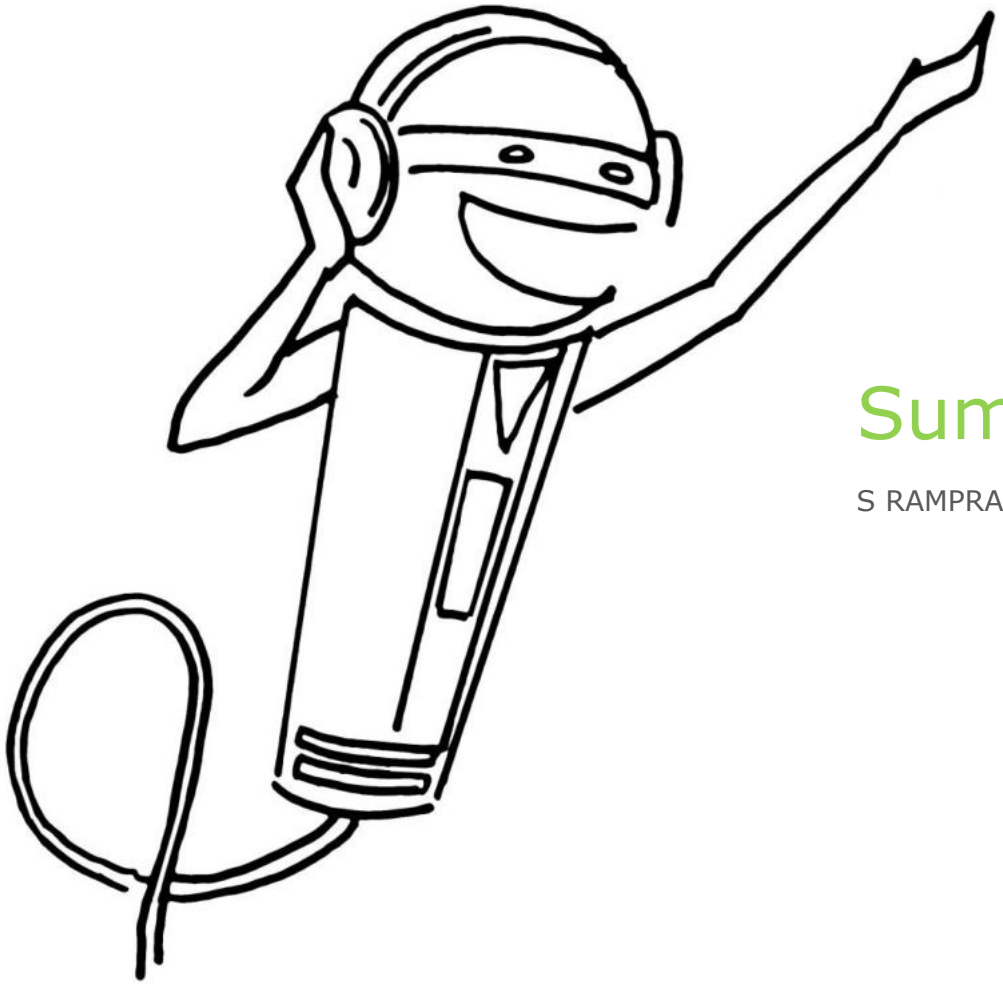

Summer project report

S RAMPRASAD 126330011 Interaction Design

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Acknowledgement

This project would not have been complete without the help of Dr. Vishweshwara Rao – Founder/Director of SensiBol Audio Technologies Pvt. Ltd., who helped, guided and even participated in every stage of the entire redesign process. Special thanks to all those who took time out and participated in the Usability Evaluation sessions which helped in identifying problems in the existing interfaces that lead to effective design solutions. Interactions with Mr. Sujith Kini and Mr.Sachin helped greatly in the design process. I would like to thank my best friends Anusree, Glen and Anil for all the support and encouragement and also for all the honest reviews they have been giving about my designs since my under-graduation days. Last but not the least, I would like to thank my parents for all the love, support and freedom they have been giving me right from school days.

Abstract

The project, which ran for a period of one month (May 10, 2013 to Jun 10, 2013), started with observing and analysing the working of www.gaonaweb.com – a product of SensiBol Audio Technologies Pvt. Ltd., and then identifying problems in the existing design of its interfaces by doing "Usability Evaluation" by "Think Aloud" testing with an appropriately chosen number of users. The problems were compiled based on Jesse James Garrett's layers of User Experience. The ideation process that followed lead to many solutions catering to almost all the layers of User Experience and several iterations of the solution were made. In the end a mascot that also served as an interactive assistant that the interface demanded, visual design and logo design were completed. The final design was then analysed for errors and improvements for the same made.

Usability tests > Problems > Solution Prototypes > Final solution

About the company

Source: www.sensibol.com/about-us/

SensiBol Audio Technologies Pvt. Ltd. was formed to deliver solutions that address the growing demand for digital audio content and interactive entertainment across the internet and mobile domains. They develop intelligent audio applications. The core competency of the company is in the design and implementation of systems that extract and utilize meaningful information from audio signals.
The company's primary strength lies in the expertise in audio signal processing and software development. The development team, consisting of Doctorates and Masters graduates from IIT Bombay, is always generating new intellectual property. Presently incubated in the IIT Bombay business incubator –SINE, their present focus is to create and deploy the next-generation of karaoke for the web and mobile domains. Their product "Gaona- bring out the singer in you!" technology benchmarks a user's singing in comparison with a reference derived directly from the original singer of the song, and provides live performance analysis and feedback.

Introducing “Gaona”

Source:www.sensibol.com/music-edutainment

Gaona™, utilizes technology for evaluating singing quality. The technology uses novel signal processing techniques for computation of the user’s melody from his/her singing, extraction of the reference singer’s melody from the original song and comparative evaluation of singing quality in multiple musical dimensions such as sync with tune, rhythm and expression.

Unique aspects of Gaona™

Contemporary karaoke systems score user’s singing against a low-resolution reference note representation called MIDI, which ignores finer variations commonly used in singing, and are incapable of making fine distinctions between good singers. Gaona™ system compares user’s singing to the actual melody as sung by the original singer. The original melody is extracted in high-resolution from the original audio using our novel signal processing technology. Conventional karaoke systems rely on high-quality recording of your singing, usually via a microphone, for computing a score. Gaona™’s system is capable of accurately scoring user’s singing even over the Internet or a cell-phone by using novel signal-processing techniques to overcome the audio quality degradations usually caused by communication networks.

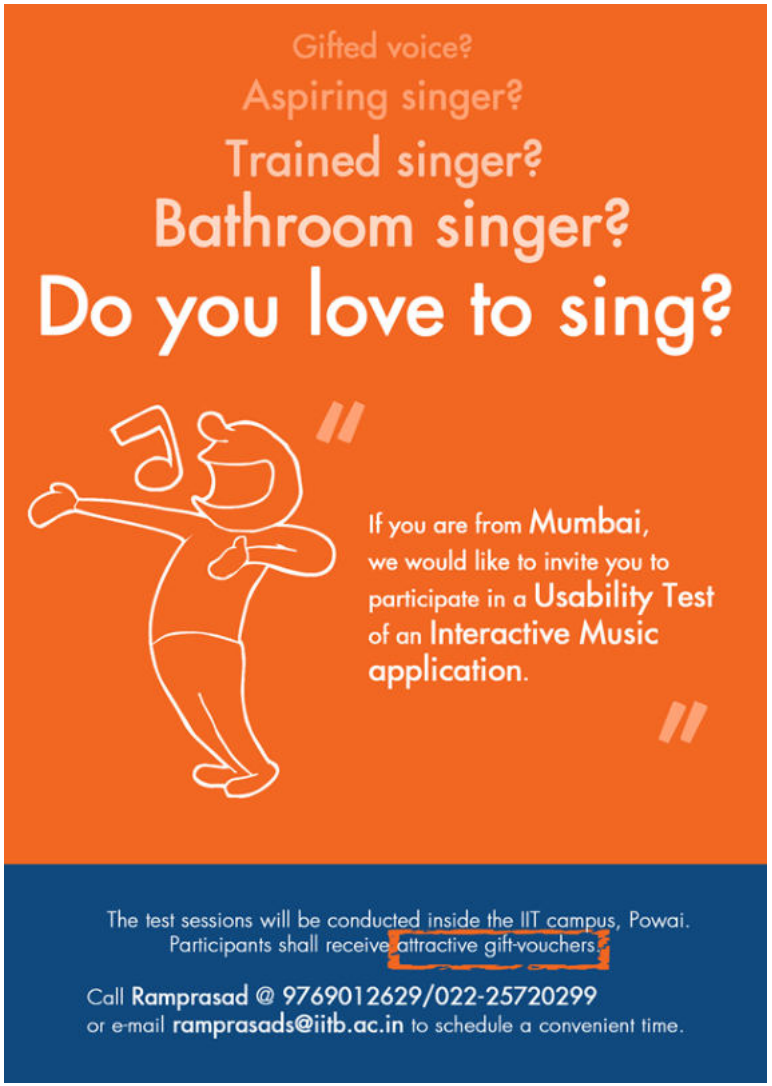
Usability evaluation

Purpose of Study

The purpose of this usability evaluation study was to assess the design of the website and the Singing-Karaoke-Interface and to identify weaknesses and areas for improvement. In particular, attributes of content clarity, interaction design, interface design and visual design of the website were considered.

Key Questions

• Are they able to understand Gaona's intent and the general working of the site ?
• Are they able to understand the introductory slides?
• Are they able to try and understand the "demo" song and in the process configure their mike comfortably?
• Are they able to login without any difficulty?
• Are they able to choose a song from the list?
• Are they able to sing and understand the "sing along" interface?
• Are they able to "listen" to other singers and their own recording?



