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Master's Thesis
Academic Year 2020

A Motion Control Live Blade Design to Enhance
the Japanese Concert Experience under
COVID-19 Pandemic



Keio University
Graduate School of Media Design

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A Master's Thesis
submitted to Keio University Graduate School of Media Design
in partial fulfillment of the requirements for the degree of
Master of Media Design

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Abstract of Master's Thesis of Academic Year 2020

A Motion Control Live Blade Design to Enhance the Japanese Concert Experience under COVID-19 Pandemic

Category: Design

Summary

The COVID-19 pandemic has an excessive impact on human's life in Japan, including the pop-culture marketing and the humans' behaviors of otaku activities. In order to avoid the Three Cs (Closed spaces, Crowded places, Close-contact settings), so that citizens are recommended to keep the social distance and wear masks in their daily. Moreover, many businesses also have to take appropriate measures, including the entertainment industry, which means people can not cheer during the concerts like before, also for some people who are living outside the Japan, they can not travel any more. This research is to help audiences to feel more fun while they watching the concert under the pandemic by the motion-controlled live blade.

Keywords:

creative society, interactive design, otaku culture

Keio University Graduate School of Media Design

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Chapter 1

Introduction

1.1. Japanese idol culture

Idol is a unique culture in Japan. The typical example is the AKB48 group. The massive success of this group influenced the Japanese culture and music market. Unlike the idols before, the AKB48 group has a unique commercial way, the “AKB commercial law”. AKB48 group have a theatre located in Akihabara (the area around Akihabara station in Tokyo, famous for Japanese pop-culture); fans are no longer only watch the concerts, but also can interact with their oshi(Oshi comes from the Japanese word “oshi” which means a person who I follow and support). This brings special senses to customers, they feel have more interaction with the supported member/character. Moreover, Japanese entertainment companies not only focus on releasing CDs, but also develop different industries, such as dramas, movies, shows, animation, and games, that customers can experience variety of things [1].

1.2. Marketing strategies and the influence of relationships

1.2.1 Artist-fan relationship in Japan

The marketing strategies of Japanese company such as AKB group bring massive profits and can keep the relationship between fans and artists. One example is the blind pack. Blind pack is a type of packaging that keeps its contents hidden. The majority of toy companies prefer to sell toys and merchandise in blind packs in recent years. It provides fun to general people when they try to open.

In Japan, the blind packs are not only used to sell regular products. Many entertainment company are prefer to put random photo of different members and a lottery ticket which can be used to apply the events inside CDs or other goods.

Furthermore, people usually have to buy more than one CDs to have multiple lottery tickets, that they can apply the concerts or handshaking events. Normally in Japan, even people have the right to purchase ticket, they can not choose the seat where they want to sit. Same as handshaking events, for example Nogizaka46 have the national handshake event and individual. Fans cannot know which member they are going to meet with in national events.

The commercial law and other “blind pack” have changed customers’ behaviours. From the perspective of people who like to collect the merchandise or photos, these are worse. These actually push people to keep buying until they collect all the types or get their supporting member [2].

1.2.2 Fan-fan relationship in Japan

Japanese companies always have a different way to sale the goods, such as the exclusive concert products, online-only products and the products which can be easily bought in the stores and at online shops. Because some of the fans are enthusiasm for their supposed members, they will wake up in the early morning and line up before the concerts and events start. However, due to the restrictions on the sale and the blind pack, people are hardly getting the character which they want, so that majority of people will choose other ways which is exchange with others. In order to offer convenience for attenders, some events and concerts hosts will divide an area for participates to trade. It inadvertently deepening the relationship between fan and fan [3].

1.2.3 Call and response culture in Japan

The business strategies of entertainment companies make more and more fans interested in attending concerts. During the concerts, artists usually will let the audience sing some simple parts of the song with them or have some quiz games to interact with fans, thus can deepen the relationship between fan and artists. However, Japanese idol live has a unique culture which called fan chant for cheer-

ing. It means the voice that fans scream during the concerts, each song, especially the idol song, has the rule where to put these calls. Compare with just stay home and listen, and people are more eager to have an experience in offline. The call is a social commutation behaviour which can quickly connect the fan with artistes and other fans.

1.3. The changes after COVID-19

The COVID-19 pandemic has influenced all parts of the world, including Japan. In order to reduce the rate of infection, the Japanese government recommends that citizens avoid the Three Cs(Closed spaces, Crowded places, Close-contact settings). Every aspect of people's lives in Japan has been affected. For example, with majority flights be cancelled, most tourist attractions have been closed. Transparent boards are placed in almost all the public areas to prevent transmission by saliva. People are preferring wearing the mask and keeping the distance in daily life. These changes made a huge impact on the entertainment industries as well.

1.3.1 Offline to online

Events hosts have to take corresponding measures as well. Most offline activities are turned into online or be cancelled, which means participants can not interact with artists any more, and fans can not dine together or do other things. So that people start to rely on the third-party platform to continue the otaku actives to maintain the relationships¹.

Some live streaming platform like YoutubeLive and LineLive are mainly used to host the online concerts. Because CDs and lottery ticket is a big part of company income, so that even people cannot attend the concerts physically, the price will not be lower.

One example is Arashi, one of the Japan famous boy band founded by Johnny Associates, hold an online concert without audiences. The company divided the concerts as two-part, one is only for people who joined the fan club, the other

1 <https://news.yahoo.co.jp/articles/b2e6f12fd48188ea5ffb67dc24b3a05bbc7d4a56>

part is for the public. So, people who want to watch the whole performance, they have to pay a fee for the fan club, then they still need to buy the online concert ticket which cost 4,800 Japanese Yen for each part with tax. The total cost will be around 14,600 Japanese Yen for an online concert².

With more the more online activities, companies start to use the hashtag for each event, that fans can discuss with each other or read other people' comments. Also, some companies have the event on the live streaming platform which let artists watch the previous concerts video and discuss. At the same time, fans can send twitter with the hashtag, and artists will read randomly.

For the fans themselves, instead of dining after the concerts, many people now are preferring use Zoom, Skype or Line to have an online drinking party.

1.3.2 Changes of offline and online events

In Japan, LIVE STREAMING and PIA LIVE STREAM are the two most frequently used platforms. These platforms provide the opportunity to let fan still can join the concerts³.

Before the COVID-19, people who watch concerts in the cinema can hear the cheer sounds from the site. At the same time, they can do fan chants with the people at the scene. However, in order to let audiences who are in front of the screen to feel empathy with the artists, some online events will mix the fan chants with real-time performance. It actually let people feel the mood of the concerts. When people hear the cheer sounds, even they are watching at home, they still can experience the fun of the concerts.

Moreover, a lot of companies start to use the social networking service such as Facebook, Line and KakaoTalk to hold the fan meeting. Depending on the different influences of artists and the marketing methods are difference. Normally, people have to buy the CDs to enter the roll and people will have the chance to make network calls with the artists.

On the other hand, although theatre is the high-risk place to spread the coronaries, for some small entertainment companies, it is hard only to have online

2 <https://online.johnnys-net.jp/s/jno/page/ARAFES2020?ima=1407>

3 <https://1-tike.com/livestreaming/>

events to maintain fiscal, so they still have to continue holding offline events.



(Source: <https://namiaru.tv/news/?p=64416>)

Figure 1.1 The rule of event under COVID-19

Because hosts have to keep the distance between participants, so for each event the number of people have to be cut in half, which means event hosts can not achieve the expected income. So the solution is raising the price of the tickets.

On the other hand, although people pay the higher price to attend offline events, they can not cheer during the performance. The only response that artists get is clapping hands. From the aspects of artists, this situation also brings loneliness to them.

