwall by Oasis

in 30 sec 22

<

Skyfall
Adele

38

VS.

LS_Sarah

FuseX

24

14

Please come to my show

Perfect :-)

I love your voice!

aaaa....OK

Anybody watched the movie?


Helloooooo


Live comments...

Send



User's Profile

Each user has a profile page. The user may view his current title and how many hearts he should collect to get to a higher level. Also, he can see his performance history in his profile.


 **LS_Sarah**





Novice
Bristol, England


LS_Sarah has collected **102**  !
+ **98**  to become Skilled.

History

24  from **Fireworks**
Today

39  from **Dark Horse**
Today

18  from **Skyfall**
1 day ago

24  from **Say Something**
3 days ago

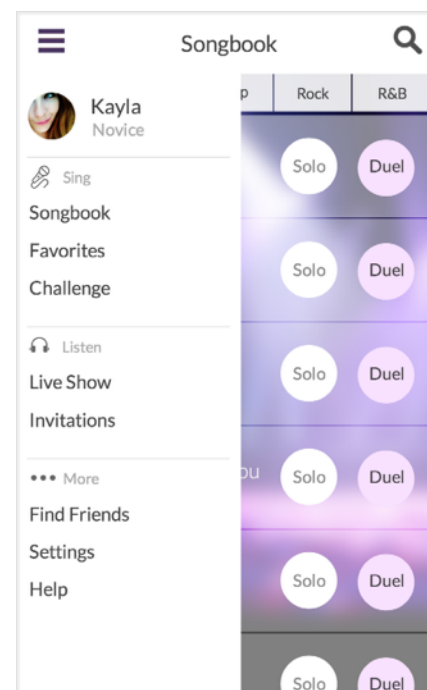
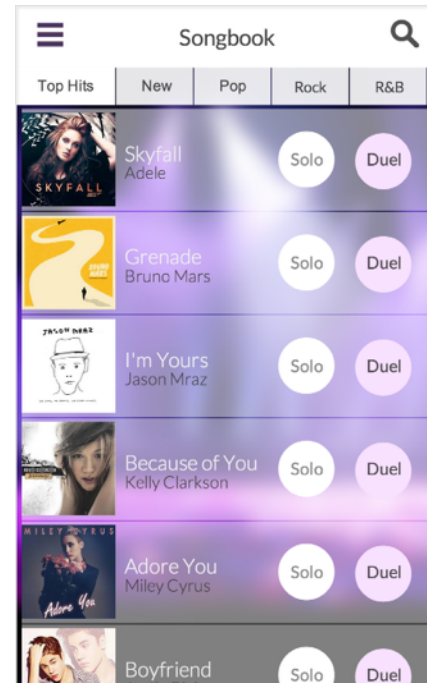
Prototype

