

INFO2040

SD: Mobile Application Design

Project 3

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Introduction

This is the introduction to the proposal and design for an application that would allow users to access high quality sound. The idea behind the application is to provide users with the opportunity to replicate high quality headphones through their own mobile device. This proposal will allow me to further develop my understanding of the design process and all that it entails. It will also demonstrate my mobile application graphic design skills along with further the understanding of the special constraints and advantages of mobile applications.

Description

The application called Audiophile will be an app that allows users to experience high quality sound through their headphones. The premise of the application will be to have EQ frequency response data of the most sought after and quality headphones ever built. This data through the applications EQ will then be applied to your devices equalizer (EQ) to create a replica of the desired headphone chosen. This will allow the user the possibility of what the most sought after headphones ever built would potentially sound like. The application will include features that would allow it access to the user's current music library so they can listen to all their favourite music through the application. It will also allow the user to switch between different headphones in the sound settings. The application will also provide playback support for high quality audio files such as FLAC and OGG. Finally, the application will have a feature that will allow the user to create multiple custom EQ settings that can be saved and will be more in-depth and sophisticated than the typical device EQ settings.

The business purpose of this application is to allow user's who may not have the expenses or opportunity to listen and experience the highest quality sound available. Future goals of the application will be designate free and paid features and access. The application could also integrate a buffer length setting to reduce any distortion due to the conversion process. If successful it could also potentially integrate or partner with potential music streaming services. This would allow users to stream music instead of it being physically downloaded onto the devices music library.

Research

Survey

1. How likely is it that you would create an account and use this new application?

Not At All Likely

Extremely Likely

0	1	2	3	4	5	6	7	8	9
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2. How likely is it that you would recommend this application to a friend or colleague?

Not At All Likely

Extremely Likely

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

3. What is your first reaction to the idea of the application?

- ☐ Very Positive
- ☐ Somewhat Positive
- ☐ Neutral
- ☐ Somewhat negative
- ☐ Very negative

4. How innovative is the Application?

- ☐ Extremely innovative
- ☐ Very innovative
- ☐ Not so innovative
- ☐ Not at all innovative

5. If this application were available today, how likely would you be to purchase it?

- ☐ Extremely likely
- ☐ Very likely
- ☐ Somewhat likely
- ☐ Not so likely
- ☐ Not at all likely

6. In your own words, what are the potential things that you might like about this new application?

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7. In your own words, what are some features you would most like to see included to improve this new application?

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8. Do you have any other comments, questions, or concerns?

Email

Dear Avid Music Listeners,

I am in the process of developing a new and innovative application that will allow users to experience high quality replicated sound through their headphones. The premise of the application will be to have EQ frequency response data of the most sought after and quality headphones ever built. This data through the applications EQ will then be applied to your devices equalizer (EQ) to create a replica of the desired headphone chosen. This will allow the user the possibility of what the most sought after headphones ever built would potentially sound like. The application will include features such as integration to your devices current music library, high quality playback support, custom EQ sound settings, headphone references etc. Based on feedback the application may also be divided into two versions; free and premium. I am extremely excited about this application and would appreciate any valuable feedback from you. If you have some free time, this short survey created will acquire some general information about your position on this application and any feedback you would like to add. Thank you for your time, and continue listening!

Technical Issues

Hardware Features

- Wireless connection via Wi-Fi or LTE so the application can download the EQ frequency response data from the server
- Headphone Jack -Manipulation over the devices sound output
- The application should also take into consideration CPU limitations, available accessible memory and battery life

Input Controls or Display Features

- The application will need the ability to adapt to different screen sizes and orientations
- Touch-screen ability
- Understandable error exceptions shall be displayed when they occur
- The application will need access to the devices Equalizer so it can be changed to the desired settings