The invite

For people to attend this Usability Evaluation study, I designed a poster inviting people to SensiBol office and fixed appointments with each user.

Method

The method for the study included the following elements:

- Usability test instrument was pilot-tested with one participant and revised prior to use.

- Sessions were conducted during a week period from May 10th to 17th,2013.

- Usability test sessions averaged approximately 30 minutes.

- Participants were asked to perform a think aloud protocol in which they described their thoughts as they completed each task.

- Empirical data was recorded by note-taking and in some cases audio-taping.

- Data collection was suspended when redundancy of data was reached(when around 20 users' tests were done).

- Data analysis involved the identification of patterns of usage and common difficulties faced by the users because of inefficient design.

Participants

A total of 20 participants(12 male and 8 female) engaged in usability tests as part of this usability evaluation project.

Guidelines for selecting the users of "Gaona":

1. The user should be a frequent computer user.

2. The user should be fluent in reading and comprehending English.

3. If the user uses power glasses for vision then he should be requested to wear his glasses during the tests.

Tasks given to the users

• "Please go to Gaona website and Start browsing through the introductory slides to understand the working of the site!"

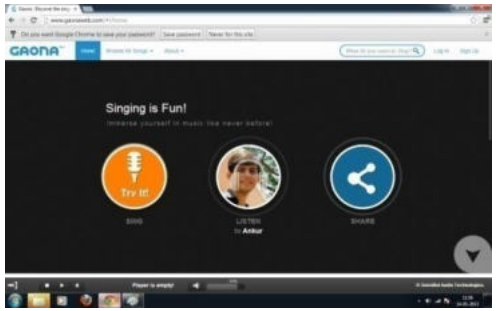
• "Try listening to other singers and find out who has gotten the best score for the song you want to sing for!"

• "Try signing in either via facebook or sign up with a new account via Gaona itself!"

• "Try choosing one favourite/comfortable song of yours from the long list of songs in the website and sing it from start to end".

The participants were also asked to jot down five major problems in the website that they felt

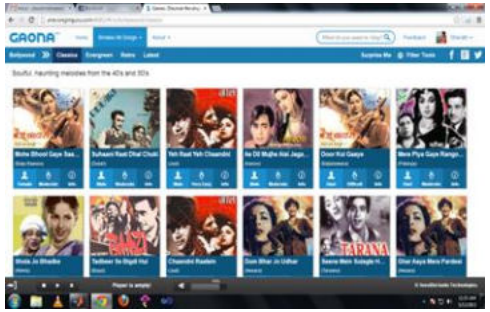
The expected flow



Open home page

Open “try it” and understand the working of the site

Configuring the mike and try the “demo” song.



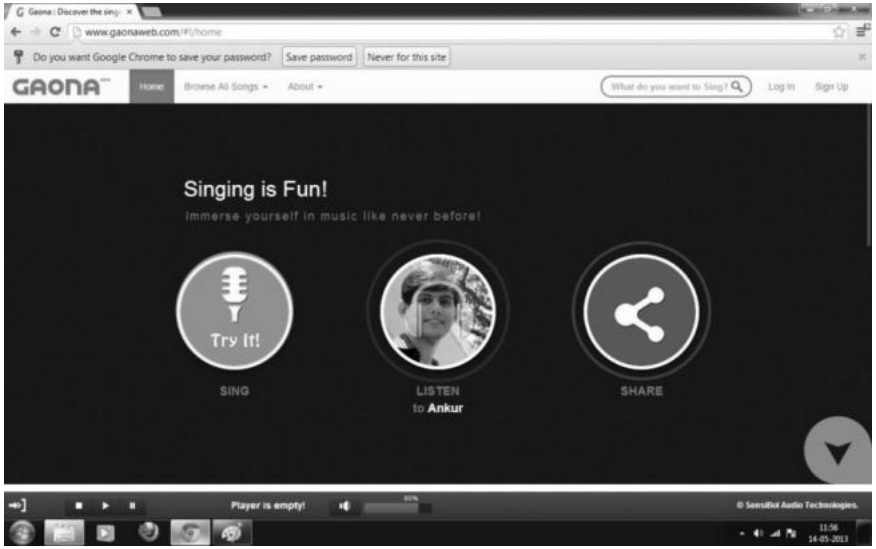
Browse the songs and choosing using the filter options

Try singing a song and in the process - understand the Interface of the “sing along” mode.

Trying to listen to the mix with their voice.

"Opening Home page"

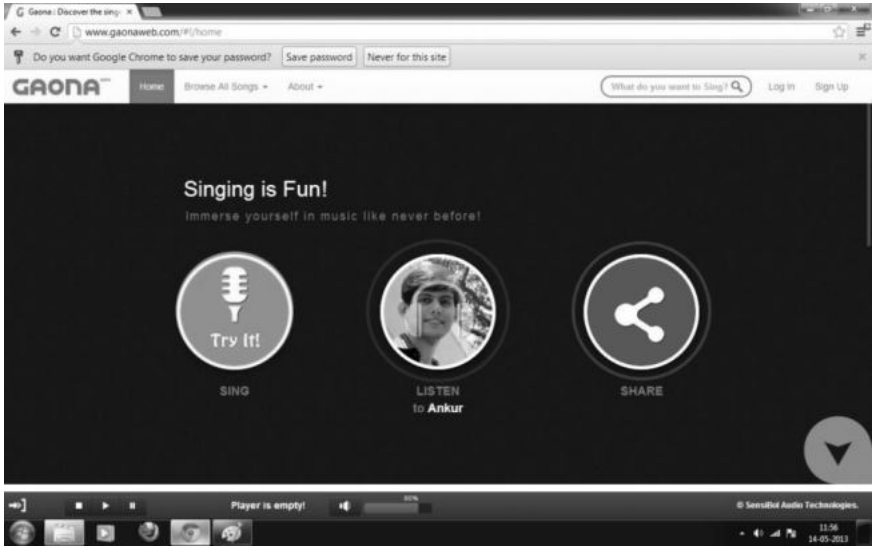
Results/Problems observed



- Since users are given equal options to choose any of the three equal-sized bubbles, novice users cannot understand the intent of the website.
- "Share icon is too loud as one should have logged in and have sung one song before they can share it and a new user would get distracted because of the equal size."
- 18 users didn't use or didn't understand that the arrow mark in the bottom right is to browse the songs below.
- None of the users understood the "player empty" -media player near the bottom of the site. Some try pressing play button and realize it doesn't work.
- Users don't use the toggle song list icon and very few who use come out of it since it shows song list is empty and they cant figure out how to add songs.

“Opening Home page”

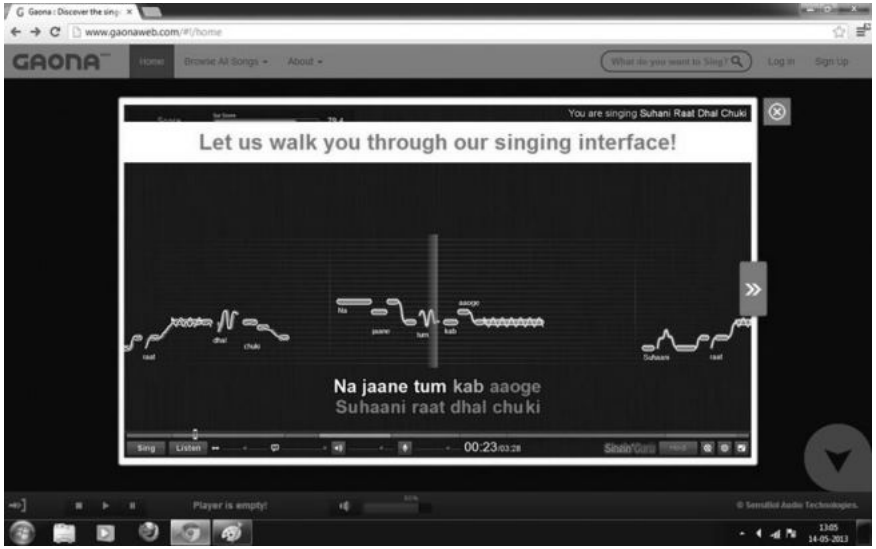
Solution ideas/recommendations



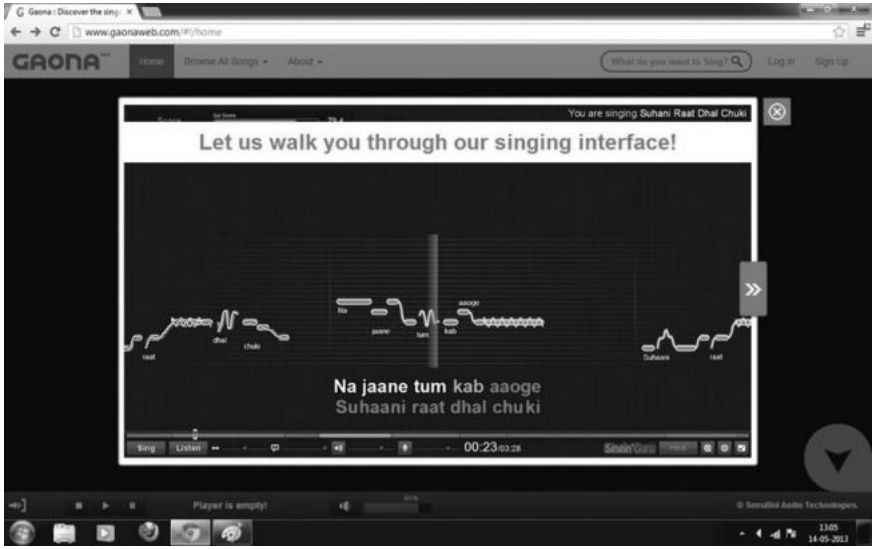
- To give a visual hierarchy in the options of the actions (sing, listen and share) the user has got to go through as he starts to use the site.
- Remove the “player”, ”toggle song list” below for the “home” page to avoid confusion.
- Give a clearer idea on what to “share” and the importance of why to “login”.
- To relocate the playlist location and to give a clearer idea that the page scrolls down to the songs list.
- To give options for particular users like “new user? then do this…” and “already a member? Do this…” thereby avoiding the user to keep doing the same activity over and over again.