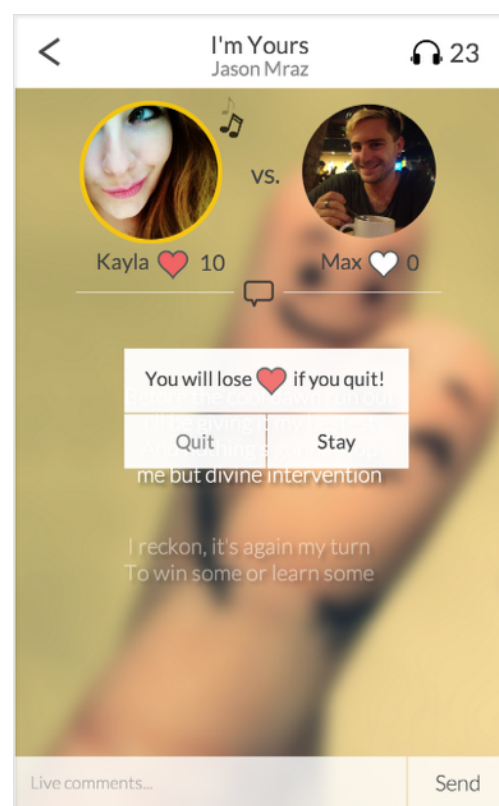
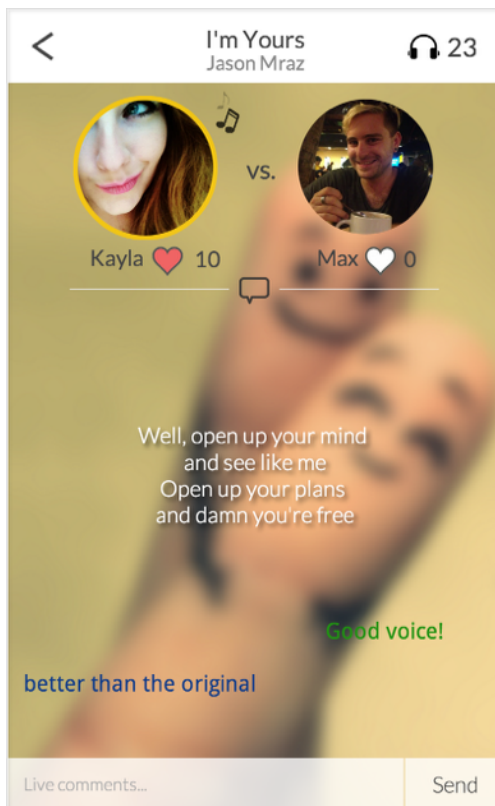
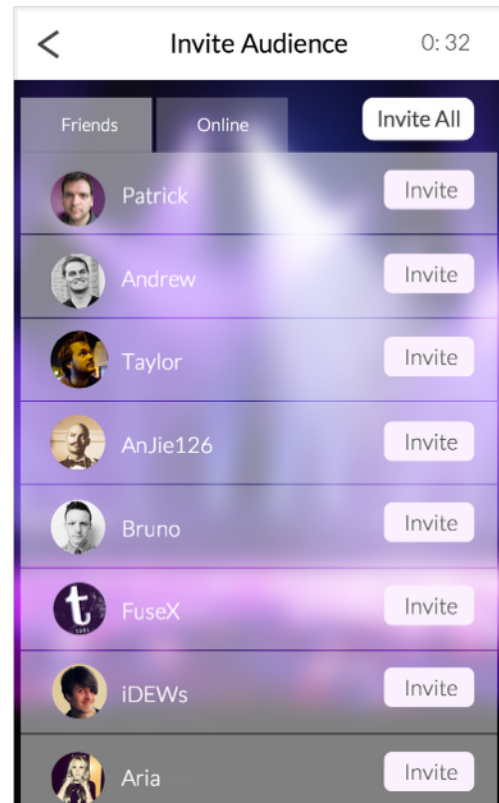
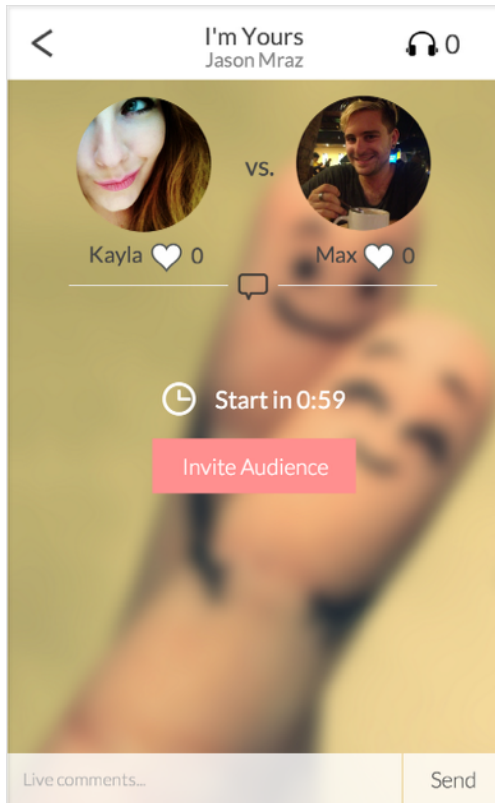
Edge Animate + JavaScript

Adobe Edge Animate was selected as the prototyping tool for this project since Edge Animate may create interactive content and generate HTML and JavaScript files for testing on a web browser. It is very powerful at creating animated content, which is great for prototyping lyrics and live comments. Beyond that, it allows me to add audio files, make animations responsive for different screen sizes, and edit JavaScript code to extend the project. For example, the dynamic countdown and sending live comments through input area on the screen were hand coded in JavaScript files generated by Edge Animate. There is neither back-end programming nor database involved in the prototype.