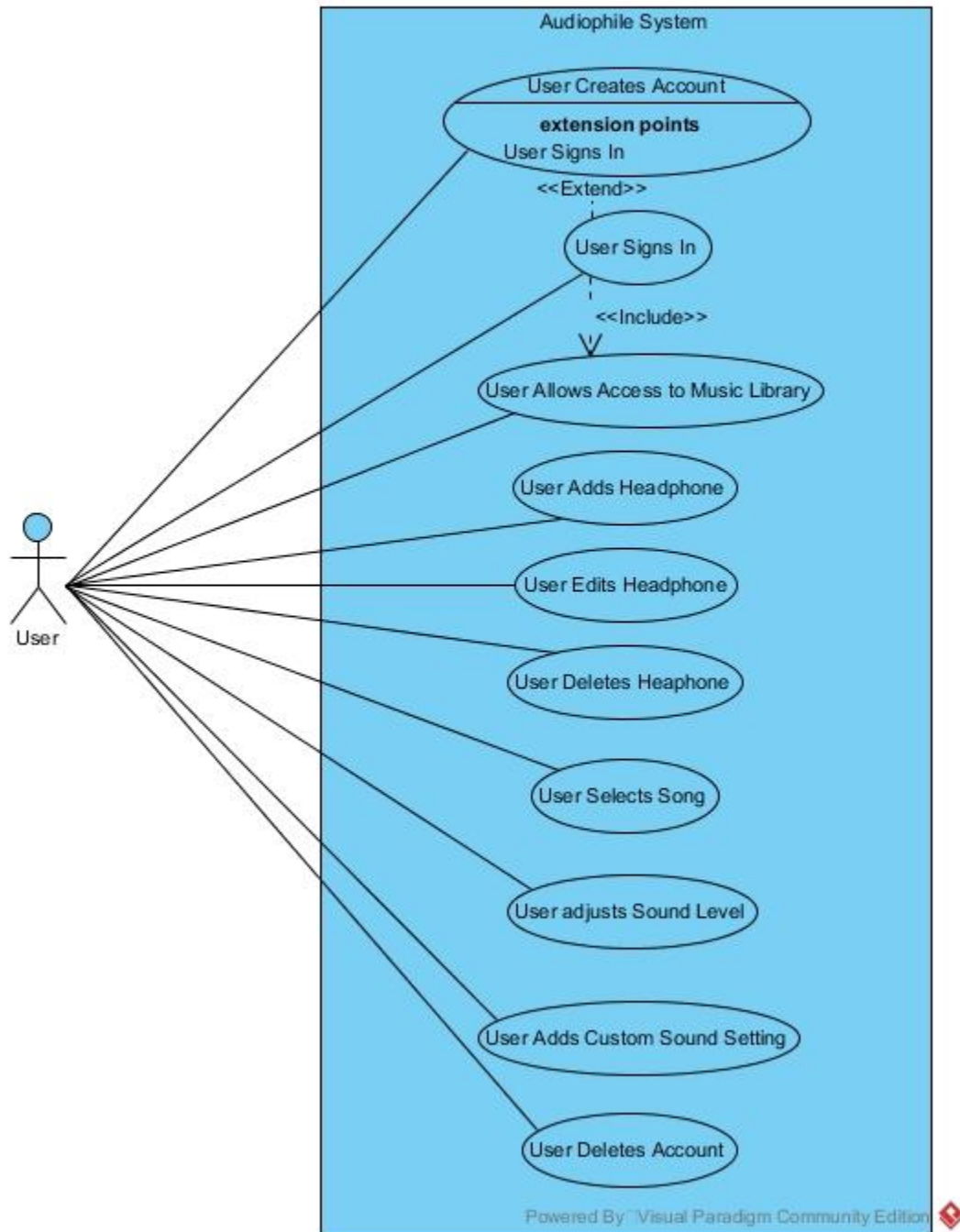
- The application will need access to the music library on the device
- The application will have a customizable EQ feature that will allow the user to create their own custom equalizer settings

Constraints or Advantages with Context

- Environmental conditions - the weather could have impact on the application due to the general usage of the application being outside. Application configures settings to ensure the best possible experience given the current environment.