"Opening "Try it" Slides "

Results/Problems observed



- 18 of 20 users who used the introductory slides tended to treat it as working screen and started clicking on the static pictures' icons, buttons etc.,
- All users did not did not find the arrow button on the right and were clueless for the first few seconds.
- 15 of 20 users thought they were supposed to sing "Na Jaane…" and were rushing to get the mic. ready.
- Bad Chunking of information made them move to the next slide without having read the instructions. "Good singing" and "out of tune" belong to one chunk while "original singer's voice" and "your voice" is another chunk.
- Users try configuring the mic. after seeing the mic. instructions slide but later come to know that it is just a slide and doesn't respond to their mic. configuration.
- 9 of 20 users did not notice the close button and kept clicking outside the white rectangular borders to get outside.



"Opening "Try it" Slides "

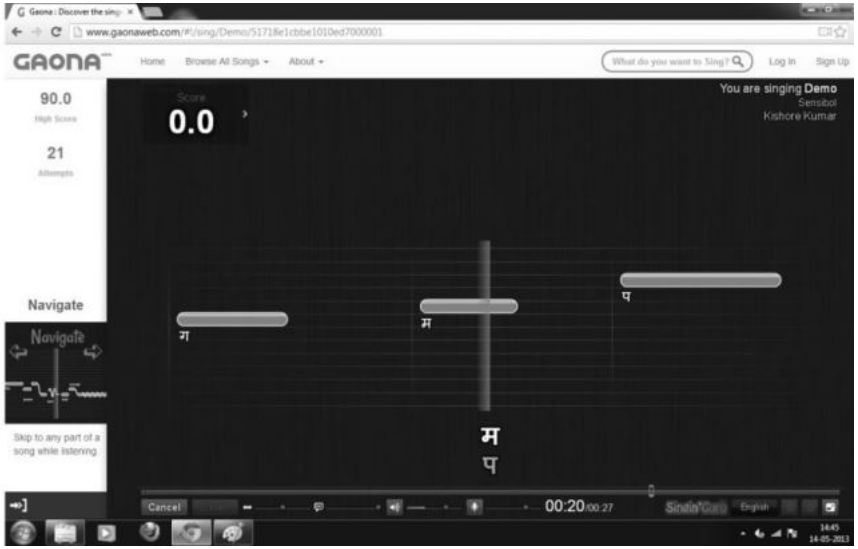
Solution ideas/recommendations

There can be multiple options for solving the issue of users not understanding elements in the introductory slides like

- Making the whole look of the introductory slides in sepia or a duller tint thereby avoiding miscommunication that the slides are "working".
- Making an "interactive, task-based" introduction where the website responds only based on the tasks performed by the user. These tasks shall be given on the screen as instructions. This shall interest the user as well as make him understand things well.
- Having a very short "video clip" on how things work within the site.
-

“Configuring mic. & trying demo song”

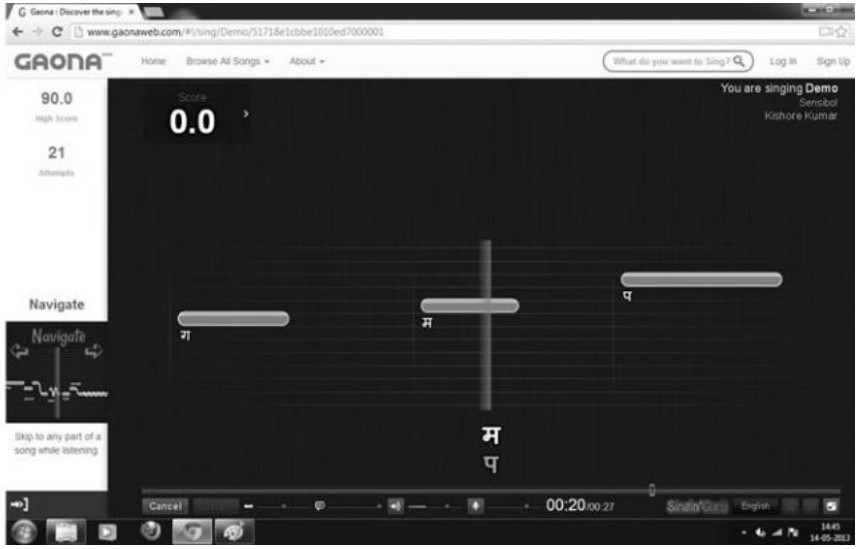
Results/Problems observed



- To go to “demo”, 5 of 20 users first try clicking the white strip as well as the blue box and then realize only the blue box works.
- 18 of 20 users said “bolo” as soon as it appeared thinking it is part of the song’s lyrics.
- 1 of the users identified the song and assumed that it is going to be the whole song to be sung and said “oh I think I don’t know this song much”.
  Is “Demo song” - a confusing terminology?
- 19 of 20 users did not click the sing button to sing the song unless prompted.
- After singing the song users did not know if listen was about listening to their own mix or about listening to the original track.
- Of the users who could find our language option in the bar, few were confused as “English” appeared on the button when the song’s lyrics were displayed in Hindi on the screen.

“Configuring mic. & trying demo song”

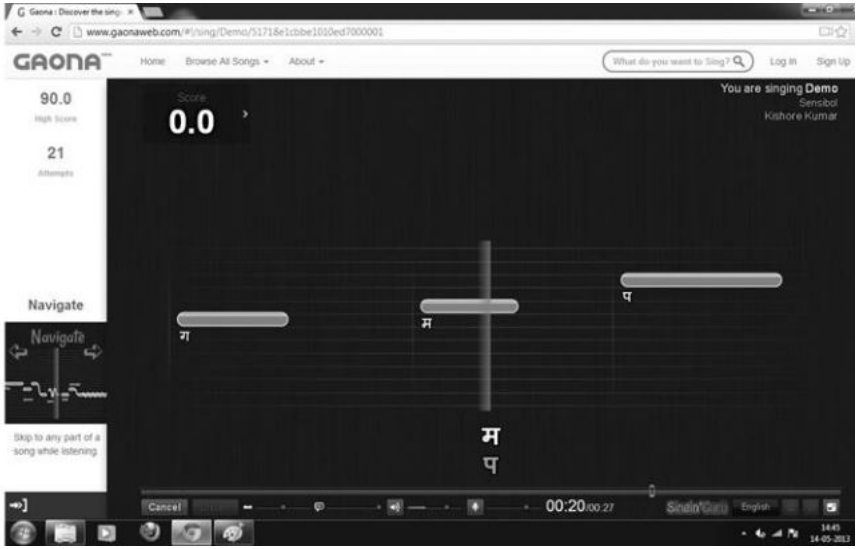
Results/Problems observed (contd.,)



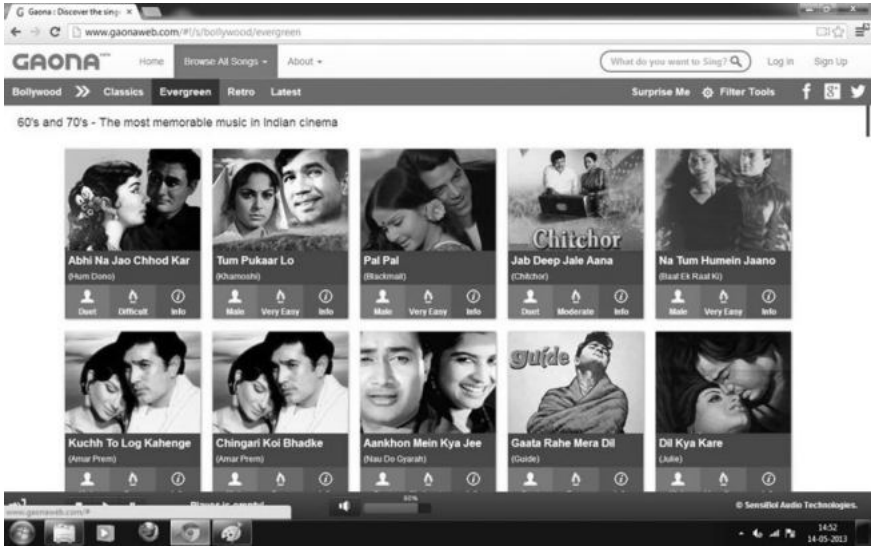
- The slideshow guide in the left bottom was a distraction as it keeps changing every few seconds and 9 of 20 users paused singing, thinking there are some comments about his/her singing there.
- All 20 users didn’t understand the first two controls’ sliders at least in the first go. Also 5 of them were complaining about the very small size of the controls in the interface.
- Neither of the 20 users understood the meaning of the toggle song list nor its icon.
- All the 20 users do not know when to sing though the part meant for singing is visually represented in blue in the map. User sings for the wrong singer - the female one if the user is a male and vice versa. The statement was – “Someone is already singing”
- The status of the User’s activity, and the song name or singer’s name cannot be spotted easily by most of the users.
- The user is clueless about where to go and sing the other songs once the demo song is over. Also close button is equivalent to sing again.