1.4. Research goal

Technology provides a substantial convenient life for people, and people can get information and do a lot of things on the internet. Unlike in the past, people were easily missing the vital message, and now they can stay at home and keep in touch with friends.

The goal of this study is to design the motion-controlled live blade, which can provide the joyful concerts experience. It will consider both online and offline user experiences and allow audiences to customize their own features so that it can make audiences feel more sympathy which is the main purpose of the research.

1.5. Thesis Structure

Chapter 1

Chapter 1 briefly introduced Japanese idol culture. It also talked about the changes in entertainment industries after the COVID-19 pandemic.

Chapter 2

Chapter 2 will talk about the three relative works which are Remote Cheerer powered by SoundUD, Digital Cheering Uchiwa and SMASH (Sympathy Media of Athletes and Spectator through Haptics). These examples are all about how to connect the audiences and performances remotely.

Chapter 3

Chapter 3 will introduce the process of my design concept, target audiences and the research.

Chapter 4

Chapter 4 is the user test part. To prove my design, I used the questionnaire to do the basic interview then found three users to have the whole experience of my design.

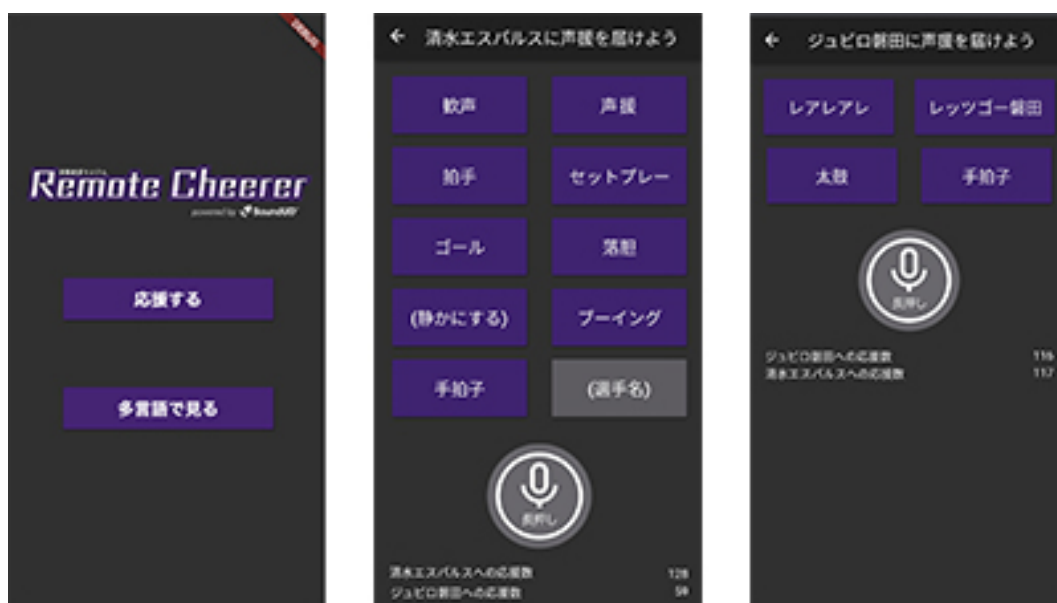
Chapter 5

Chapter 5 will briefly introduce the project in conclusion part again, then it will discuss some possible future works to improve the design.

Chapter 2

Related Works

2.1. Remote Cheerer powered by SoundUD



(Source: <https://www.yamaha.com/ja>)

Figure 2.1 Interface of remote cheerer application

Besides the entertainment industries, COVID-19 also influenced the sports industries. Like most concerts, people have to stay at home to watch the game, which means they cannot cheer anymore. To solve this problem, YAHAMA designed the cheer application, which could let people cheer remotely. The system was developed by SoundUD and assisted by two professional football clubs.

With the development of technology, transmission and reception of signals be-

came much easier than in the past. The technology has been used in a variety of situations such as family and security. The network provides convenience to people and becomes a part of a natural thing of our life. The designers and engineers set 58 speakers inside the stadium, and audiences can choose the cheer sound on the application so that voice will deliver to the site by the technology¹.



(Source: <https://www.yamaha.com/ja>)

Figure 2.2 How people use the remote cheerer application

The company already did the system test at the ECOPA stadium located in Shizuoka. The staff claimed that it makes him feel the fans looks like in the stadium. And at the same time, this application obviously can reduce the risk of infection as well as create an atmosphere of competition. Furthermore, it will use independent devices so that it will no interfere with the existing facilities.

However, when people make the cheer sounds during the sport game, they are normally in a state of excitement and cheer subconsciously. So that from the aspect of audiences, this design is not too user friendly. It is because during the sport games, people can not really control which cheer sound they want to shout. Also, audiences are not so familiar with the position of the button, so that this design will distract audiences from the games.

1 https://www.yamaha.com/ja/news_release/2020/20051801/

2.2. Digital Cheering Uchiwa

Every year in summer, Johnny Associates will hold the annual event which called Summer Paradise. In 2020, same as other events, they had to do it online. However, there is one difference between other online concerts which is audiences can design their own digital cheering uchiwa, and it will be displayed on the stage with ID.



(Source: <https://www.iza.ne.jp/kiji/entertainments/photos/200801/ent20080107030005-p1.html>)

Figure 2.3 Digital cheering uchiwa

Cheering Uchiwa is a unique culture in Johnny Associates concerts. Usually, fans will put the Oshi's name and the message which they want to deliver to the performers, and bring the handmade uchiwa to the concert hall. However, under COVID-19 crisis, fans are hardly gathered together. So in order to maintain people's enthusiasm, fans can design the uchiwa online².

This idea was suggested by the vice president Hideaki Takizawa. The event hosts wanted to let fans feel more closer to the stage. After people bought the online concert ticket, they would receive a code and log in the website to design. The digital cheering uchiwa was displayed on the stage through the uchiwa-like

2 <https://www.iza.ne.jp/kiji/entertainments/photos/200801/ent20080107030005-p1.html>

★ つくって、送って、応援しよう! ★

オリジナル デジタルうちわを手作りする、
『デジわ』プロジェクトはじめます!

Summer Paradise
緊急特別魂
推し推し



大好き 手振って
指ハット
投げkissして
推し推し

気持ちを届けたい。応援したい!
そんなみんなに、オリジナルのうちわを
★つくって、送れるコンテンツをご用意しました。★

キミの想いを
「デジわ」にのせて
推し推ししよう!!

うちわの作り方

(Source: <https://ksmemo123.com/degiwa/>)

Figure 2.4 Cheering Uchiwa

electric board.

Johnny Associates provided a lot of artists' name and decoration on this platform; fans can choose the messages on the platform. Fans were also posted on the SNS like Twitter to discuss the design. Most people said this idea was super influential, and they were so happy that the host provided the digital cheering uchiwa.

This design also focused on how to let audiences feel they were participant in the concerts. Moreover, although people can not meet up together, the digital cheering uchiwa deepened the fans' relationship. But, this project actually missing the sounds which is the most important element for the concert³.

2.3. SMASH



(Source: <http://embodiedmedia.org/project/smash/>)

Figure 2.5 SMASH

SMASH (Sympathy Media of Athletes and Spectator through Haptics) is de-

³ <https://ksmemo123.com/degiwa/>

signed by the Graduate School of Media Design, Keio University. It is a system that can let audiences “feel” the athlete remotely and in stadium.

The design mainly have two parts, one is for athletes and another is for audiences. Athletes have to wear heartbeat sensor and put the player tactile sensation sensor(microphone integrated sport tool) on sports equipment. The heartbeat sensor includes the a mic integrated stethoscope and a wireless transmitter. Then thought the real-time transmission, the voice will deliver to the spectator device wireless. By holding the spectator device, audiences can feel the heart beat though oscillate and the voice will deliver by the amplification. At the same time, it can switch four colors(red, blue, green and yellow) to express the different atmosphere⁴.