From Design to Prototype

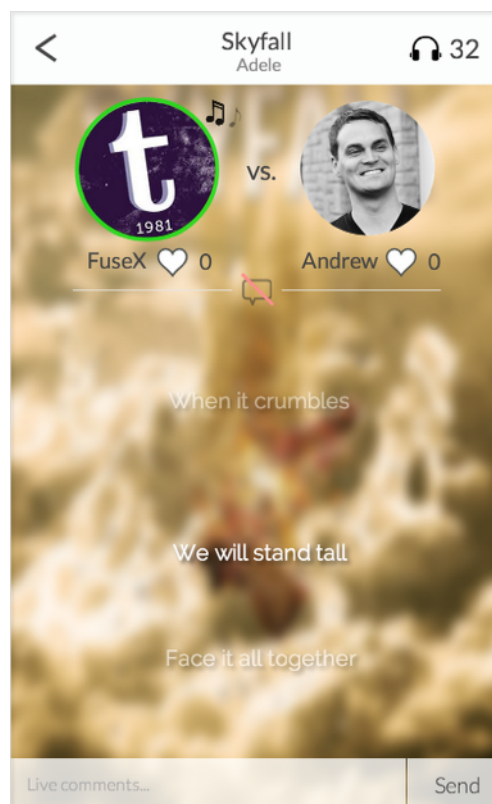
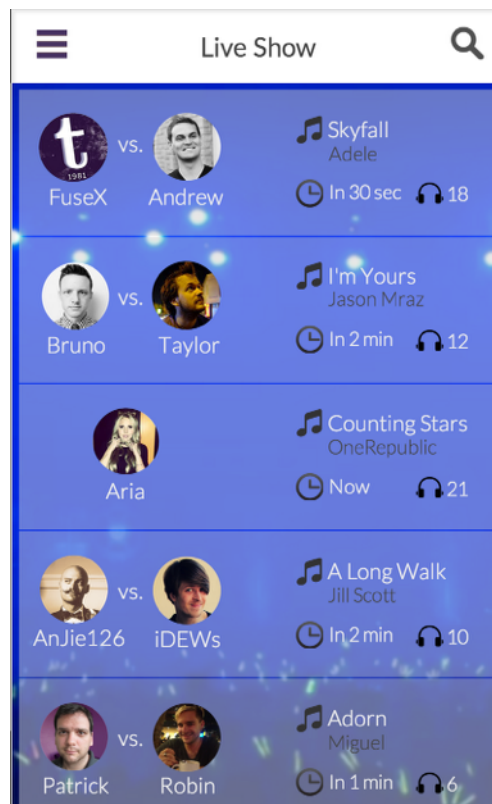
A big change from design to prototype is the homepage. In this prototype, the original homepage has become a menu behind the burger button on the top left corner of the screen. Instead, Songbook is the first page that the user would see when