“Configuring mic. & trying demo song”

Solution ideas/recommendations



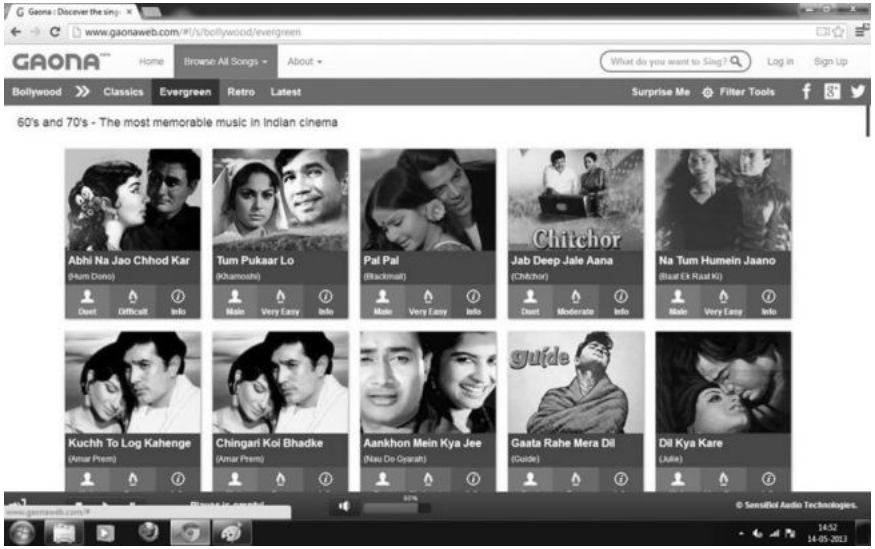
- Message appearing at the right time
  a. to inform the user to click “sing” and not wait till it loads fully.
  b. to “sing along” for that particular singer – Kishore
- Once the “demo” song is over, users should be given clearer choices and lead to pages according to their selection.
- Removing the continuously changing “clue bar” to remove distractions and adding say, a mascot, which emotes based on the performance as well as helps when the user is clueless.
- Work on the UI of the controls, buttons (small controls and miscommunications to be checked), positioning elements etc.,
- Have lyrics displayed only when needed.



"Browsing the songs"

Results/problems observed

- 10 of 20 users didn't know to where to browse songs without prompting and help. Users click at the "bollywood" space and mistake it to be a separate category link in itself.
- Some users could not understand the difference between Evergreen and Classic.
- The users cannot understand the meaning of the icon used for "difficulty level" and tend to keep clicking the "male" and "easy" icons and see nothing happening.
- 1 out of 20 users used "add to song list" option denoted by the plus symbol.
- None of the 20 users used the down arrow to know the name of the singer but a few kept asking about the singer while thinking aloud during the test.
- 2 users tried clicking info. to know more information about the song but got lead to a page shows more about who all sang it before in gaona and the leader boards.
- Users mistook hearts denoting "number of attempts" to be "likes" when they saw it in the first go.



"Browsing the songs"

Solution ideas/recommendations

- General Icon and Visual representation.
- Removing the "down arrow" (for showing the singer's name) and removing the hidden "plus symbol" for adding songs can make things clear in the user interface.
- Some of the users felt that song filtering should also be based on the scale of their voices(high pitched or low pitched songs) so that they can filter more easily.

•

"Singing Karaoke Interface"

Results/problems observed

- 13 of the 20 users clicked "done" without reading the few lines written above the button and later realized during the song that their microphone hadn't been configured properly.
- If the cursor is left in certain places around the screen a grey link box appears hiding the controls of the singing interface especially "sing" , "listen" as shown in the screen shot here. This leaves novice users clueless on where to click to play the song.
- 18 of 20 users waited for a long time for the song to load since "loading" kept appearing near the bottom of the player as the page was opened.
- While singing looking at the lyrics in the bottom, advertisement boxes appearing from youtube were a major distraction for many users as they affected readability greatly.
- While singing, some of the users got distracted by the continuous comments/feedback given and to comments like "c'mon focus" they said statements like- "I AM FOCUSING! Is this working or not?"
- While singing, some of the users felt the scoring is very strict and not encouraging.

"Singing Karaoke Interface"

Results/problems observed

- 19 of the users tried "pause" but couldn't find the button and hence pressed "space bar" which is default "pause" for youtube but couldn't succeed in pausing.
- All of the 20 users tried to "seek" forward in the colourful bar during a song in "sing" mode to save time and realized later that the facility was not present. 1 of 20 found out that the facility is actually present in the listen mode and that it can be dragged horizontally to explore more.
- 10 of 20 did not understand terminologies like lower octave, higher octave and antras, mukhdas etc.,
- Some users were not comfortable with the original song's pitch and wanted to transpose, since the facility is already present in traditional karaoke CD's etc.,

"Singing Karaoke Interface"

Results/problems observed

- 19 users could not understand what the colours in the singing bar meant.
- Sometimes, the application introduces a lag between the audio, as sung by the original singer, and the scrolling display of the pitch contour, midway through a session. The logic about delay when the user is singing wasn't immediately apparent to few of the users.
- After the login is done via facebook and the song is sung fully, 5 users closed the score dialogue box which has the "listen mix" option, as soon as it appeared and started searching in an other places to listen to their recording.

"Singing Karaoke Interface"

Solution ideas/recommendations

- Message appearing at the right time
  a. to inform the user to click "sing" and not wait till it loads fully
  b. to "sing along" for that particular singer.
  c. to inform user when he tries to "seek or pause".

- Less text and more visuals (configuring the mic. & comments).

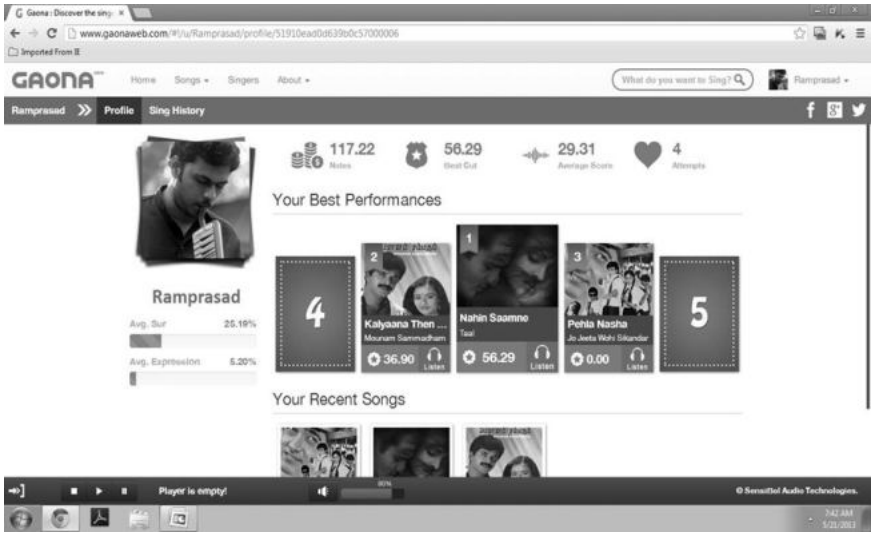
- Removing the continuously changing "clue bar" to remove distractions and adding say, a mascot, which emotes based on the performance as well as helps when the user is clueless.

- Work on the UI of the controls, buttons (small controls and miscommunications to be checked), positioning elements etc.,

- Terminology issues that confuse some of the users – octave, delay, vocals level, listen mix, antras, mukhdas etc.,

- Correcting the delay on the screen using the delay slider can be made more understandable.

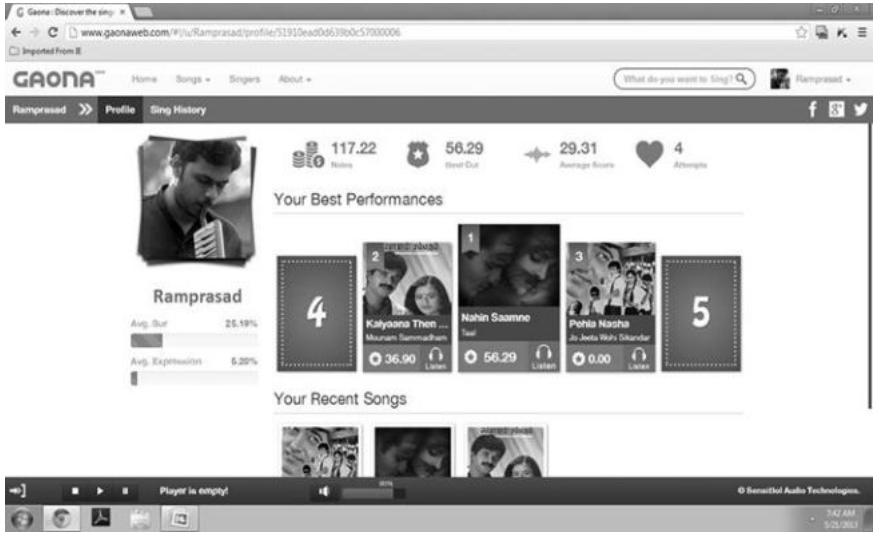
- Too many colours on the seek bar makes the interface more complex and therefore a maximum of two colours shall help for the same purpose.