(Source: <http://embodiedmedia.org/project/smash/>)

Figure 2.6 SMASH

The SMASH was designed before the coronaries, audiences still can shout and

⁴ <http://embodiedmedia.org/project/smash/>

cheer stadium and they don't have to worry about the saliva. So the aspect of the experiences is only focus on the audiences.

2.4. Summary and Contribution

These projects are all focus on building the relationship with audiences and artists/athletes by using the sounds, text and the feeling. However, from the aspect of otaku, there are still some features can be improved. As mentioned at the beginning, the main purpose of the design is to enhance the Japanese concert experiences so that my contribution and novelty will be:

Motion control

Provide the natural user experience, which is essential for all the design. Comparing with tap the screen, controlling by the gesture can bring more fun.

Customize the voice

Customize is another essential feature as well. Like the digital cheering uchiwa, audiences could design the uchiwa by themselves. However, the cheering sound actually is much more significant than the text and can bring more effect to the artist.

Chapter 3

Design

3.1. Concept

Sounds and the gestures are the significant features for the Japanese concerts. The motion control live blade would be the best solution to enhance the current concert experiences. Live blade as the most common tool people use for cheering can bring the most familiar cheering experience for people. Also, it can play different sounds while users make the corresponding gesture.

Because of the influence of COVID-19, participants temperately have to wear the mask and can not cheer during the concerts. It absolutely brings sadness to people. Missing the cheer sound from audiences might take the fun out of the event. The purpose of the design is to let the audience continue enjoying the cheer chant culture under coronavirus attack. Moreover, call and response as a unique culture of concerts in Japan deepen the fan-artist relationship and fan and fan. A lot of artists said it was so sad that they could not hear any response on site. For most of us, a performance without any cheering is not diseased.

3.2. Target User

The fans of Japanese idol cultures and animation are the primary target audiences for this study. Most people who like to attend the concerts they will use fan chants during the performance. Although there are many types of artists in Japan, the way how people react is quite different. For example, The fans of Johnny's do not have the call response culture. Instead, they are using a totally dissimilar way to cheer. Fan chants enhance the atmosphere of concerts but now be temporarily banned by the influence of coronavirus. So that artist and fans

are lacking communication at the moment.

3.3. Interview

3.3.1 Participant1



Figure 3.1 Participant1

Participant1 is a fan of C-pop(Chinese Pop). She is not the typical target audience of this project, but it is still good to hear some advice from others.

Comparing with people who like to attend the concert physically, she prefers buying DVDs and watching varieties at home with her family. Also, because of the busywork, she does not have the time to discuss with others online. So, she

usually enjoys the concerts by herself and the idol is not too important for her.

She said, if the design has the guide to introduce the system, it will be easy for people who first use the system to understand. And because of she has never experience the Japanese style concert cheer, it is a little bit hard for her to do the action correctly.

3.3.2 Participant2



Figure 3.2 Participant2

Participant2 is animation fan and also like the Japanese idol culture. Before the Covid-19, he usually fly to Japan from China to attend the events with his friends. He is really familiar with the Japanese callresponse culture and enjoy

doing this during the concerts. Now, because of a lot of restrictions, he has to watch all the concerts online. He always ask friends to watch together, and they will definitely do the cheer chant while they watching.

He thinks the idea of this project is really helpful especially under this situation. However, because of he likes quite a lot of group, he thinks it is better to design a system which have the most general cheer chant, so that he can use for all the concert.

3.4. Design flow

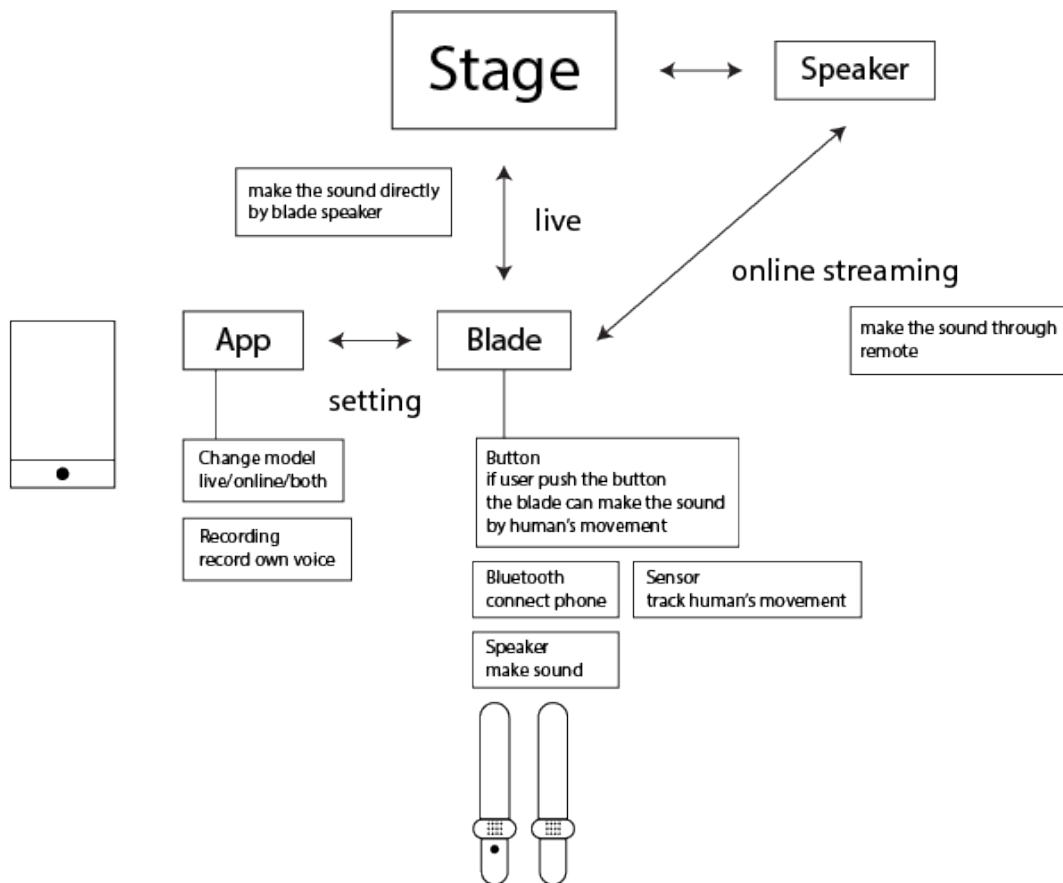


Figure 3.3 How the project works



Figure 3.4 The offline concert model

To design a motion-controlled live blade which can make the cheer sound, could change the current condition, at the same time, audiences do not have to make the sound by their vocal cords.

The flowchart shows how the whole system work. The blade has three models which are online, offline and live viewing. User can control the blade setting and record their own voice through the application.

- Online model: the cheer sounds will deliver to the site by the speaker.
- Offline model: the blade itself will make the cheer sounds.
- Live viewing model: the cheer sounds will deliver to the site as well as the blade itself will make the cheer sounds.

User can change the model in a different situation. If audiences are at home or in the cinema, they can use online or live viewing model. So the cheer sounds which be recorded by the user in advance. And the sounds will be delivered to the site through the speakers. However, there is one different, under the online model, the blade itself will not make the cheer sound. It is because if the users watch the online concert in a private area, they still can cheer. If the users watch the concerts in the public spaces such as cinema, they can choose the live viewing model which can prevent transmission by saliva. On the other hand, when users attend the offline event, they can use the offline model.