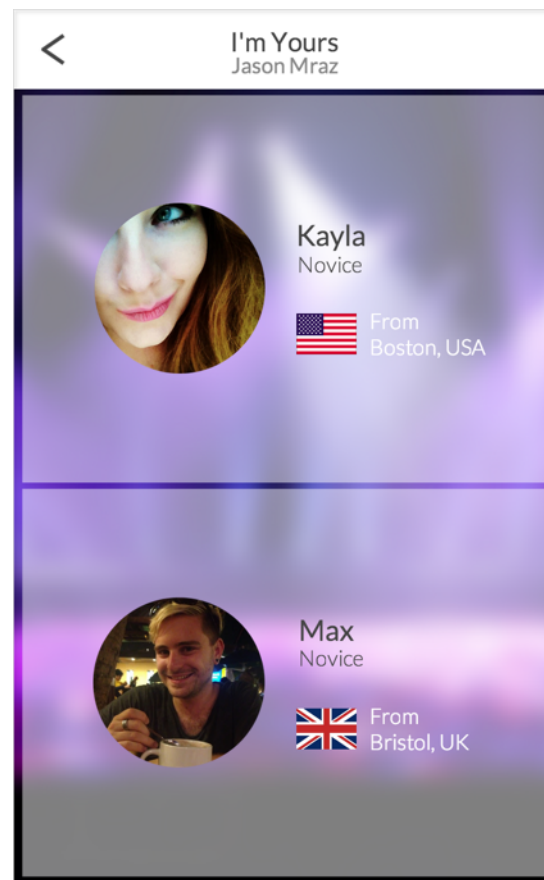


the application is opened. This change was made according to considerations based on input from the targeted users--karaoke fans. Songbook should be the first page and would be frequently used since karaoke fans use this application often to sing karaoke. It would be convenient for users to have easy access to Songbook to select songs and perform karaoke. Beyond that, have Songbook as the first page may potentially encourage people to sing rather than listening.

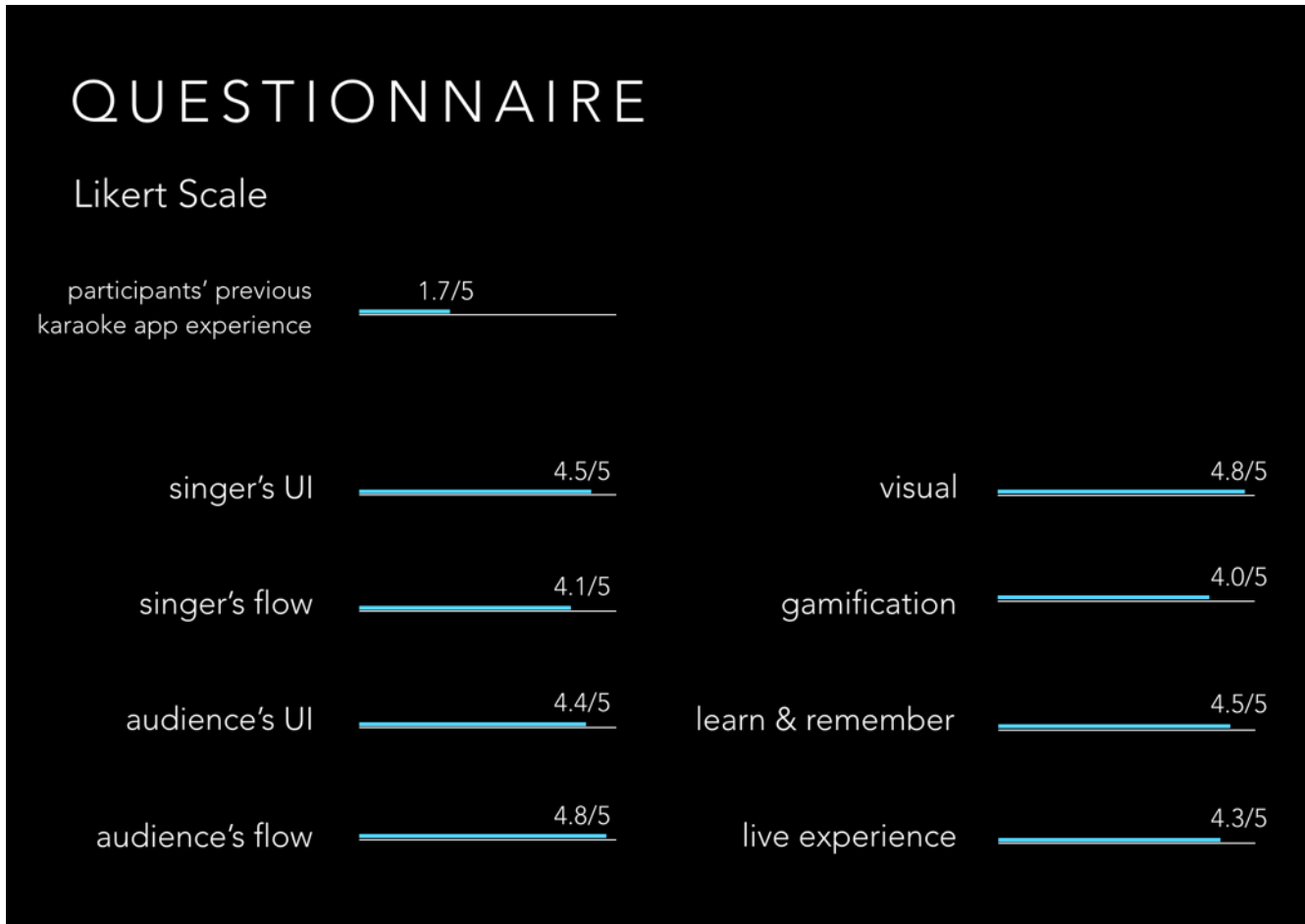
Based on the quick UI design in wireframes, the graphic design is solid in this prototype. Text size and button size are prototyped to support testing on mobile phones. Graphic have been improved to provide better look and feel. For example, on the performance page, the background image was selected to be relevant to the song that is being performed.