"Listen to recording"

Results/Problems observed

- While logging in 8 Users started logging into gaona's a login thinking it is facebook login.
- Users preferred just typing in their Date of birth than to adjust things in the calendar which consumed so much time.
- Users could not understand what "avg. sur" and "expression bar" meant. Also they were surprised and wanted to know if the webcam checked their facial expression during evaluation.
- Users could not understand the meaning of the "S" icon on the right side of the score.
- Users were eager to listen to other's recordings but at the same time filter their friend's name etc., Also some of them wanted to delete their recordings and some wanted to download the songs.



"Listen to recording"

Solution ideas/recommendations

- Image representation improvement and Communicating meanings in a better way
-
- Removing the confusing words like "sur, notes, expression" and finding alternatives and ways of representing them.
- A detailed way of representing where the singer went wrong and where the singer was right.
- Facility to delete the song sung.
- Facility to download song or download particular well-sung lines of a song.
- Work on the UI of the Login page, (distinguishing facebook login and gaona login, DOB entry)
- Have "Search" for singers.

The Redesign Process

Compiling and prioritizing problems

Once the problems were noted down, I grouped problems based on each of the layers of user experience (Jesse James Garrett's) they fell into. Also we prioritized problems based on the time taken to solve them and the category they belong to - design problems or technical bugs. Very critical design problems, that would consume lesser time to solve, were immediately checked and gotten solved. Most of these fell into the visual design layer of user experience. I interacted with the technical staff taking care of coding the interfaces and jointly we kept solving those critical problems one by one. At the same time, I decided to focus on three major problems areas in Gaona's site that needed to be addressed.

They were

- Microphone Configuration Process.
- Singing Karaoke Interface.
- Home page.

These three areas were mainly chosen because they demanded a complete redesign in the way they work and look to allow efficient user interaction.

In the following pages I shall be discussing on the redesign process that happened for each of the above three elements.

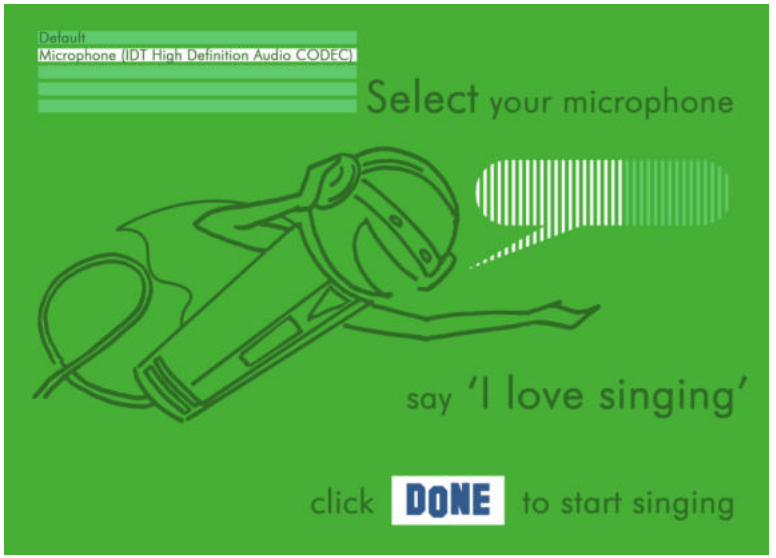
Redesigning "Microphone Configuration Process"

The microphone configuration process included more than two lines of instructions that actually led many of the users close the dialogue box and proceed to singing without checking the microphone status.

In order to make the whole experience more enjoyable and playful and keeping in mind the product's need for an interactive virtual assistant/mascot to help and emote according to the user's singing - the slides that involved microphone configuration were designed with rough cartoonish representations of the mascot in different poses. The poses were indirectly related to the different actions/computer statuses the user had to change as he configured the microphone.

The colours chosen for the slides were red, yellow and green in the same order as the user completes his actions one by one. This was to create an effect of the traffic signal check in a crossroad while riding a vehicle, which is very much analogous to the microphone check in Gaonaweb.com everytime a new user wants to sing a song.

Select 'Allow'
Adobe Flash Player Settings
Privacy
Allow www.gaonaweb.com to access your camera and microphone?
Allow
Deny
Remember
Close
Select 'Remember'
then 'Close'


Default
Microphone (IDT High Definition Audio CODEC)
Select your microphone
say 'I love singing'
click DONE to start singing

Redesigning "Singing Karaoke Interface"

Guidelines set from Usability test observations

- Message appearing at the right time
  a. to inform the user to click "sing" and not wait till it loads fully
  b. to "sing along" for that particular singer.
  c. to inform user when he tries to "seek or pause".

- Less text and more visuals (configuring the mic. & comments).

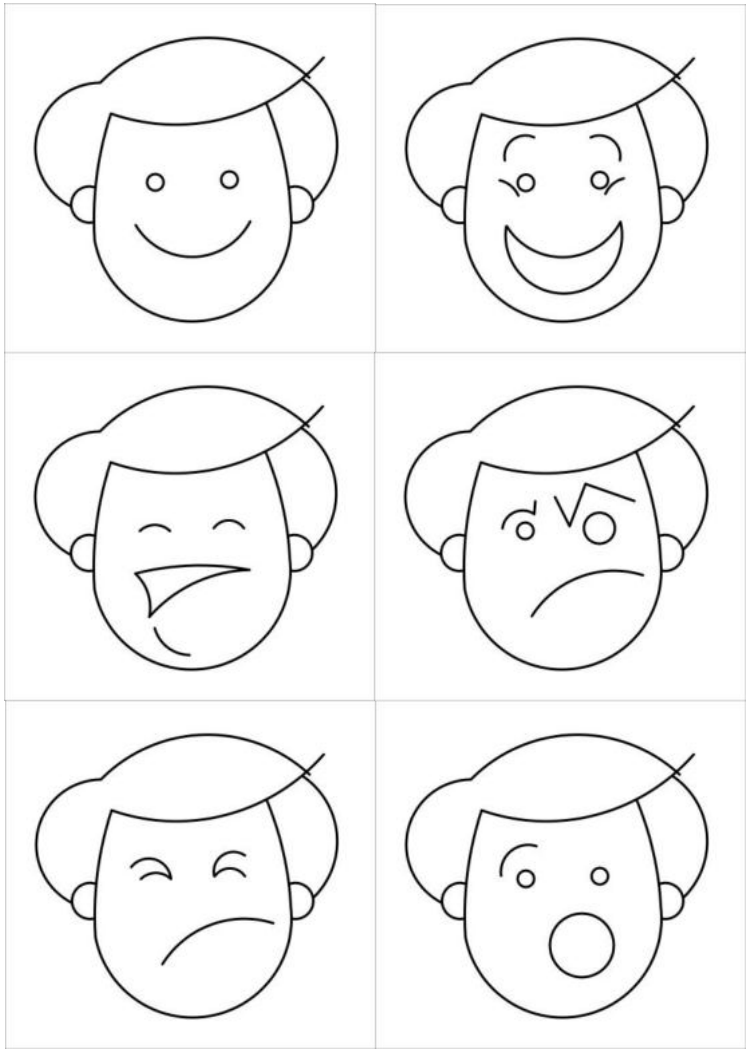
- Removing the continuously changing "clue bar" to remove distractions and adding say, a mascot, which emotes based on the performance as well as helps when the user is clueless.

- Work on the UI of the controls, buttons (small controls and miscommunications to be checked), positioning elements etc.,

- Terminology issues that confuse some of the users – octave, delay, vocals level, listen mix, antras, mukhdas etc.,

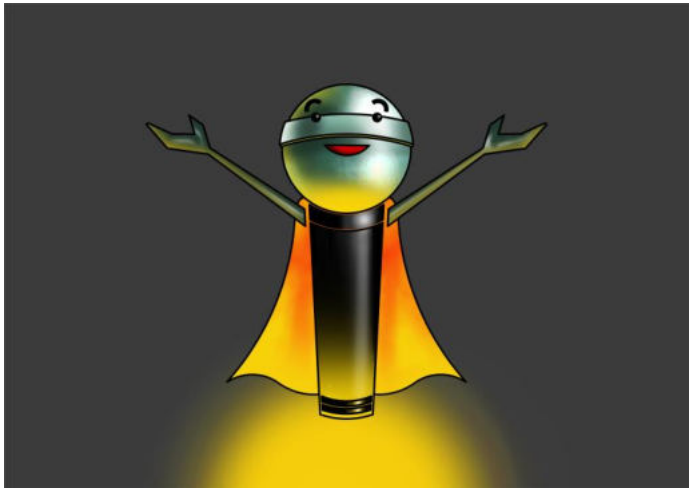
- Correcting the delay on the screen using the delay slider can be made more understandable.