Use Cases

Audiophile Application Use Case Diagram



Use Case 1	User Creates Account
Primary Actor	User
Scope	Audiophile Application System
Level	User Goal
Description	When a new user wishes to create an account to access the features of the Audiophile Application.
Precondition(s)	New User that has not been recorded in the database has been received.
Minimal Guarantee(s)	Information about the new User is not recorded into the database.
Success Guarantee(s)	Information about the new User is recorded into the database.
Main Success Scenario/Flow	<ol style="list-style-type: none"> 1. User initiates creating a new Account in the system. 2. User enters personal and contact information. 3. User enters email address. The system checks to make sure the email address is unique and new to the system. 4. User enters username. The system checks to make sure the username is unique and new to the system. 5. The User completes creating a new account record. 6. The system saves all added information about the new User and adds it to the database.
Extensions / Alternate Flows	<ol style="list-style-type: none"> 2.1 User enters invalid or non-unique email address for account and is prompted to re-enter email address. 3.1 User enters non-unique username and is prompted to re-enter username.
Related Information	

Use Case 2	User Allows Access to Music Library
Primary Actor	User
Scope	Audiophile Application System
Level	User Goal
Description	When a new user signs into their account and wishes to have the application access their current devices music library.
Precondition(s)	Include: User Signs In Application has not accessed the user's current devices music library.
Minimal Guarantee(s)	Information from the user's music library is not synced and recorded into the database.
Success Guarantee(s)	Information from the user's music library is synced and recorded into the database.
Main Success Scenario/Flow	<ol style="list-style-type: none"> 1. User is signed into account. 2. The system prompts the user asking if they would like to sync their devices music library with the application. 3. The User will select (yes, no) option. 4. If yes selected, the application will sync the data from the user's music library into the database. 5. The system will then populate the application with the data previously synced.
Extensions / Alternate Flows	3.1 If No option is selected the use case terminates.
Related Information	User Signs In

Use Case 3	User Adds Headphone Reference
Primary Actor	User
Scope	Audiophile Application System
Level	User Goal
Description	When a user initializes and creates a new headphone reference through the installed application.
Precondition(s)	New headphone reference has not been recorded into the database.
Minimal Guarantee(s)	Information about the new headphone reference is not recorded into the database.
Success Guarantee(s)	Information about the new headphone reference is recorded into the database.
Main Success Scenario/Flow	<ol style="list-style-type: none"> 1. User initiates creating a new headphone reference in the system. 2. User selects desired headphone from options available in select box. 3. The application connects to the server to gather the frequency response data for the selected headphone. 4. The system displays the frequency response chart for the selected headphone. 5. The User enters a name for the headphone reference setting. 6. The User saves there headphone choice selected. 7. The system persists the information about the new headphone reference and adds it to the database. 8. The user terminates adding a new headphone reference.
Extensions / Alternate Flows	6. The user cancels rather than saving the results. The use case terminates.
Related Information	

Use Case 4	User Adds Custom Sound Setting
Primary Actor	User
Scope	Audiophile Application System
Level	User Goal
Description	When a user initializes and creates a new custom sound setting through the installed application.
Precondition(s)	New custom sound setting has not been recorded into the database.
Minimal Guarantee(s)	Information about the new custom sound setting is not recorded into the database.
Success Guarantee(s)	Information about the new custom sound setting is recorded into the database.
Main Success Scenario/Flow	<ol style="list-style-type: none"> 1. User initiates creating a new custom sound setting in the system. 2. User selects the frequency they wish to target. 3. User inputs the amount of gain they want for the specific frequency. 4. User input the bandwidth they want for the specific frequency. 5. User repeats steps 2-4 until indicates they are done. 6. User enters a name for the custom EQ sound setting. 7. The User saves information about the new custom EQ sound setting. 8. The system persists all information about the new custom sound setting and adds it to the database. 9. The User terminates adding a new custom sound setting.
Extensions / Alternate Flows	<ol style="list-style-type: none"> 7. The user cancels rather than saving the results. The use case terminates.
Related Information	