Beyond that, a new page was added to Duel to animate the process of seeking an opponent singer. Each user is presented as a card with a profile picture, name, title, and location. The user who is requesting to Duel is on the top of the screen. On the bottom, cards of singers who are seeking to sing the same song will fly through one by one until the system finds a match.



Evaluation



How was Evaluation Conducted?

A study was conducted in order to evaluate both the usability of the application and the users' experience when interacting with the application. Ten people were recruited in the study in which the age ranged from 21-30 and 7 of them were male. All participants signed a consent form before they started.

At the beginning of the study, I briefly introduced the background and motivation of this application as well as the purpose and procedure of this study. Then participants were asked to complete a few tasks with the prototype on a mobile phone. In the first session, participants were asked to be singers and give a Duel performance. They selected a song,

invited an audience, and pretended to sing with background track. In the second session, participants were asked to be audience participants and listen to a performance. They were asked to vote, post a comment, and mute live comments.

During the test, I asked participants a few simple questions about flow and the interface and asked them to do a think aloud walkthrough to find out how well they interpret the design. At the end of the study, participants answered a short questionnaire about the experience in using the application. The questionnaire and study script are attached as Appendix C and D.

Study Results

Tasks

Overall, participants performed very well in the study and showed good quality of interpretations. Eight participants completed all tasks effortlessly while two participants had difficulty as audience members looking to find the route to listen to a performance. Three participants could not understand the meaning of the headphone icon located in the top right corner, which was to indicate listeners.

The page that was questioned the most is system matching.

Participants could understand the last card was the opponent singer who would sing the song in the Duel. But they did not understand the purpose of previous cards. Some of them thought those cards shown were all available singers and they could choose one from them.

However, the animation was to show that the system was matching singers and those previous cards were all unmatched singers. Given this result, the animation should be redesigned as part of future work. Redesign should distinguish unmatched and matched singers to leverage the user's interpretation of the process of system matching.