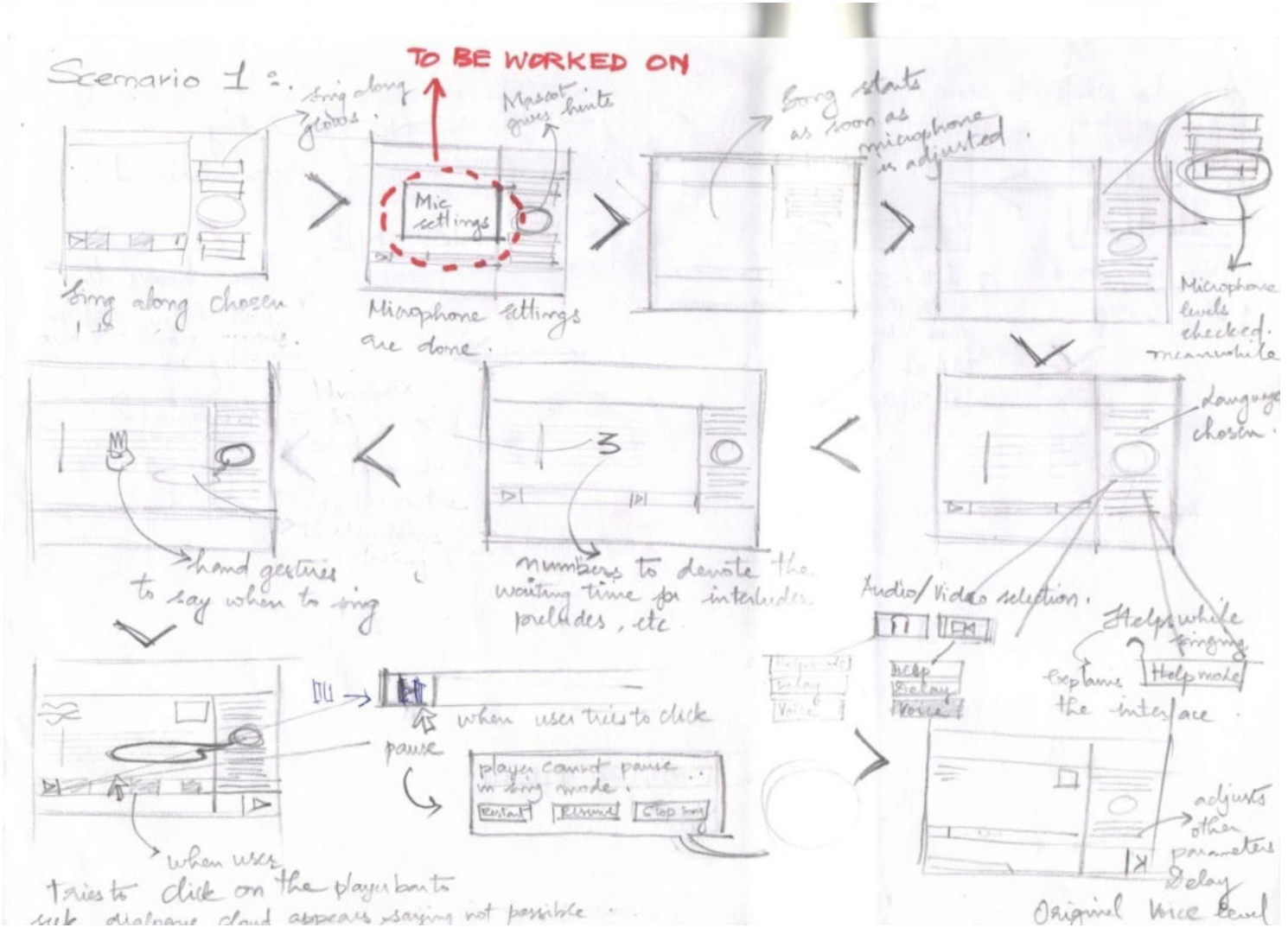
- Too many colours on the seek bar makes the interface more complex and therefore a maximum of two colours shall help for the same purpose.



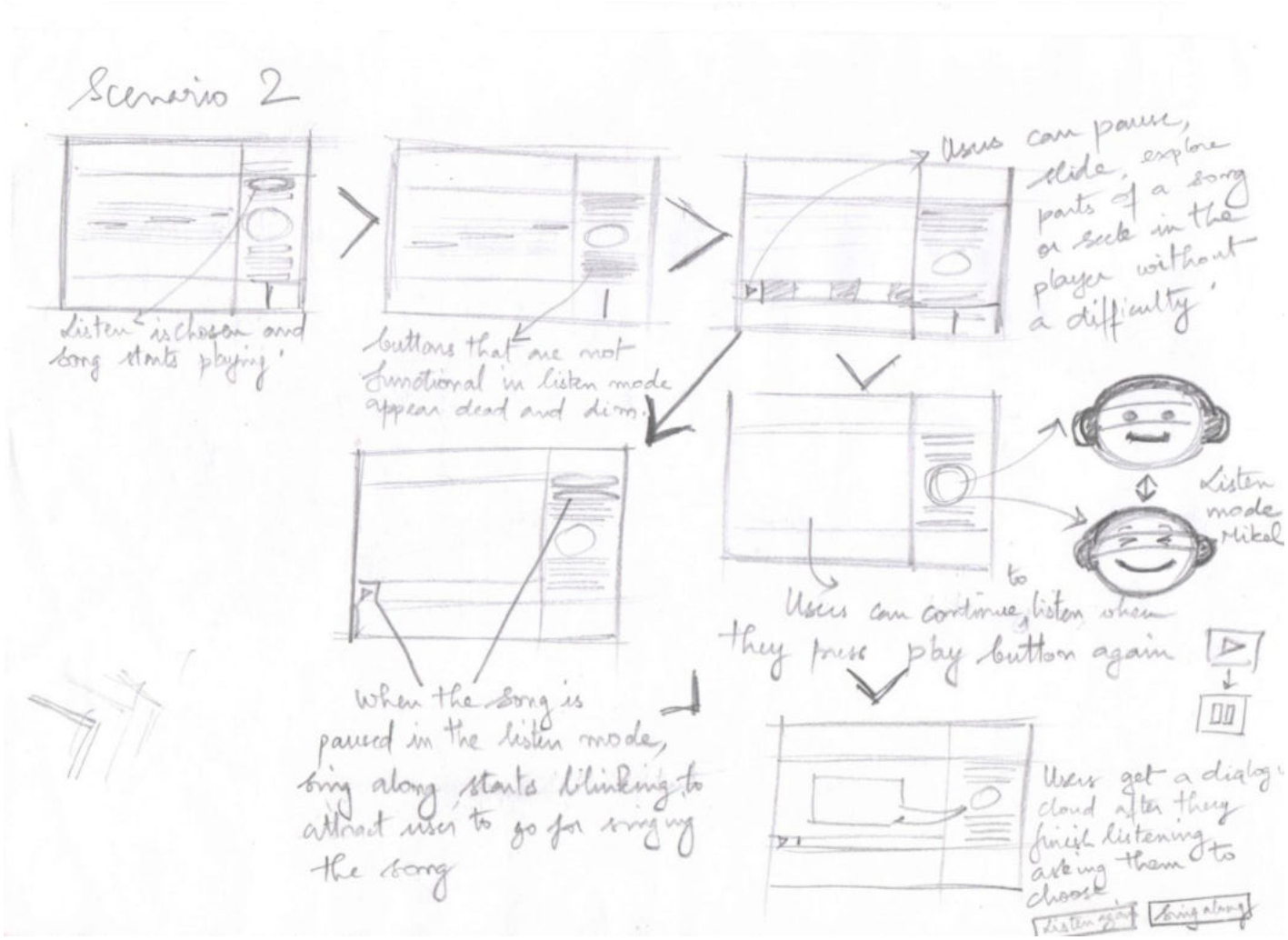
Demand for a mascot

The user had to see too many things at a time when singing. The user had to sing along with the note grid and make sure the graph his voice leaves as he sings is almost exactly as the graph pre-plotted for the song by Gaona. The user also had to: see the lyrics, make sure he sings for the right part of the song, control "delay" and "vocals level" and in addition look at the comments and score that keep changing, and sing as well. To read the long comments like "you can do better!" while singing a song was really cumbersome for all 20 users during the usability tests. To replace the comments with facial expressions shown in the left and also to enhance the experience with an online interactive assistant, a character called Mike'L (name because of the character - a microphone to suit the product) was designed.