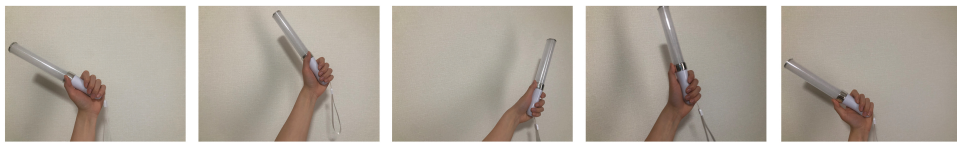
3.5. Cheer Chant

Cheer chant is established by the tone of the music. There are a lot of types of cheer chants, such as Hai chant, Seno call, PPPH, Fuwa chant, Standalone Fu Chant and Lyric Chant. And for each one, the movement of audiences' arm is different. The post from Reddit introduces a part of these actions ¹.

- Hai Chant: Repeatedly chant hai (with and when the beat begins); used during instrumental breaks and or a follow up to a PPPH. There are some

¹ https://www.reddit.com/r/LoveLive/comments/4ac21a/beginners_guide_to_basic_concert_callschant/

Hai chant



Fufu chant



Fu chant



Figure 3.5 Cheer Chant

cases where some songs uses a Hai Chant within its chorus, usually it's either just using two or four hai consecutively.

- Seno Call: Used to setup into another chant/call, “seno $\dot{\iota}$ (chant)”. Depending when it's used will determine what next chant is to follow up with.
- PPPH: A follow up to a Seno Call during the pre-chorus by repeatedly chanting, “Oooh $\dot{\iota}$ Hai”. Then followed up with a Hai Chant before entering the chorus of the song.
- Fuwa Chant: Chanting Fuwa four times consecutively; a Seno Call follow up during the chorus “fuwafuwafuwafuwa”.
- Standalone Fu Chant: The standalone fu can be used in various ways that allow this chant to infuse itself with the music. It may appear anytime throughout a song.
- Lyric Chant: Essentially, knowing the song in order to shout out phrases from the lyrics itself or as the backup vocals similarly like responses.

Idol call has the varieties types such as Hai Chant, Seno call and Fu Chant. This part will compare different artists' song and analysis the most used chants. Then, get the data of corresponding actions to design a user-friendly motion-controlled live blade which can be used during concerts².

Sakamichi Series, which refers to an idol group franchise that began with Nogizaka46, now have been spawned to Sakurazaka46(original was Keyakizaka46), Yoshimotozaka46 and Hinazaka46, has become popular in recent years. Unlike other groups, there are some particular types of chants of AKB group and sakamichi series, for example:

- Name chant: chant artists' name while they are singing, have to change their name to threes syllables.
- “super cute” + name chant: chant “super cute” with artists' name.

² https://nogizaka46-blog.tokyo/1st_single/hidarimunenoyuki#toc_id_2_1

- Repeat chant: Repeat the first two syllables for four times, then chant artists' name.
- And Overlap chant: Chant artists' name to overlap the original part of songs.

Besides these, fans also use the chant call like Fu chant and Hai chant to cheer.

Song title	Introduction イントロ	Verse1 Aメロ1	Verse2 Aメロ2	Bridge Bメロ	Chorus サビ	Interlude 間奏	Outro アウトロ
Hidarimune no Yuuki	×	Special(3)	Special(3)	×	Fu(4)	Hai(16) Special(4)	Hai(16)
Wakaregiwa otto Suki ni Naru	Hai(8)	Special(4)	Special(4)	×	×	×	Hai(∞)
Kodoku na Aozora	Hai(8)	Special(4)	×	Hai(4)	×	Hai(8)	×
Taiyou ni Kudokarete	×	×	×	Hai(4) Special(2)	×	×	×
Kimi ni Okuru Hana ga Nai	Hai(14)	Special(2)	×	Hai(4)	×	Hai(∞)	Hai(∞)
Arigachi na Renai	Hai(∞)	Special(4)	×	Hai(4)	Hai(1)	×	Hai(1)
Kisunoshuri ken	Hai(16)	Special(2)	×	Special(4)	Hai(1) Special(2)	Hai(∞)	Special(2)
Boukyaku to bigaku	×	Special(2)	Hai(4)	Hai(4)	Fu(4)	Hai(8)	×

Figure 3.6 Example of idol groups' cheer chant

The animation market has changed in nearly two decades. Since the success of Love Live! which most animation companies are tend to combine the 2D anime characters with the voice actors. Different from the past, the artistes only need to do the performance on the stage, the animation industrial chain now are trying to design the fan-based witch like the idol group. In recent year, besides Love Live!, Idol Master and Division Rap Battle are popular as well. There are called

2.5D. Because these kinds of project also focus on the concerts, so most of the song have the fan chant as well as the other idol groups ³.

Song title	Introductio n イントロ	Verse1 Aメロ1	Verse2 Aメロ2	Bridge Bメロ	Chorus1 サビ1	Chorus2 サビ2	Interlude 間奏	Outro アウトロ
Gurenge	×	Wow(6)	Special(1)	Wow(8)	Wow(21)	Special(1)	×	×
ETERNAL BLAZE	Hai(16)	×	×	Fu(2)	Fu(2) Hai(8)	Fu(2)	×	×
only my railgun	×	Seno(1)	×	Fu(8)	×	×	Hai(1)	×
LEVEL5- judgelight-	×	Seno(1)	×	Fu(4) Hai(8)	Fu(2)	Fu(2)	Hai(1)	×

Figure 3.7 Example of animation songs' cheer chant

Depends on the result, Hai chant, Fu chant, Seno chant are the most general chant for concerts. However, Seno-call is commonly used to setup into another call. So that this design will focus on the Hai and Fu chant.

3.6. Prototype

User experience focuses on thinking users' behavior and design the interface that let users easy to access, understand and use. The information must be designed in useful, usable, desirable, findable, accessible and credible way in order to create a meaningful and valuable UX. The interface elements include input controls such as a button, text fields, dropdown lists, etc., navigational components such as breadcrumb, slider, search field, etc., informational components such as tooltip, icons, progress bar etc. and the containers [4].

Natural user interface (NUI) refers to an invisible user interface. NUI only requires people interact with the interface in the most natural way. Users do not need to rely on keyboard and mice to use any NUI devices. Human-computer

³ <https://idolcall.jp/>

interaction has become more natural with the development of touch screen technology.

Gesture operation is based on human behavior to design. It is reflecting how people are acting in the daily life. Various gestures are designed, but most of these are hard to learn and remember. Hence, the purpose of design gestures is to allow users use devices without thinking.

3.6.1 Live blade



Figure 3.8 Live blade

The design want to provide a natural user experience to users, live blade as the most common tool that audiences use to cheer during concerts is the best option. The appearance of the live blade have the speaker and button. The speaker is used to make the sound and the button is used to control. If people want to make the cheer sounds they can holding the button and do the corresponding action.

Because the size of the sensor, the design also need a hand band. People mainly use the wrist to do the cheer action, so that the hand band can provide the comfortable wearing experience as well as have the accurate motion capture.