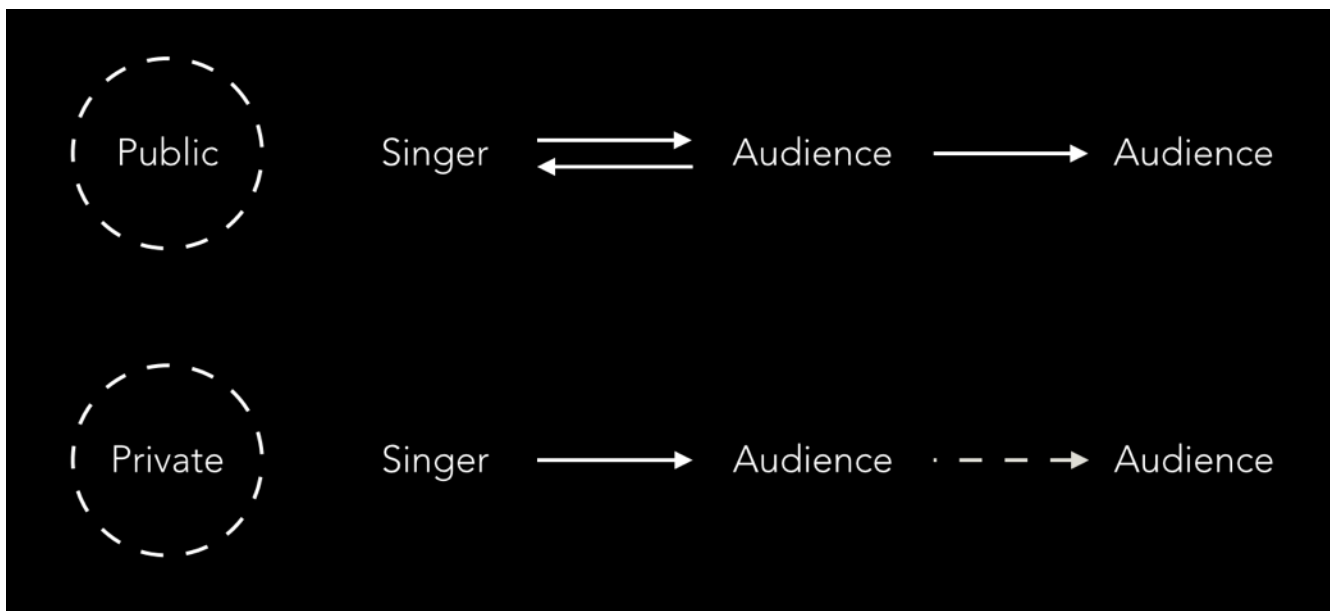
Questionnaire

In the post-evaluation questionnaire, I asked questions about participants' experience with LiveKara. Nine questions used a Likert scale and one was an open-ended question. As a whole, the overall experience was very positive. Participants indicated they could understand the flow and the interfaces well; they especially liked the visual design. Also, participants indicated that the idea of live karaoke performance and live comments is interesting and they would like to see this application being built and released in the future.

Discussion

During the study, I identified three issues that I did not think through deeply enough in the design stage. The three issues are privacy, invitation, and expiration notification.

to invite while audience members may join freely through the list of live shows. However, privacy is necessary since users may want to keep a performance privately for only the audience allowed to join. In



Privacy

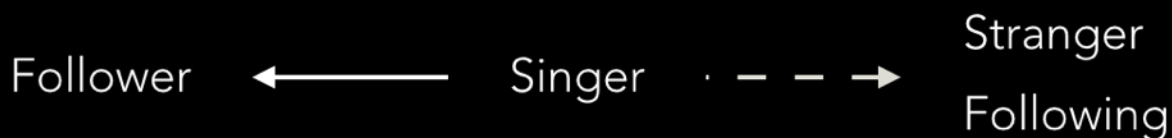
When participants were asked to Duel, they were questioned about if they'd prefer the option to do so privately or publicly. This issue was not addressed in my current design. In the current design, all performance is public to everyone in the community. Singers may send invitations to specific audience members which he or she would like

the future design, users can set privacy for performances. Performers can directly send invitation to people and choose whether the audience invited by the singer can invite more. Private performance would not appear in the list of live shows to keep it closed to public.

Invitation

A user's connection in the community can be separated into three categories: followings, followers and strangers. When sending an invitation to people, users may invite all the followers and limited followings and strangers. Invitation to followings is limited because a hot singer may have a lot of followers. It would be annoying if the singer keeps getting invitations

Regardless of relationship, a user may only send invitations to online users. Technically, people may receive push notifications to be informed of a performance if he or she is not in the application. However, a performance would last for only few minutes. It would be more likely that an offline user would see the notification but find the performance was over.



from all the followers. Invitations to strangers is limited because strangers could also be too numerous. Unlimited invitations among strangers would be a heavy request for servers and slow down the service. However, it is necessary for a new user to be allowed to send invitations to followings and strangers since a new user may have no followers yet.

Expired Notification

For online users, a badge would appear on the top of the screen and in menu if the user received an invitation. This badge should only show the number of invitations from active performances. If the performance is over, the invitation becomes expired and disappears from screen. However, all expired invitations are kept in the invitation history.

Reference

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Appendix

A Survey - Karaoke Experience

Thank you for your time to fill out this survey. We are designing a karaoke app for karaoke fans. Please answer the following questions as completely as possible.

*Gender

Female

Male

*Age

21 to 30

31 to 40

Above 40

Other:

*1. How much do you like singing in front of people? Please choose one to best describe yourself.

I sing as professional performance in public

I sing with friends for fun

I sing when I am alone

I don't sing

Other:

*2. Have you ever been to karaoke place?

Yes, more than 5 times

Yes, less than 5 times

Never (submit form)

*3. Which type of karaoke place did you visit?