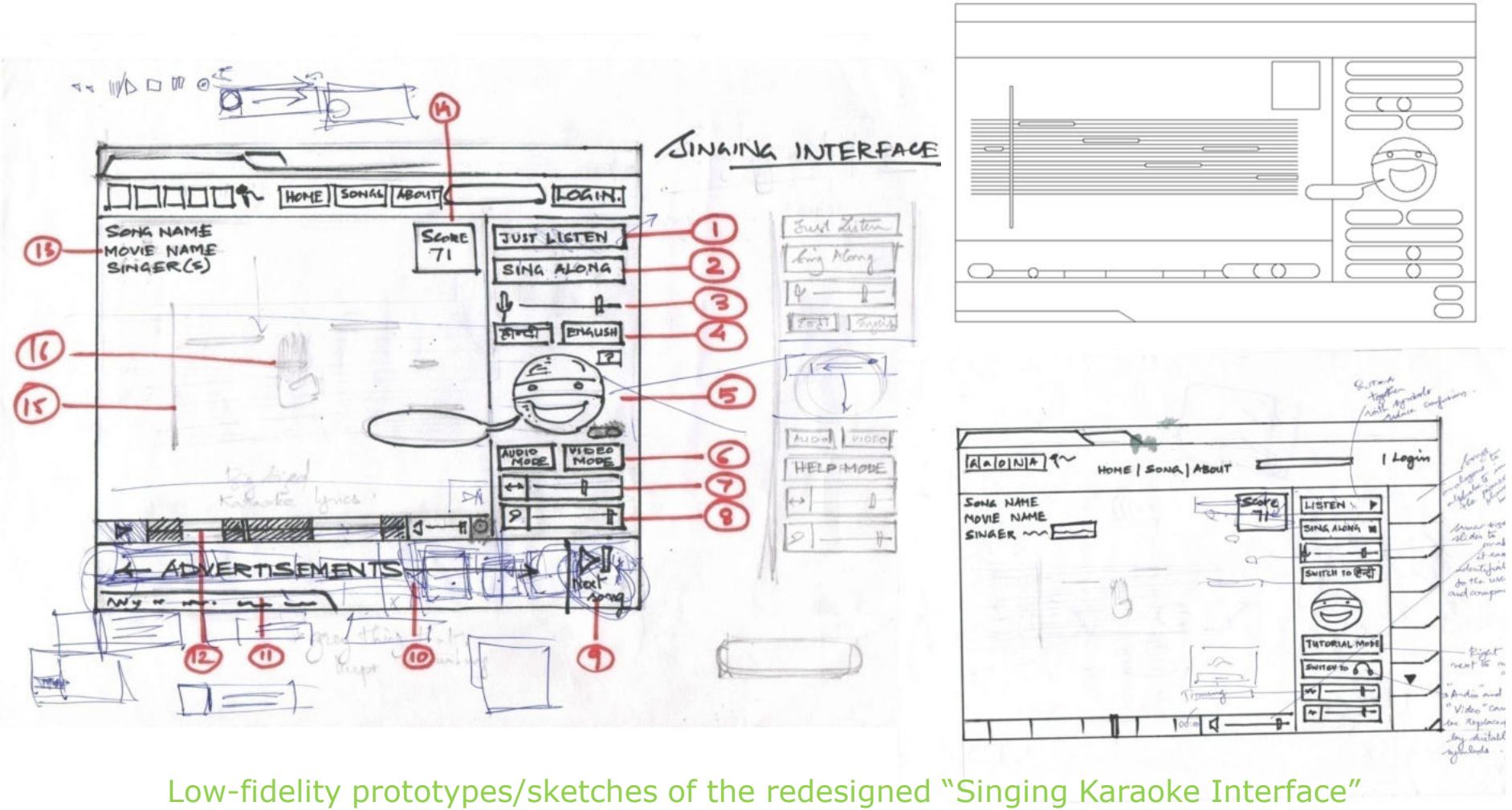




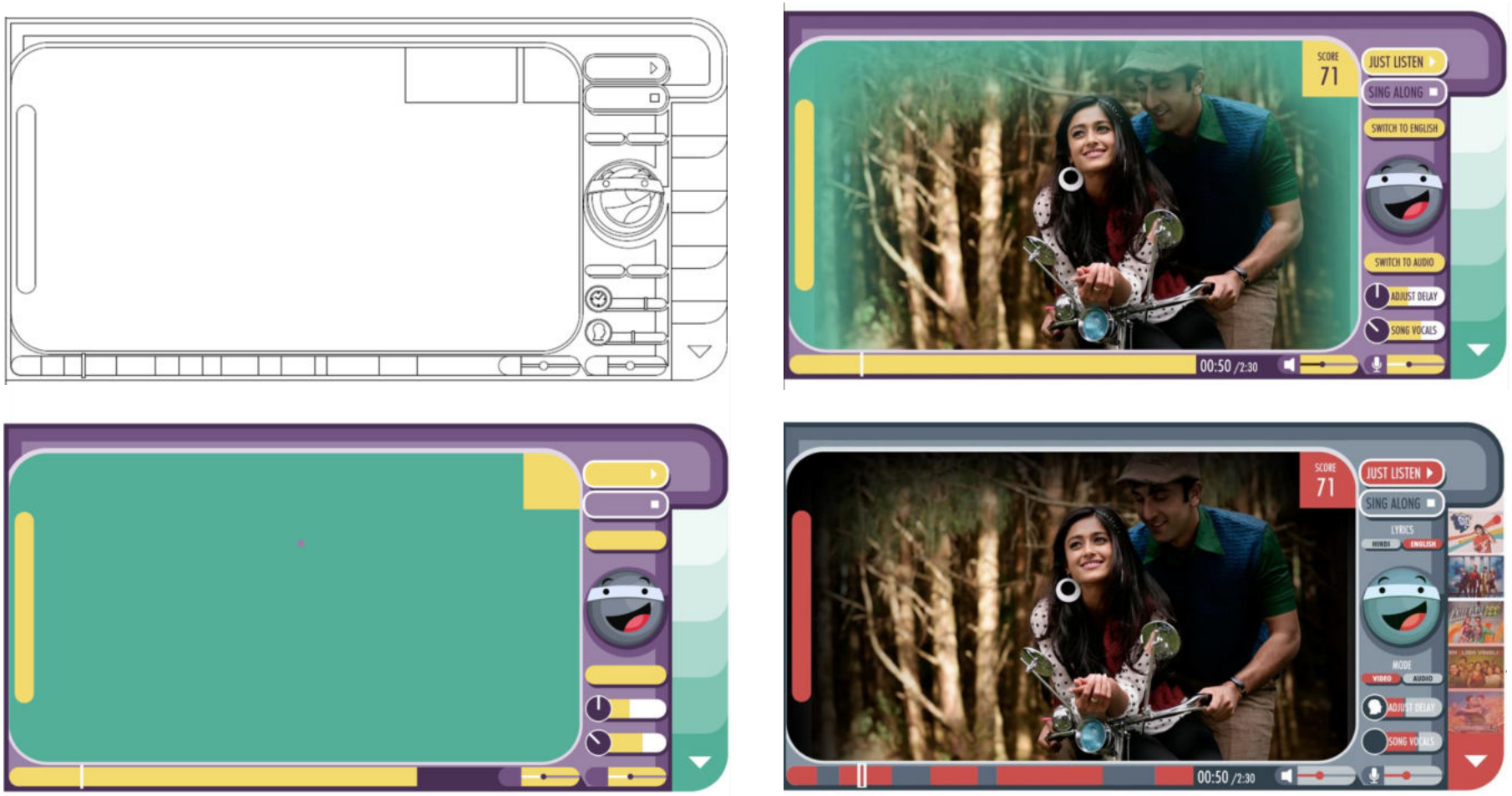
Scan of the sketches made during the early design stages



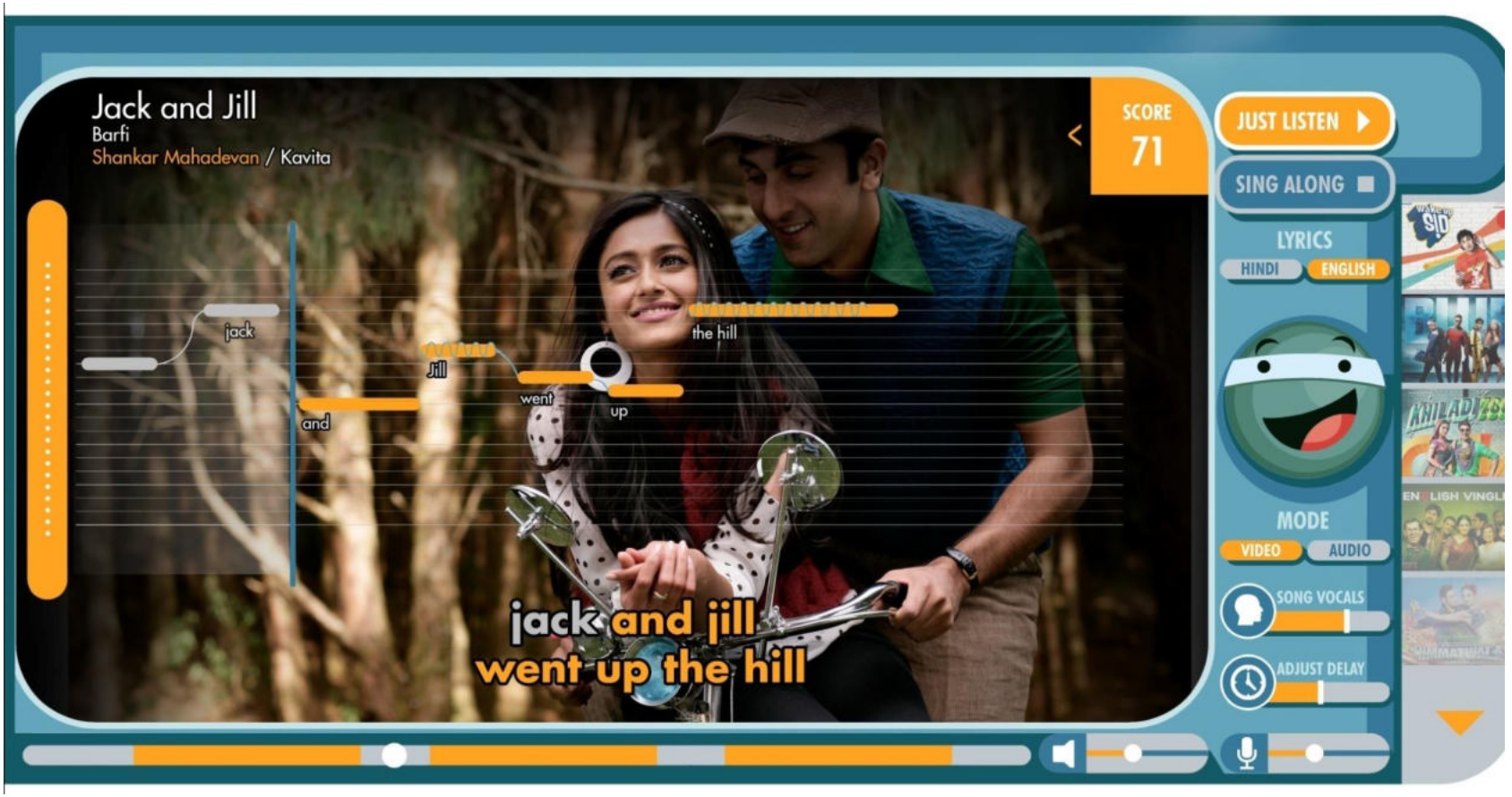
Scan of the sketch made during the early design stages. This was also during the early character design of the mascot/virtual interactive assistant.