Personas

	Dan Audiophile	Steven Music Student	Lindsey Casual Music Listener	Weighted Sum
Weight (%)	50	20	30	
Weight (0 to 1)	0.5	0.2	0.3	
No Advertisement	1	1	4	2.0
FLAC, OGG Playback Support	3	4	2	3.0
Basic Playback Support	3	3	3	3.0
Buffer Length Settings	2	2	1	1.6
Custom EQ Settings	4	5	2	3.6
Integrate with Music Device Library	3	3	4	3.3
Headphone Reference Function	5	4	5	4.6

Based on the statistical data calculated from the three individual personas we can make some general conclusions. First, with no advertisement and a buffer length setting having a relatively low score compared to the other features these may be included in a premium version of the application. They may be important features to some individuals but may not influence the decisions of the mass set of users who download and use the application. Second, the headphone and custom EQ settings are vitally important due to their weighted sum score and are the two most desired features of the application. If two versions of the application are created maybe including a limit to the amount of saved headphone references and custom EQ settings allowed would be beneficial. This allows every type of user to experience the capabilities of the application but to receive unlimited saved headphone and custom EQ settings they would need to purchase the premium version. Third, the integration with the user's music device library scored relatively in the middle and would therefore be a default feature that is necessary in both potential versions of the application. Finally, with FLAC, OGG playback support and basic playback support scoring the same weighted sum these two features could also be divided between a premium and basic version of the application. The basic version would support just basic playback support while the premium would support both

basic and FLAC, OGG playback support. In conclusion, after reanalyzing the data the best approach may be to create a premium and basic free version of the application where the features/amount of saved settings differ slightly. This would still allow users to experience the best aspects of the application for free but have the option of more control and features with the premium version.

Entities

<<Entity>> User	
PK	id: int
firstName: string	
lastName: string	
password: string	
email: string	
username: string	
version: string	
allowAccess: bool	

<<Entity>> MusicLibrary	
PK	id: int
playlists: string	
artists: string	
albums: string	
songs: string	
recentlyAdded: string	

<<Entity>> Headphone	
PK	id: int
userId: int	
name: string	
frequencyResponse: int	

<<Entity>> Playlists	
PK	name: string
songs: string	

<<Entity>> Artists	
PK	name: string

<<Entity>> Albums	
PK	name: string
artist: string	
artwork: image	

<<Entity>> CustomSoundSetting	
PK	id: int
userId: int	
name: string	
frequencySetting: int	
gain: int	
bandwidth: int	

<<Entity>> Songs	
PK	name: string
artist: string	
album: string	

<<Entity>> RecentlyAdded	
PK	id: int
album: string	

Content Plans

Home Screen

1. Status Bar

- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Home Panel

- Logo/Image
- Title
- Email
- Password
- Sign In Button
- Create Account Button

Create Account Screen

1. Status Bar

- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Logo Panel

- Logo

3. Account Form Panel

- Title
- First Name
- Last Name
- Username
- Email
- Password

- Create Account Button

Music Library Screen

1. Status Bar

- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Library Panel

- Title
- Playlists
- Artists
- Albums
- Songs
- Recently Added

3. Footer

- Playlist Button/Text
- Songs Button/Text
- Artist Button/Text
- Album Button/Text
- Search Button/Text

Sound Settings Screen

1. Status Bar

- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Header

- Title

- Back button
- Add button

3. Headphones Panel

- Headphone name
- Edit Button

3. Footer

- Playlist Button/Text
- Songs Button/Text
- Artist Button/Text
- Album Button/Text
- Search Button/Text

Add Sound Setting Screen

1. Status Bar

- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Header

- Title
- Back Button

3. Headphone Reference Panel

- Select Earphones/Headphone Reference label
- Select Box
- Settings Name Input Field
- Headphones Frequency Response Graph
- Save Settings Button

4. Footer

- Playlist Button/Text

- Songs Button/Text
- Artist Button/Text
- Album Button/Text
- Search Button/Text