(In karaoke bar, you get on stage and perform to strangers. In karaoke box, you rent a private room and sing with your friends.)

Karaoke bar

Karaoke box

Both

Other:

4. At what time did you go (AM or PM)? Who did you go with? How long did you stay there?

*5. Did you sing at the karaoke place?

Yes

No (you will jump to Q9)

*6. How did you choose songs to sing? Check all that apply.

I chose songs from my favorite genre

I chose songs based on mood

I chose popular songs

I chose funny songs

I chose songs based on difficulty level

Other:

*7. How was the audience reaction?

Most of them were listening to me. Some were singing with me

Most of them were not listening to me. Some were eating/chatting/using mobile phones

I didn't notice what they were doing

Other:

*8. How much did you want people to pay attention to your singing?

I would like people to listen to me and look at me

I would like people to listen to me but do NOT look at me

I did not want people to pay attention to my singing

I did not care

Other:

*9. What did you do when others singing?

Most of the time I was listening to the singing

Most of the time I was listening and talking about the song with people

Most of the time I was doing things irrelevant to the singing

Other:

*10. Compare karaoke bar and karaoke box, which type of these you prefer?

Karaoke bar

Karaoke box

11. Please give brief explanation for the answer to Q10

12. Any other experience about karaoke place you would like to share with us?

B Consent Form

CONSENT DOCUMENT FOR ENROLLING ADULT PARTICIPANTS IN A RESEARCH STUDY

Georgia Institute of Technology

Project Title: LiveKara - Application for Karaoke Lovers
Investigators: Chunhui Wu, Dr. Jay Bolter

Jan 16 2014

Research Consent Form:

You are being asked to volunteer in a research study.

Purpose:

The purpose of this study is to determine whether an application designed for karaoke lovers, LiveKara, can be easy to use and provide a delightful experience. You will perform a set of usability tasks during this study. We aspire to build better interfaces to improve the karaoke experience, using the results of this study to inform future karaoke application design. The study takes no more than one hour and we expect to enroll 10 to 20 participants in this study.

Procedures:

If you decide to participate in this study, your part will involve one session that lasts no more than one hour. In this session, you will be asked to use a prototype of LiveKara that runs on a mobile phone. At the beginning, we will give you a 1-minute training session during which we will explain the use of LiveKara. Then you will be asked to listen to a karaoke performance and post comments while the performance is ongoing. We will ask you to think aloud as you interact with the application and explain to us your understanding of the application.

After interacting with LiveKara as a member of the audience, you will be a performer and sing a song that you select through LiveKara. Except when you are actually singing, we will ask you to think aloud as you interact with the application and explain to us your understanding of the application.

After each sequence is completed, you will answer a short questionnaire about your experience in using Livekara. Your name will not be identified at any point during the session. You may choose to stop at any time for any reason.

Risks or Discomforts:

The risks involved in this study are no greater than those involved in daily activities such as using a computer mouse and keyboard.

Benefits:

We do not expect direct benefits to you. We do expect to contribute knowledge to karaoke interface design and improve the overall karaoke experience for karaoke lovers.

Compensation to You:

There is no compensation for participation.

Confidentiality:

The following procedures will be followed to keep your personal information confidential in this study: The data collected about you will be kept private to the extent allowed by law. To protect your privacy, your records will be kept under a code number rather than by name. Your records will be kept in locked files and only study staff will be allowed to look at them. Your name and any other fact that might point to you will not appear when results of this study are presented or published. Your privacy will be protected to the extent allowed by law. To make sure that this research is being carried out in the proper way, the Georgia Institute of Technology IRB may review study records.

If video is recorded, tapes will remain confidential, and will not be seen by anyone other than the investigators. We will store the video on a password-protected computer. We will erase the tapes themselves after we transfer the data to the secure computer, and will delete the digital files within one month of your participation in this study. Any data gained from these tapes will not be tied to your personal identity, and will only make reference to your code number. Our final report will not contain any video or audio recorded during this experiment. We may describe observations that we make based off of the recordings, but this will be done without including any information that could be used to identify you.

The Office of Human Research Protections may also look over study records during required reviews.

Costs to You:

There are no costs to you, other than your time, for being in this study.

