

KZSC Radio Application

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ABSTRACT

This paper will describe the ideas, process, and obstacles that we as a group came upon while creating an improved version of an already existing KZSC radio application. We will expand upon some of previously existing features that created functionality problems within the app and show how we implemented new functionality to fix such issues. Development consisted of ten weeks. Each phase of development was assigned a specific number of weeks where we strategically built upon each previous phase. The roles and contributions each member made towards the application will also be expanded upon. Finally, the future and the potential of the application will be discussed and evaluated.

Introduction

The purpose of the KZSC app is for streaming what is currently playing on the KZSC airwaves. The app is to provide a programming schedule, information on the music currently playing on KZSC, as well as the music previously played. The app is also intended to provide a communication channel between the listeners and the current DJ via a chatroom to make comments as well as possibly request songs. The app provides information about the radio station, as well as a page in means to donate to the station via the KZSC online store. The Following is KZSCs mission statement from its website:

“KZSC is dedicated to this definition of ‘public interest.’ KZSC is dedicated to producing the best radio our various personnel and facilities will permit, serving the UCSC campus and our larger listening audience with news, public affairs, music, entertainment and spoken word programming as well as broadcasts and information about various UCSC campus events and issues.”

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Objective

The KZSC app provides an interface for streaming on android devices. The app now provides an interface where the listeners can view the program schedule within the app itself, contact the DJ and view the most recent tracks that were played. It also provides a embedded page to donate to KZSC and provide feedback for the developers. The previously existing app redirected the user to the webpage when accessing the program schedule, previous broadcasts and donate buttons. The newly KZSC application created by the KZSC Slugs team recreates the previous mobile application so the interface is more user friendly and visually appealing. For example, instead of redirecting the listeners to a link on their local browser, our application has the program schedule and previous broadcasts displayed within the application. Another major feature that was added was a chatroom where the users can make comments and request songs.

Problems with existing systems

The old/current KZSC mobile radio application is both in Android and iOS. Some of the features it includes are a radio player, program schedule, call/text DJ option, and a previous broadcasts feature. Although a lot of these features are very useful to have within a radio application, many of them had quite a few bugs. Not only that but the current user interface that the KZSC mobile application maintained had a layout that caused usability problems. There were many inconsistencies within the design that did not make the visual elements of the app look coherent.

User interface

Focusing on the user interface of the old application, the overall design was clustered with feature buttons on the first screen. Over one third of the screen was a KZSC header which took away a large amount of space that could be used in other ways. The feature buttons the app had were in two completely different sides of the screen, which created an inconsistency since the functions are not grouped together. The spacing throughout the screen was very small from line to line/feature to feature. This caused problems because it makes it harder to click on different elements of the app. (Image of the old KZSC User Interface at end of document)

Embedding

Another problem that the old mobile application held was that most of the pages it had were not embedded within the actual application. For example the “Program Schedule”

button did not send the user to a screen from within the app with the program schedule but instead linked the user to a URL. This meant the app exited and brought the user upon a browser with a web page that held the program schedule. The donate button did the same as well.

Radio player

Additionally, the old mobile applications radio stopped playing whenever a user exited out of the app. For example whenever a user decided to navigate from the KZSC app to a social media app like Facebook, the radio instantly stopped. The radio also stopped playing when a user stayed within the app but turned off the phone screen. This may become very problematic because almost all music applications that exist today have the feature that continues playing media while the user does not have the application physically open on the main screen. This drains battery by requiring users to maintain a screen to be on and may push away users from actually keeping the KZSC app.

Components

The components and features that have been included within the KZSC mobile application are: a Home Screen, Radio Player, Chat Screen, Embedded Schedule, “Donate Page”, and an “About” Page

The process of when using the newly created KZSC application is as follows: The user will open the application on an android device and the first screen to boot up will be the Home Screen. This Home Screen contains a side swiping navigation bar which holds tabs/links from one fragment to the other (these fragments include: Home, Chat, Program Schedule, Donate, and About). In the center of the Home screen we hold a list of the recently played tracks/radio talks that is updated over time. The footer of the Home screen holds the radio player button and the header holds a KZSC logo.

To travel to the next fragment within the application the user will simply click on the chat icon on the navigation bar to the side. This will lead them to a user identification screen in which a user is asked to input a username for the chat. Once the user inputs a username, they will be brought upon a chat room interface in which they will be able to request songs/interact with the DJ. The DJ will be able to respond to users as they wish. A DJ will be identified through the backend of the application by holding a special key/username when logging into the chat, meanwhile a regular user will not have a special key. Other user messages will be seen within this chat since it is a many-to-one chat. The radio player button will remain on the footer of the chat page.

Another fragment a user can go to is the “Program Schedule” page. This tab can be reached by simply clicking on the calendar icon on the navigation bar on the side. This brings the user upon a fragment which holds a weekly calendar that is updated accordingly; to what is going to be played each week. There is a “Show Categories” menu on the top of the “Program Schedule” page which has category descriptions (such as “hip-hop”, “jazz”, “Talk/Public Affairs”, etc.). When a category is selected, the times in which such genres will be played will be highlighted within the program schedule calendar. This helps the user find certain genres within the program schedule much faster.