Music Playback Screen

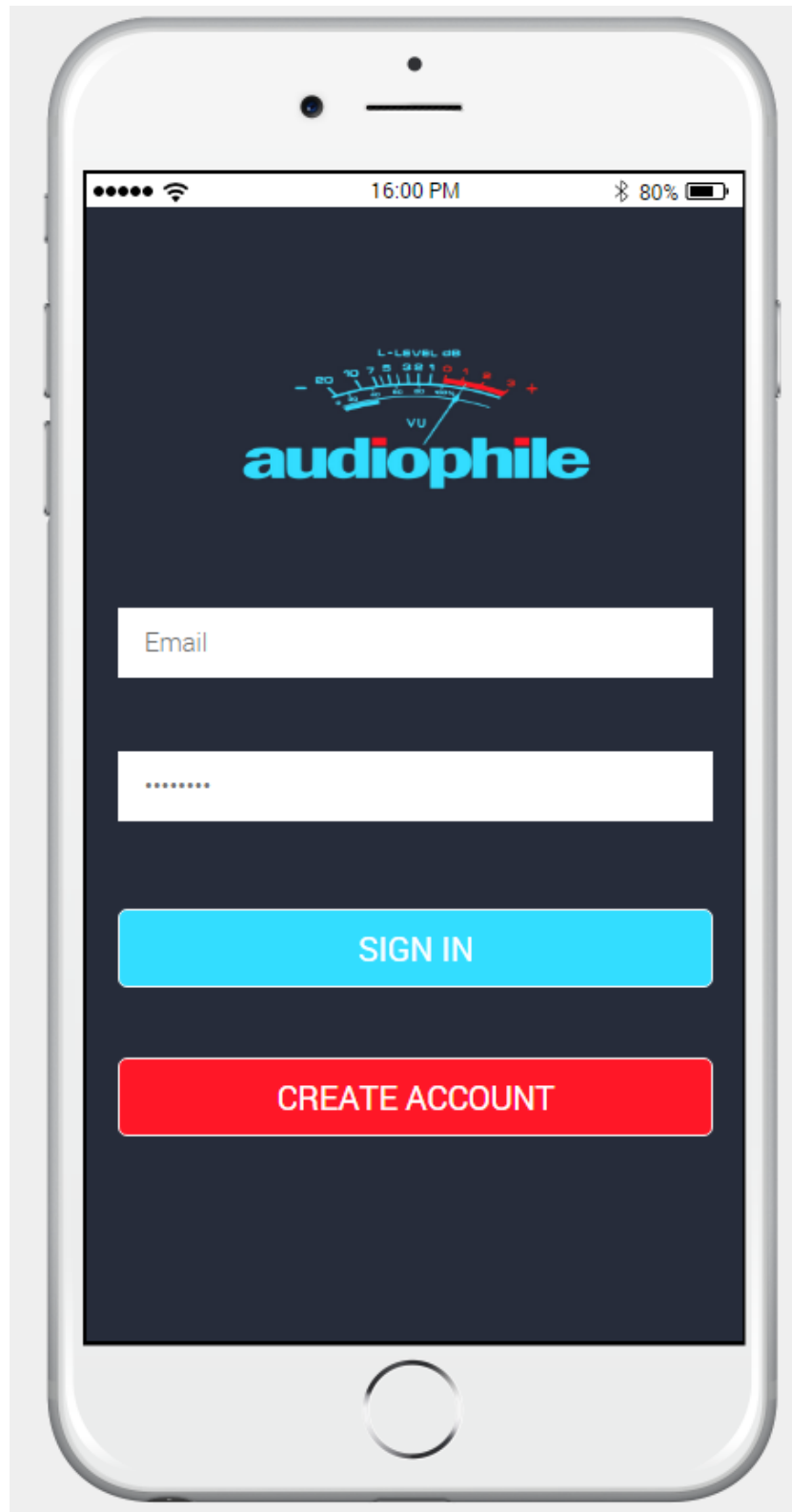
1. Status Bar

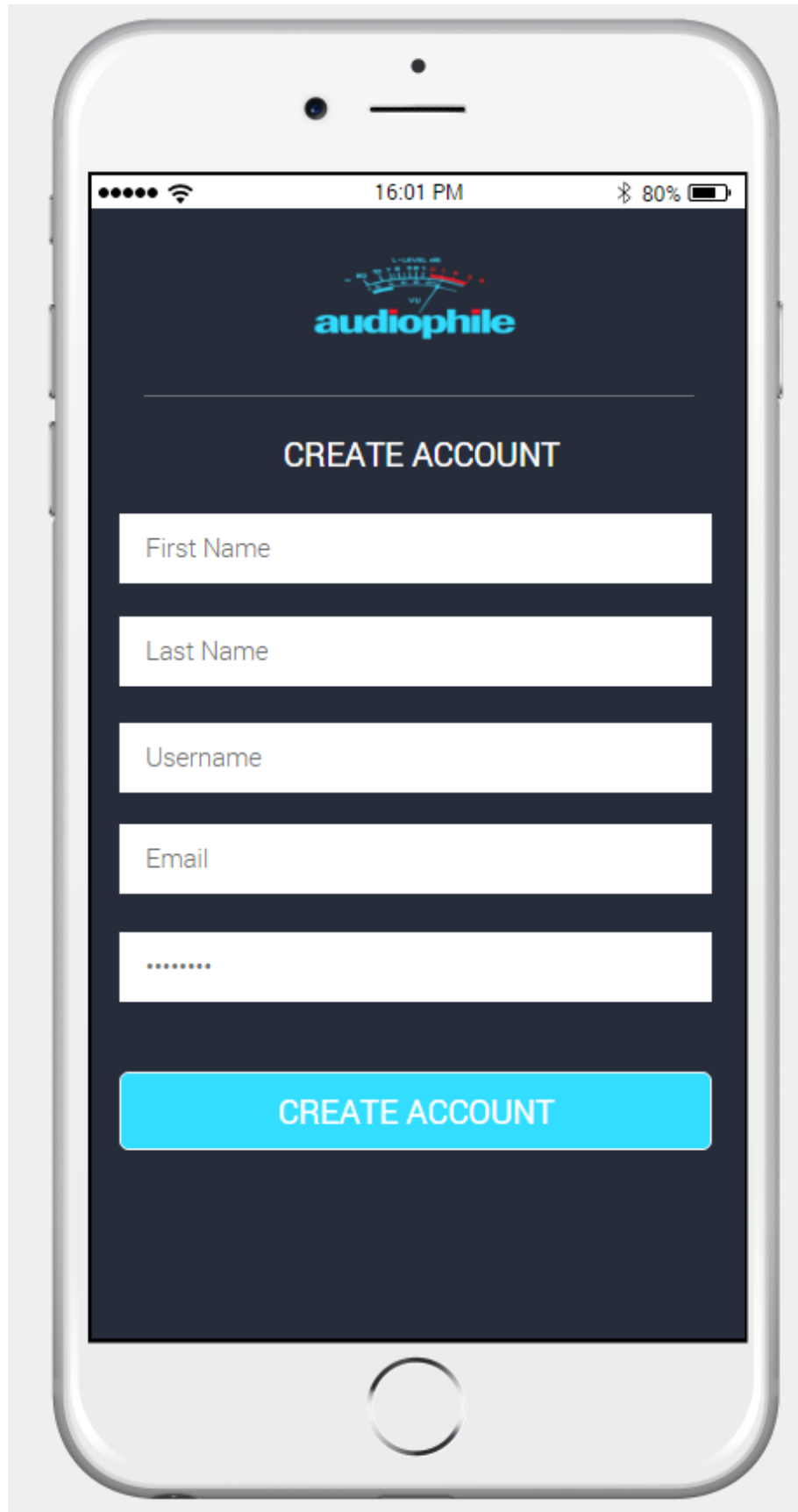
- Cell Signal
- Wi-Fi Signal
- Time
- Bluetooth
- Battery Life Percentage
- Battery

2. Playback Panel

- Album Artwork
- Shuffle Button
- Loop Button
- Song length Bar
- Song Title
- Artist Name
- Play Button
- Previous Button
- Forward Button
- Sound Level Bar
- Menu Button
- Settings Button