In Case of Injury/Harm:

If you are injured as a result of being in this study, please contact Dr. Jay Bolter at telephone (404) 385-2206. Neither the Principal Investigator nor Georgia Institute of Technology has made provision for payment of costs associated with any injury resulting from participation in this study.

Participant Rights:

- ¥ Your participation in this study is voluntary. You do not have to be in this study if you don't want to be.
- ¥ You have the right to change your mind and leave the study at any time without giving any reason and without penalty.
- ¥ Any new information that may make you change your mind about being in this study will be given to you.
- ¥ You will be given a copy of this consent form to keep.
- ¥ You do not waive any of your legal rights by signing this consent form.

Questions about the Study:

If you have any questions about the study, you may contact Dr. Jay Bolter, at telephone (404) 385-2206.

Questions about Your Rights as a Research Participant:

If you have any questions about the study, you may contact Dr. Jay Bolter at telephone (404)-385-2206. If you have any questions about your rights as a research subject, you may contact Ms. Kelly Winn, Georgia Institute of Technology, at (404) 385-2175.

If you sign below, it means that you have read (or have had read to you) the information given in this consent form, and you would like to be a volunteer in this study.

Participant Name (printed)

Participant Signature

Date

Signature of Person Obtaining Consent

Date

C Post Questionnaire

Thank you for taking the time to fill out this questionnaire. The purpose of this questionnaire is to evaluate the karaoke application. Please answer the following questions as completely as possible. Your response will only be used for research purpose.

Participant #

Gender:

Age:

*1. Generally, how much experience do you have with karaoke mobile application?

1 (Not at all) 2 3 4 5 (Very Experienced)

Please select the number that best matches how well you understood the application.

*2. I understood the songbook in this karaoke application.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*3. The flow of choosing song, matching opponent and giving performance is clear and smooth.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*4. I understood the live show list in this karaoke application.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*5. The flow of choosing song and listening to performance is clear and smooth.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*6. I like the visual design in this application.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*7. I like the gamification design in this application.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*8. It is easy to learn and remember how to use this application.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

*9. Live performance and live comments enhanced my karaoke experience.

1 (Completely Disagree) 2 3 4 5 (Completely Agree)

10. Please share with us what you like or dislike about this application.

D User Study Script

Thank you for being volunteer for my user study! Before we start, please read the consent form and sign your name if you agree to participate in this study.

This study will take you about 30 min. Now, let's start.

My MS project is a karaoke mobile application designed for karaoke funs. While existing karaoke applications provide good karaoke experience, none of them allow singers and audience to be involved simultaneously in a performance. Usually, singers record songs through the application and upload them to the community. Audience would listen to the singing and post comments later.

My application, LiveKara, gets both singers and audience involved in performance simultaneously and people may send live comments to share emotions and thoughts in real time. Live comments can be viewed by all who are watching the show, including both singers and audience.

Beyond that, to enhance entertainment and encourage social engagement, gamification design is applied to this application. As a singer, users may do solo or duel which is competing with another singer in a show.

Now, let's get your hands on the application. During this test, I will tell you the task to complete and ask you few simple questions. Please do think aloud when you manipulate the application. Feel free to speak up or ask me questions if you have.

Part I

(Open the application.)

Here is the first page when you open the application.

Action: You are a good singer and now you want to sing I'm Yours. For more fun, you want to do duel for this song.

(Tap on Duel button.)

Q: You are the user Kayla. Who is the other singer in this duel?

Q: When will the performance start?

Action: You want to invite people to your performance.

(Invite few people in.)

You (Kayla) are singing.

Q: How many people have voted for you?

Q: How many people are listening?

Action: Leave this performance. Yes, you want to quit.

(Tap on back button and confirm to quit.)

Part II

Q: Now you want to listen to others' singing. What would you do?

(Go to menu and tap on Live Show.)

Q: Please tell me how you interpret the contents on this page. (Pics, texts, icons)

Action: You want to listen to Skyfall.

(Tap on Skyfall.)

The show is on.

Action: You think this singer is doing great and you want to vote for her.

Action: You want to send a comment to everyone.

Action: You see comments but you want to mute them.

That's it! Thank you very much! Please fill out a short questionnaire.