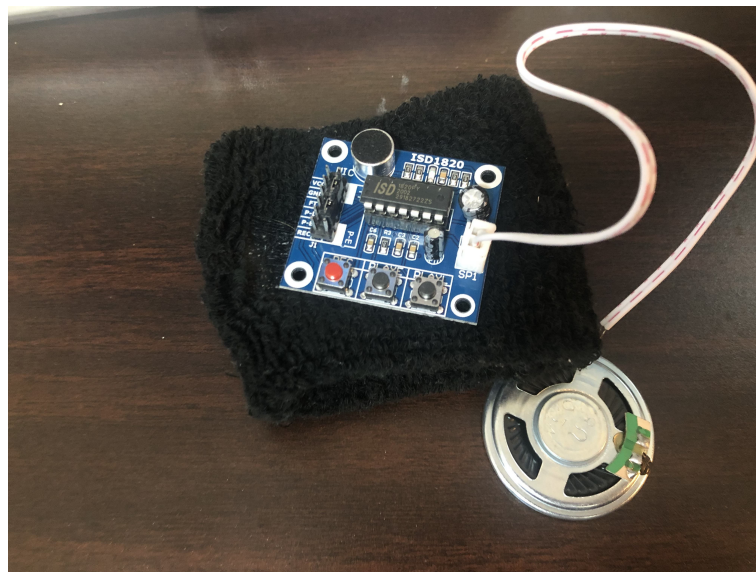


Figure 3.9 Hand band

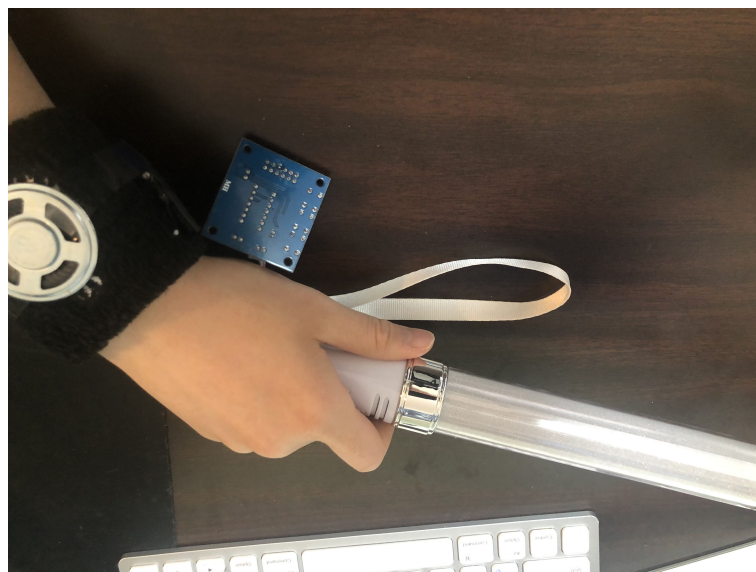


Figure 3.10 How to use it

The hand band is composed by Bluetooth and gravity sensor. Bluetooth is the possible solution to connect the device with phone. And it costs much lower than other operating system. Gravity sensor is a really playful sensor which commonly used to design the toys such as interactive drone.

3.7. Application

3.7.1 Google Material Design

The Google Material Design is the visual language system that Google created for their users to interact with the technology and sciences. The interface of Android-based application could have four parts: Side navigation (left/right), App bar/primary toolbar, Content area, and Bottom bar.

Side navigation can be designed in either permanent display or float temporarily as overlays. The permanent display should always be visible; it is the default for the desktop. Temporary navigation can toggle open or closed, so it is required for using in the mobile interface. Side navigation can be placed on left or right side of the screen. The left navigation contains the navigation destinations for the application, the bottom of the navigation bar normally has the setting and support functions which refer to Help and Feedback. The right navigation bar contents the detail information of the clicked area.

The app bar is a special kind of toolbar that's used for branding, navigation, search, and action. In the app bar, all the icons should be designed in the same color. However, the title could be a distinct color from icons if the designer wants to create the hierarchy.

Bottom navigation is mainly used for mobile. It is easy to use for switching and exploring between top-level views in a single tap. When the application has three to five top-level destination of similar importance, the bottom navigation bar should be used. Otherwise, should use the side navigation. If there are less than three destinations, tabs would be a better choice for designing the app.

The material design also suggests that choosing a primary colour for the main part of the app and a secondary for highlighting the essential part. In the primary colour, light and dark tone is used to help division between different surfaces. For

the secondary colours, it can be complementary or analogous to the primary colour in order to accent the elements. Secondary colours are used in buttons, text, progress bars, election controls, sliders, link and headlines. However, if the app doesn't have a secondary colour, the primary colour also can be used to accent these elements. Also, the colour from the Material Design palette is optional. Furthermore, the opacity of text color is different on light and dark background.

For the font, Roboto and Noto are standard typefaces on Android. The language used in the application should be written easily and shortly that all the users can understand. The writing should avoid the word "We", instead of it, second person and the first person could be used in some situations.⁴

3.7.2 Application design

Based on the material design suggestion, I start to design the application. However, the current vision of my application only has very simple functions, so some parts such as the side navigation and the bottom navigation are unnecessary at moment.

For the font, I used one of the system suggestion fonts which is Roboto. It is principally used in English-like languages and Noto which refers to the idea of "no more tofu" is designed for others. And I used orange to as the main color, it is because orange always is used for designing some entertainment things. It makes people feel fun and happy.

The three main functions of the application are the color setting, model selection, and voice recording. Color setting is the common function which a lot of other live blades also have. Through this function, users do not have to buy the multiple blades, they can easily choose the color and sort them on the phone.

The model selection, user can easily switch the online, offline and live viewing model. The design flow part has already introduced how these three models work. Comparing with implement the switch button on the blade, personally think it is more useful to set on the application. It is because, for the users, they are rarely to change the model while the concerts start.