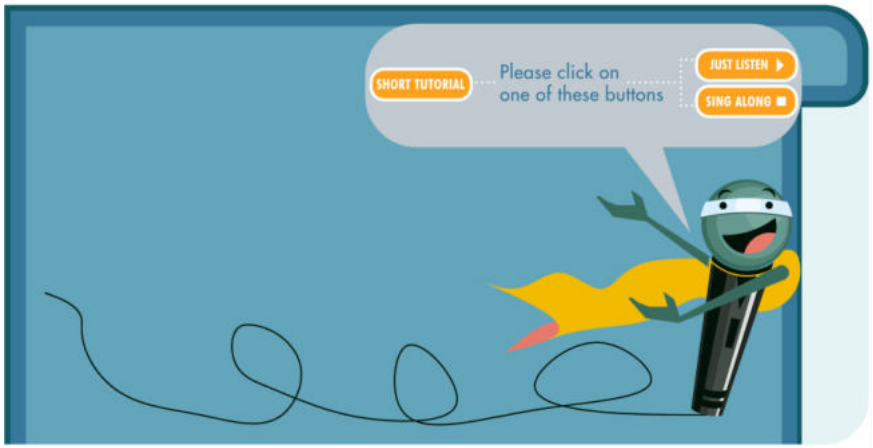
Low-fidelity prototypes/sketches of the redesigned "Singing Karaoke Interface"



Different iterations of the redesigned "Singing Karaoke Interface"



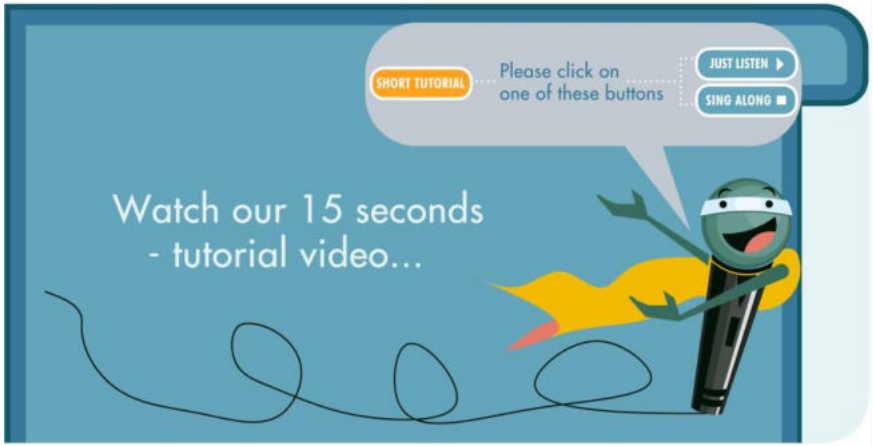
The final redesigned "Singing Karaoke Interface"

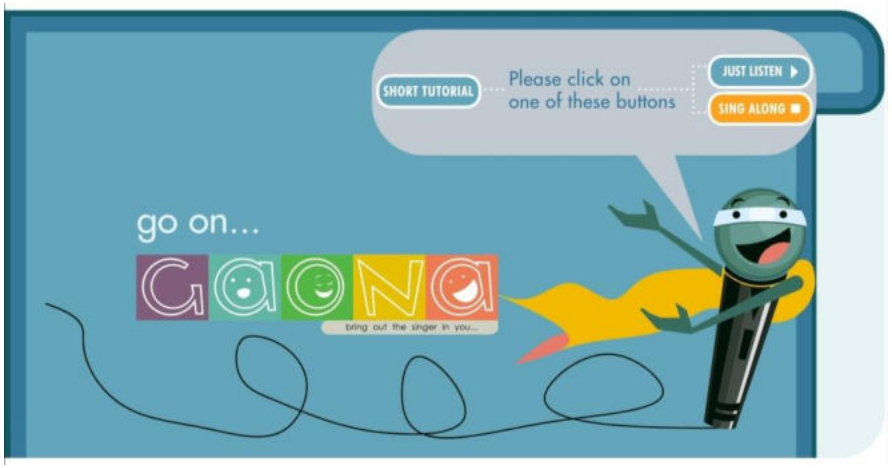


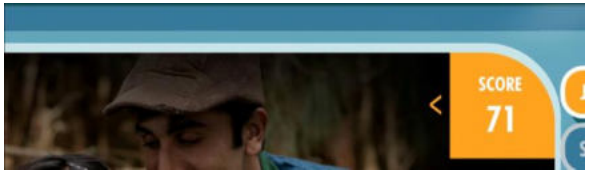
Giving options to the user:

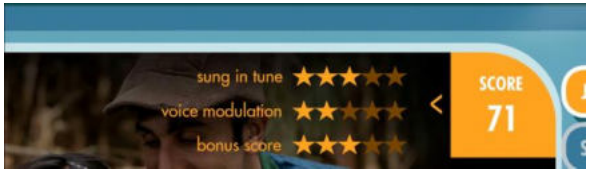
In the existing interface design, the users were not prompted to click on either "sing" or "listen" and they had to wait for some time after which they realized that the player starts playing the video or audio only after clicking on either of the buttons.

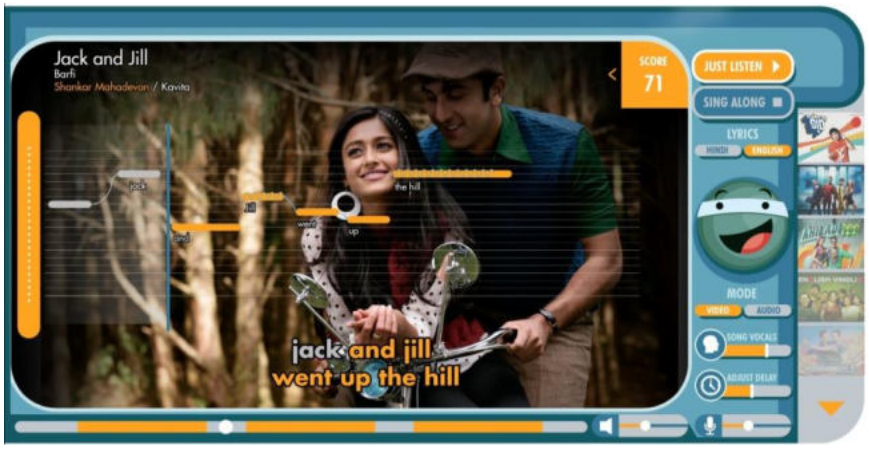
In the proposed interface, the user gets options to choose before the player started playing the song or the video.
An extra option called "short tutorial" would lead them to an introductory video that would replace the existing "introductory slides".











A few screen shots of Audio/Video Mode, Score card and Button glows

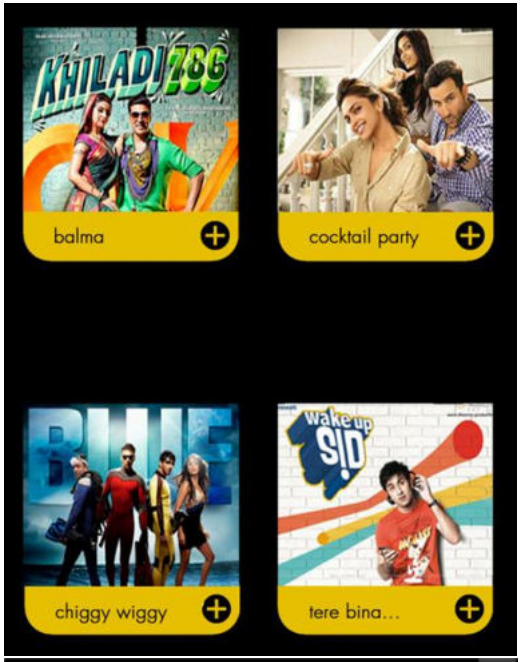
Redesigning “home page”

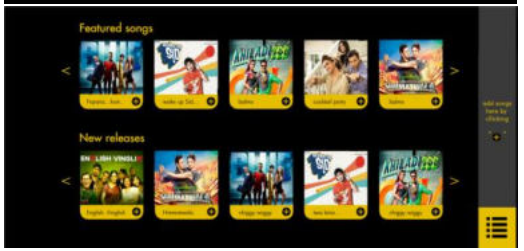
The home page was designed to make sure the user understands the working of the site at the very first look.

The “sing”, “listen” and “share” options were arranged in a triangle than the existing linear manner so that the intent and the flow of activity in the website can be conveyed better to the user. Also playful smileys make the site look more fun to use and entertaining. Introducing Mike’L in the home page would add to the branding of the site and make the whole experience a consistent one.

The Home page also shows best singers when it is open. Interestingly arranged squares with the best singers’ photos, alphabets from the logo and other smaller squares with changing colours from the logo etc., are all composed together like the disco lights that keep flickering continuously. The size of the photo of the singer varies according to the score that they have gotten during that week/month. While clicking on the name would lead to the profile of the person, clicking on the song would lead to the best scorers of that particular song. Also locating the song list on the right would help in spatial memory[1] as choosing one of the songs would lead to the Singing Karaoke Interface with the songs list in the same location.

Below the page, when scrolled down, there are rows of songs in the following categories: new releases, latest hits, featured songs and popular songs. Every entity of the songs list has a poster of the movie with the movie name depicted clearly, the song name below and a “plus” symbol that helps in adding the songs to the song list without any hide and seek.





A few screen shots of Home page and its individual elements.

References

[1] Designing Interfaces, 2nd Edition - O'Reilly Media
by Jennifer Tidwell

Videos by Michael Locke in youtube
https://www.youtube.com/user/mlwebco

http://en.wikipedia.org/wiki/Face_perception

http://www.hongkiat.com/blog/flat-design-resources/