The following page is the “Donate” page. This can be reached by simply clicking on the dollar sign icon on the navigation bar below. This fragment allows users to be redirected to the KZSC online store, allowing users to donate to the radio station.

The last page within the application is the “About” page. The about page within the application is a tab bar layout which consists of three categories. The three categories are: “Purpose”, “Mission Statement”, and “Contact”. The purpose of this portion of the application is to simply give a brief explanation on what the KZSC Radio Station is about allowing users to learn more about the local station.

Development

The process of development that the KZSC Slugs team took to start this project was to spend a few days to research on the how to apply the main components of the application. This gave us a better idea on how long each task would take. After having done so, we divided the tasks into categories and gave time frames to each task. We then divided our team of five into two groups. A group of two students (Karen Cariaga and David Ramirez) would work on the radio player while the other three students (David Stewart, Lizette Sanchez, and Kevin Munoz) will work on the chat portion of the application. The order in which we gave priority to tasks was: Home Screen (Radio Player), Chat, Program Schedule, Donate page, and the About KZSC page.

Throughout the development, our initial application idea did not change very much conceptually but the designs of certain pages were not created as they were initially thought out to be. For example, the home page of the application was initially thought out to have the navigation system on the bottom of the page rather than the side. This navigation bar was changed to be on the side because the home page seemed cluttered with its contents alongside the radio player and the bottom navigation bar. Other than that, there weren’t any major changes within the application since we fulfilled all features that were initially proposed.

Contribution

Each member of the team contributed in different portions of the application. For the very first task, the Project Proposal, everyone in the team contributed by writing a different portion of it. We then all came together as a team and merged the writing, making sure the report had a fluid structure.

The Radio Player button was created by David Ramirez and Karen Cariaga. They worked on making sure there were no longer any bugs within the player when the mobile device was idle or when a user opened another mobile app .

The home page “Recently Played Tracks” section was created by David Stewart. He used a web scraping API that connects to KZSCs url. Originally, we wanted to access the KZSC database that held such recently played tracks, but the database was set to private meaning the web scraping API was the only possible way to maintain a recently played tracks section in the application.

The chat within the mobile application was created by Lizette Sanchez and David Stewart. They worked on creating a many to one chat with the use of firebase for the backend. Once having the chat functioning properly, they worked on the design of the chat in which each message

would be displayed in a speech bubble rather than just plain text. The chat also holds a feature in which the user is required to input a name. This makes the chat more readable to others since it helps identify the user who sent the message.

The program schedule was created by David Stewart. He worked on making sure that the schedule updated accordingly to what would be played that week. He also created a “Show Categories” feature that highlights the indicated genre within the program schedule; making the schedule easier to view according to a user’s interests.

The “Donate” page was created by David Stewart. Within this page, he created a web view of the KZSC store which allows a user to donate money to the radio station. He worked on making sure that the webview did not include outside links that will redirect the user to a page that is not within the KZSC app itself.

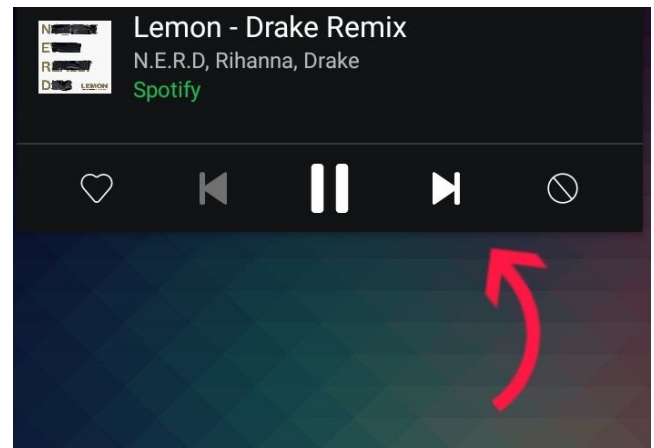
The “About” KZSC page was created by Lizette Sanchez. Within this fragment, she created a tab bar layout in which there exists a “Purpose”, “Mission Statement”, and a “Contact” page. These tabs are all accessible through a swipe transition from one tab to the other. The whole purpose of this fragment is to allow users to learn about the KZSC station.

The navigation portion of the application was created by Kevin Munoz. This is simply a side swipe navigation bar that allows users to travel from one fragment of the application to the other.

The merging of the application was done by David Stewart, David Ramirez, and Karen Cariaga. This was simply pasting together different branches of our application since the app was worked on within different branches of our team github.

The Interim Presentation for this class was created by Lizette Sanchez, David Stewart, Kevin Munoz, and David Ramirez. The Final Report was created by everyone in the team. This was all done by dividing up the writing work into different portions evenly.

Overall, working as a team was a great learning experience. It allowed us to learn to work alongside of others. Also, each team member had a different skill set which benefited the whole team because we learned from one another.



Apart from that, the KZSC Slugs team fulfilled all features that were said to be accomplished from the very start of the quarter.



Future Work

A feature that is missing from the KZSC application and could possibly be included if more work would be put into the app is the addition of a music player that is displayed outside of the application (just within the phone itself). For example, when a music app (such as Spotify) is playing music and the phone is put to sleep, we see a compact version of the music player once the screen is turned on again. The addition of this feature would make the accessibility to the information of the media being played much more accessible.