Voice recording is the most significant function of this application. The main

⁴ <https://material.io/design>

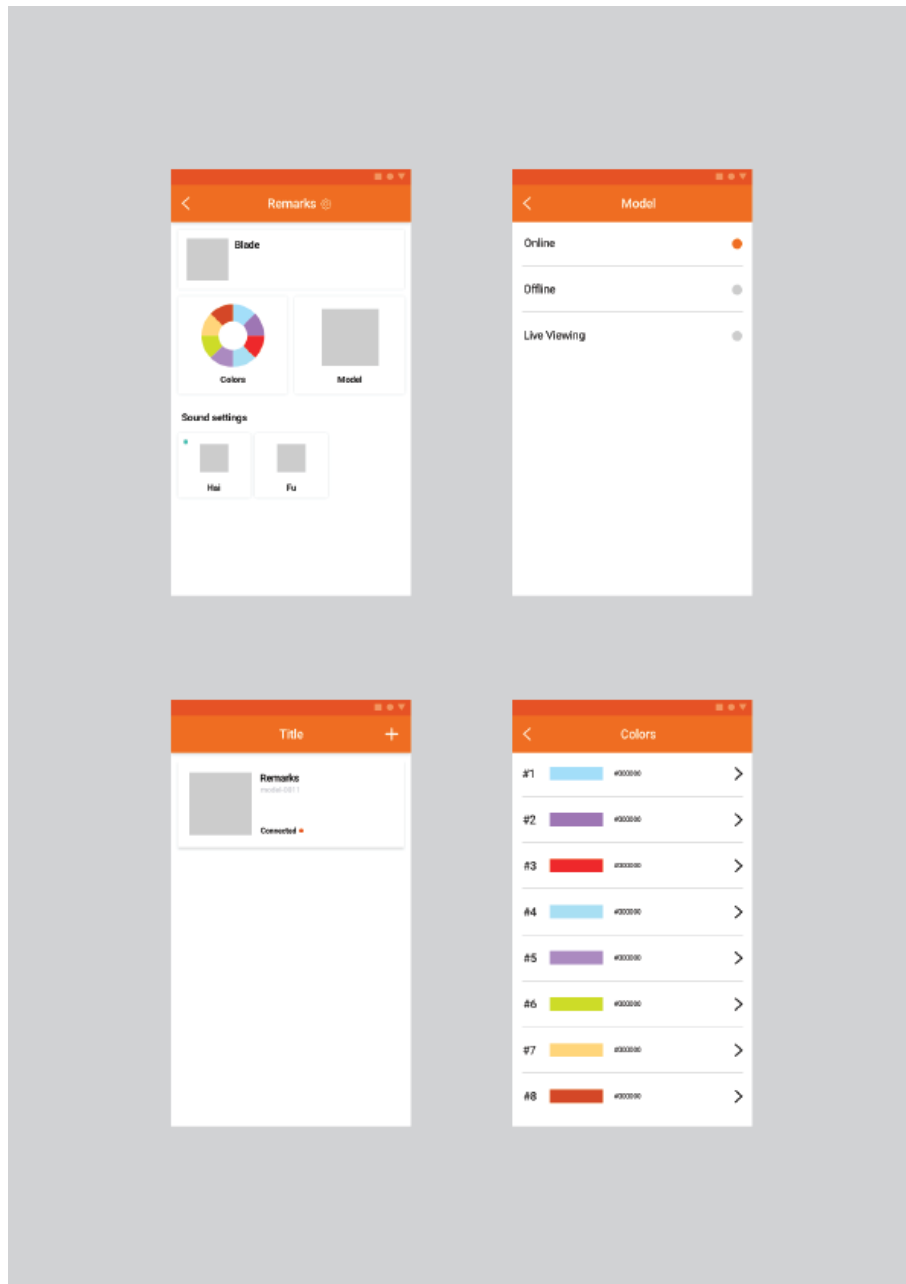


Figure 3.11 Application

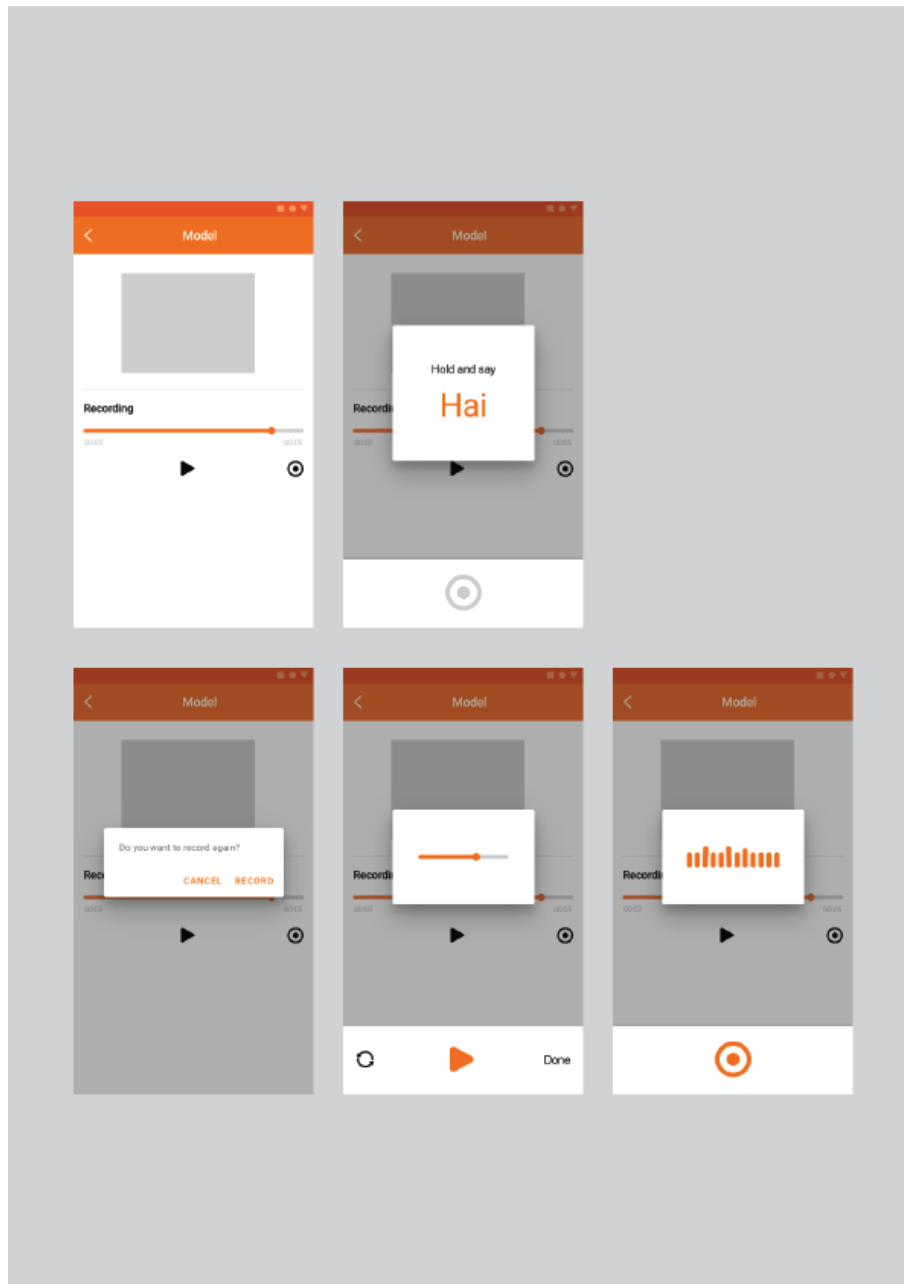


Figure 3.12 Application

difference from other design is that thought my design, users can deliver their own voice to the stage to let users feel sympathy.

Chapter 4

Proof of Concept

Usability testing brings a lot of benefits. During the test, designers will get the information of participants are able to do the task or not, how long does it take participants to do, the feedback from them, identify changes to improve and analyze the data.

4.1. Methodology/Preparation

4.1.1 Questionnaire

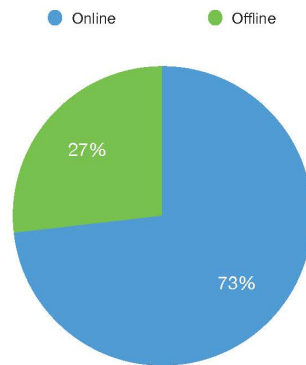
Firstly, I have prepared the questionnaire to do a simple interview online. It helps me to have basic knowledge about how people feel about the design. I posted on the SNS, and a total of 42 people answered it.

- If you have time, do you prefer watching the concert online or attend the offline? Why?
- How often do you watch the concerts?
- If you don't have the time and have to watch the online concerts, will you do the cheer chant at home or cinema?
- Do you feel this design could help participants have more fun during Covid-19?
- How do feel about this design?

The test participants are all the Japanese idol fans, and they frequently attend the concerts. The general data shows by the influence of coronaries, most people

Total responses: 42 people

If you have time, do you prefer watching the concert online or attend the offline?



How often do you watch the concerts?

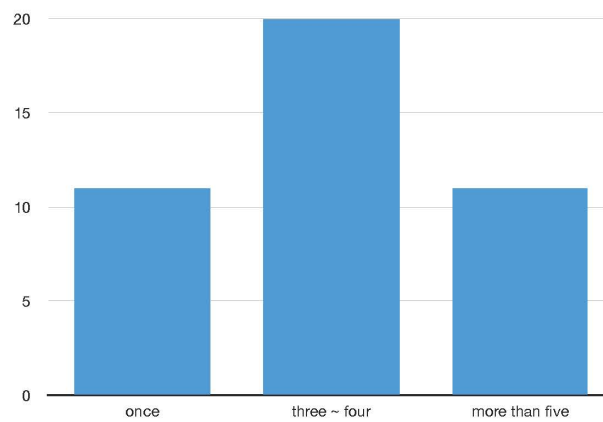
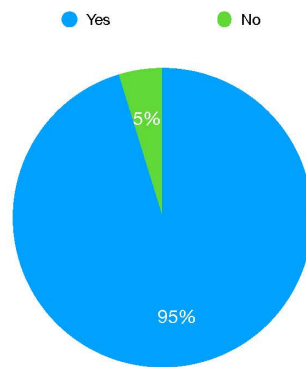


Figure 4.1 Data-1

If you don't have the time and have to watch the online concerts, will you do the cheer chant at home or cinema?



Do you feel this design could help participants have more fun during Covid-19?

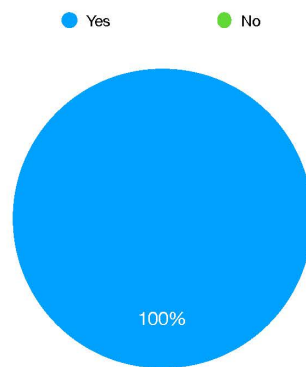


Figure 4.2 Data-2

How do feel about this design?

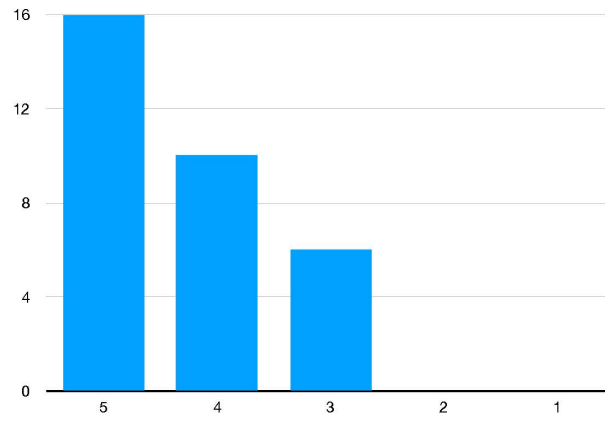


Figure 4.3 Data-3

are watching online concerts at the moment. Nearly all the people do the cheer chant while they watch the concerts. And all the people think the design could enhance the concert experience.

4.1.2 Interview

Participant 1

Participant 1 is living in China. He is 26 years old and is the Japanese animation fan. He is the fan of Love live! for 5 years. If he has time, he will definitely travel to Japan to watch the concerts. For him, the most joyful moment of the offline is to do the cheer chant. He said although a lot of people can not understand this unique culture, he still enjoys it. It is because instead of just watching, cheer chant actually brings fun to him and he can express sympathize of the concerts. Furthermore, before the opening, fans are usually gathered together to prepare each the cheer chant for each song. He feels so said he cannot fly to Japan at



Figure 4.4 Participant 1

the moment. So now he chooses to buy the online concerts ticket and watching online. However, it actually lacks of fan communication. So he said he prefers to watch the concerts with a group of the member. The host usually will rent a space and the people who bought the ticket can join it. They will divide the expenses equally and share food and drinks. The primary purpose is to simulate the offline concerts which he used to attend. He said they cheered together and chatted quite a long time. However, it only can be held in some area where the COVID-19 already be controlled. Otherwise, it is super dangerous. So that he thinks this project is quite helpfully and the online/live viewing model makes him feels much more sympathize.

Participant 2/3

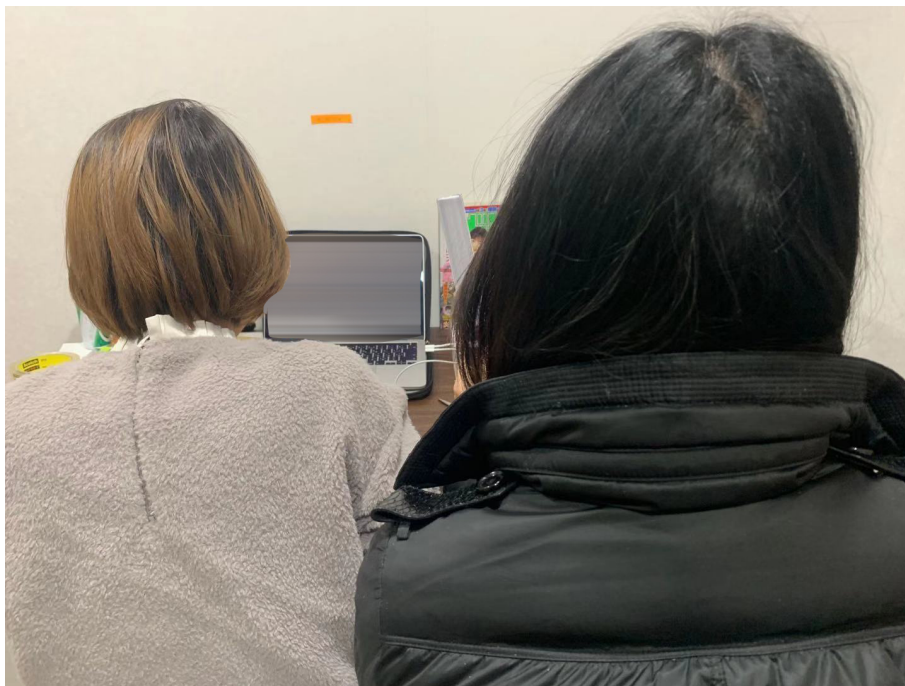


Figure 4.5 Participant 2/3

Participant 2/3 are international students, and currently living in Japan. Japanese idols are the main reason they choose Japan for doing further study. So they nearly

attended all the events and concerts during these years. Same as the participant1, they also think doing the cheer chants is the most exciting things for offline concerts. Because coronaries still sparing in Japan, so they cannot make any voice during the event now. And many face-to-face events have been cancelled. They said their interests of the offline concerts actually is decreasing. The main reason is that they cannot do cheer chant like before, also in order to reduce infection rate, they are no longer join the party any more, so it makes them have the same experience of online concerts. They feel the idea of this design can let them have the similar experience like before. They can deliver the emotion during the concerts.

4.2. Observe/Result

In order to have the deep understand of how user behavior while using the live blade. Video recording is the best way to test. Because of the first user in currently in China, so his friend helped me. And then I went to user2 and user3's place to record how they act.

For each users, I prepared two songs to test, the first one has the very simple cheer chant only includes the Hai-chant and Fu-chant, another one is a little bit complex which includes a lot of special chants. After I get the data of people actions, I used After Effect to added the cheer sounds, then discussed with user how they feel about the design.

Participant1

- Usage: Participant1 thinks the design can be easily understood how to use. The live band is a great idea to set the sensor. However, he thinks the interface of the application is not too playful. I think it is for the otaku events so that the whole design could be cute.
- Customize features: participant1 likes this feature. He said it could record his voice and deliver to the site. This feature makes him feel more sympathy while he was watching the concerts. And also he can choose the blade color which he needs as well.



Figure 4.6 Participant1

- Motion control features: participant1 feels this is really great. Unlike the pure mobile application, he can focus on the concerts and make the cheer chants without thinking. However, by the user testing, I noticed sometimes he has forgotten to push the button.
- Concert experience: He thinks it does enhance the concert experience. He believes voice is the essential elements for the concerts. But He said if he used the online the live viewing model, he doesn't know the voice is actually delivered or not. If there is some feedback from the stage, it would be awesome.

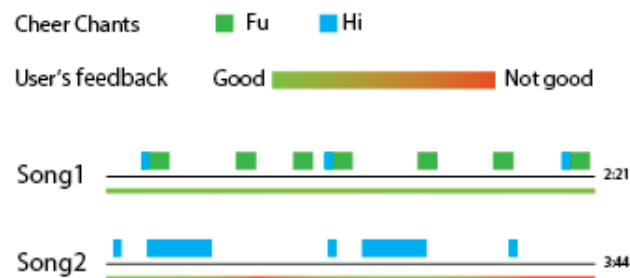


Figure 4.7 Participant1-Feedback

- Feedback: The first sample is the 2:21 minutes animation song. The original of this song only includes the simple cheer chants, so he thinks the design's feedback is adequate. However, for complex music such as the sample2, he believes many cheer chants have been missed. He feels it is better to design more combination.

Participant2

- Usage: Participant2 thinks the user experience of the whole design is good to use. But she advised instead of the blade, the design could be a equipment which can connect with the live blade. Because She prefers using official live blade.



Figure 4.8 Participant2

- Customize features: Participant2 also thinks the voice recording feature is excellent. But she thinks the way of recording the voice could be more interesting, and some users may shy to use their own voice so that the application could have some default voice to choose so that users can have more options.
- Motion control features: By observing the participant2 and participant3, I found sometime they would forget to make the action. Participant2 said the design process is good, but sometimes she is not so familiar with all the cheer chants so if the system can play it automatically, it could be more helpful.
- Concert experience: She thinks the design helps the concerts experiences like what she said in the interview part. Because she could not make the sounds now, so she would rather watch online concerts. She thinks through the design she will attend the offline concert again.

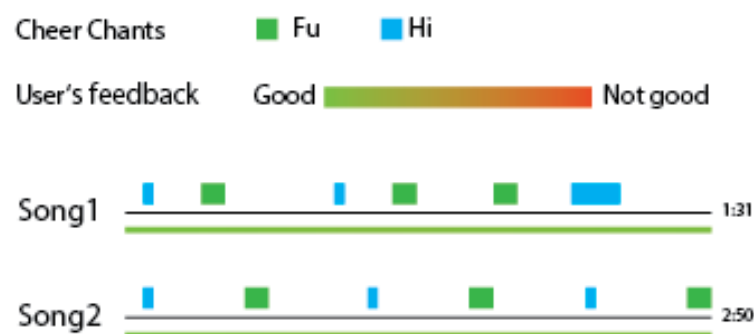


Figure 4.9 Participant2-Feedback

- Feedback: I provided two different samples to the participant2. There are still some unexpected and unreasonable results. But she does not care about the accuracy because the atmosphere is much more essential than others.

Participant3

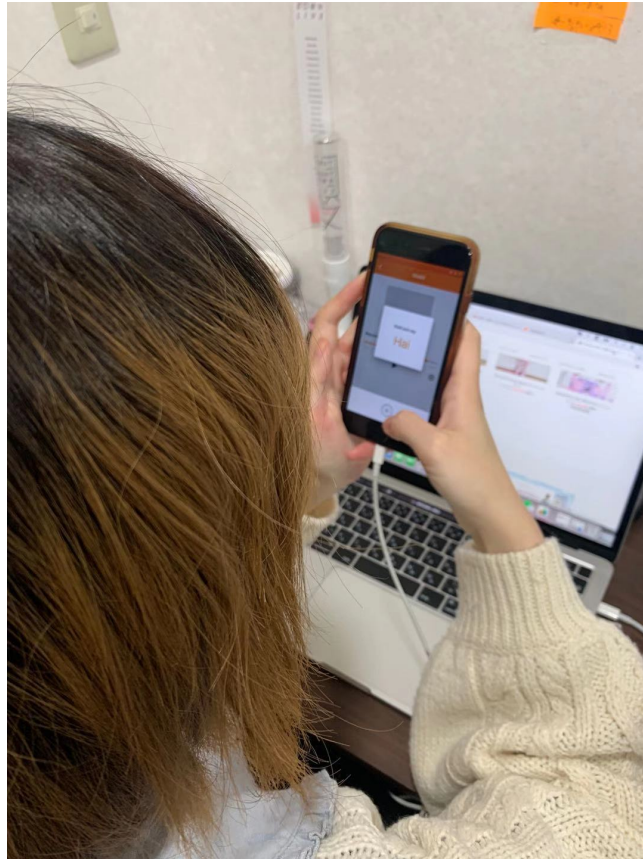


Figure 4.10 Participant3

- Usage: Same as other users, participant3 also feels the wearable design is excellent. But she thinks if, in the summer the fabric is not suitable for hot weather. She suggests the design could be more considered. And she agrees with participant2 that the design's appearance could not be restricted to the live blade, it could be some device that could connect the blade.
- Customize features: She loves this feature of the design, and she thinks this feature brings fun to her. But like what participant1 thinks, she also suggests it is better to get some feedback from the artist's side.

- Motion control features: Participant3 feels the idea of motion control is brilliant. But for her, she can not remember a lot of cheer chant. So she is actually a little worried about while she is using during the concert, it will make the totally different sounds.
- Concert experience: Like other participants, she thinks this design does solve the current problem, and she is happy to attend the offline events with this blade.

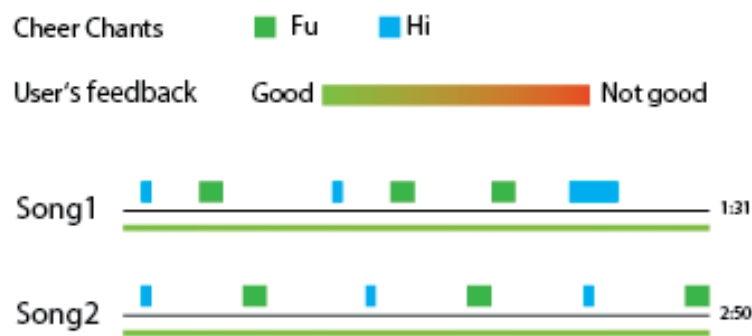


Figure 4.11 Participant3-Feedback

- Feedback: For the participant3, I used two same songs which I used for participant2. She also thinks it is unessential about the accuracy of the cheer chants. But she feels it is better to have some other cheer chant and combo so that the whole concerts will be more fun.

4.3. Summary

Overall, all users feel the design enhanced the concert experience under COVID-19 pandemic. The design provides attendances with the missing essential features which are "voice" and "action" of current concerts. However, the users mentioned while they enjoy the concert, they are not really noticed which sounds the blade

made. After I showed the video recording to users, they are not the aspect of having the appropriate result. It is because cheer chants have varieties of types, even the most simple one such as Fu chant. Users are more expected to have the combination of the cheer chant instead only the single sound. Moreover, users also mentioned other suggestions which will be discussed more in Chapter5.

Chapter 5

Conclusion

5.1. Conclusion

In conclusion, Cheer chants as a unique culture in Japan, also it is a significant feature which connects the artists and audiences. Due to the COVID-19 pandemic, audiences have to watch the concerts online, and for the offline events, they must wear the masks while they can not cheer any more.

Many companies also noticed this problem and tried to solve it. For example, the YAHAMA and Johnny Associates both designed the remote application which user can cheer at home. However, none of them are designed for the offline and the live viewing situation. Natural usability should be considered as well.

Based on the research goal, I designed the live blade which can be used in multiple situations, and the main feature is the voice recording, which allows users to deliver their own voice to the artists to feel more sympathy while watching the concerts.

To prove the idea, firstly I posted the general questionnaire online, and the result shows nearly all the people think the design can enhance the concerts experiences. Then, to get more user data, I asked three people helped me for the user test and the deep interview. The result also shows they feel the design is good for using during the concerts; however, some improvements could be improved in the future.

5.2. Future works

Design Firstly, like what participants mentioned before, the interface of the application could be enhanced. Because the target user is the group who like Japanese animation and idol culture, so the interface could be redesigned in a cute style. And, design the mascot also would be a good idea. Secondly, to give

users a comfortable experience, it is better to use the fabric with cold sensation for the wearable equipment.

Usability and Gesture Currently, the design only has the Hi and Fu chant, to let users have the fun experience, it is better to include various combinations of the cheer chants. Moreover, sometimes the design will misunderstand the users' actions, and users will forget the cheer chants, avoid this situation, and design another function for the songs.

Research At this stage, it is a little bit hard to test the artists' aspect. Although the research goal and the target group are the audiences, it is still worth to get some data from artists and try to know what they think about the design.

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