Prototypes





Library

Edit

Playlists



Artists



Albums



Songs



Recently Added



Wagner Reloaded



Sängerkrieg



Playlist



Songs



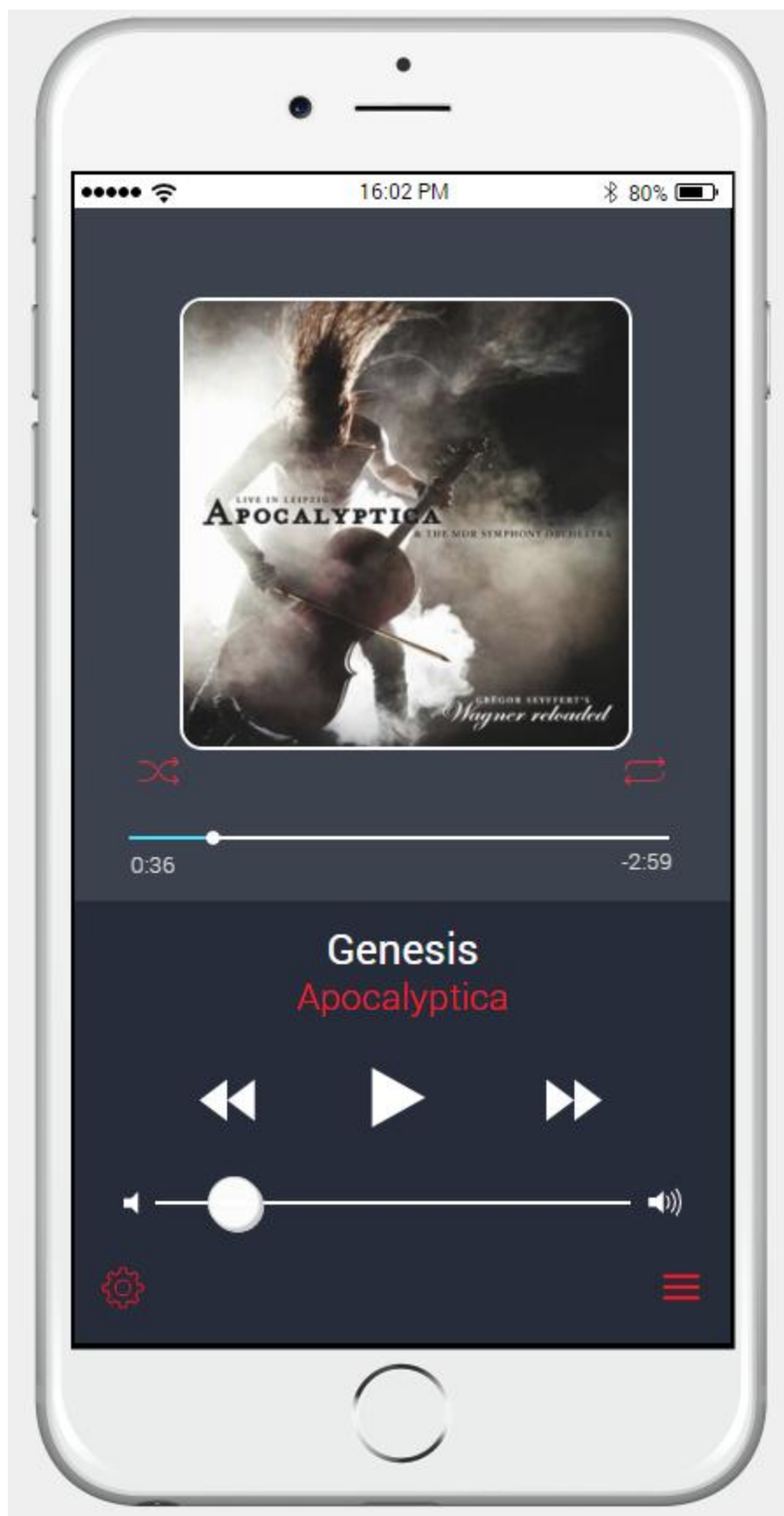
Artist

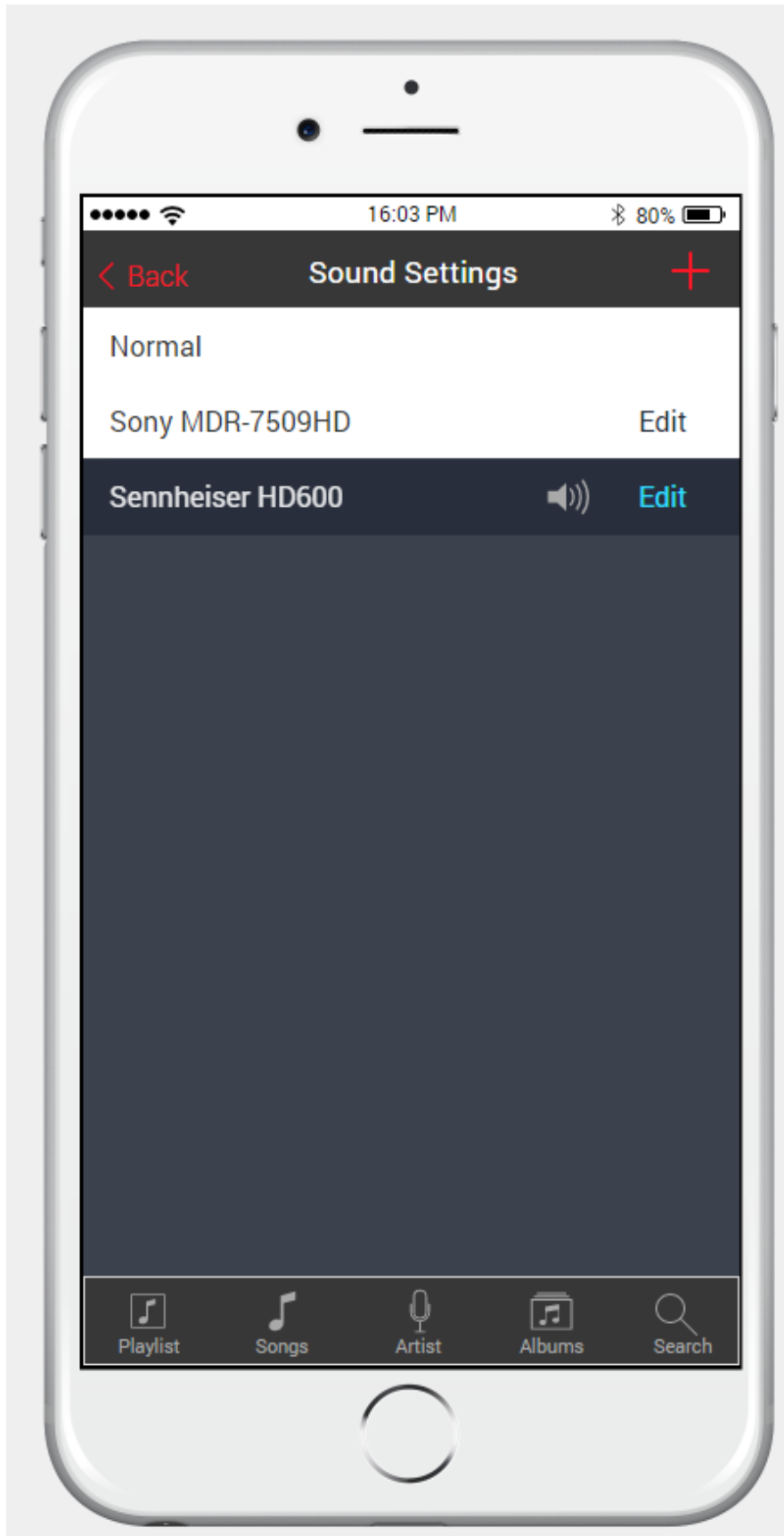


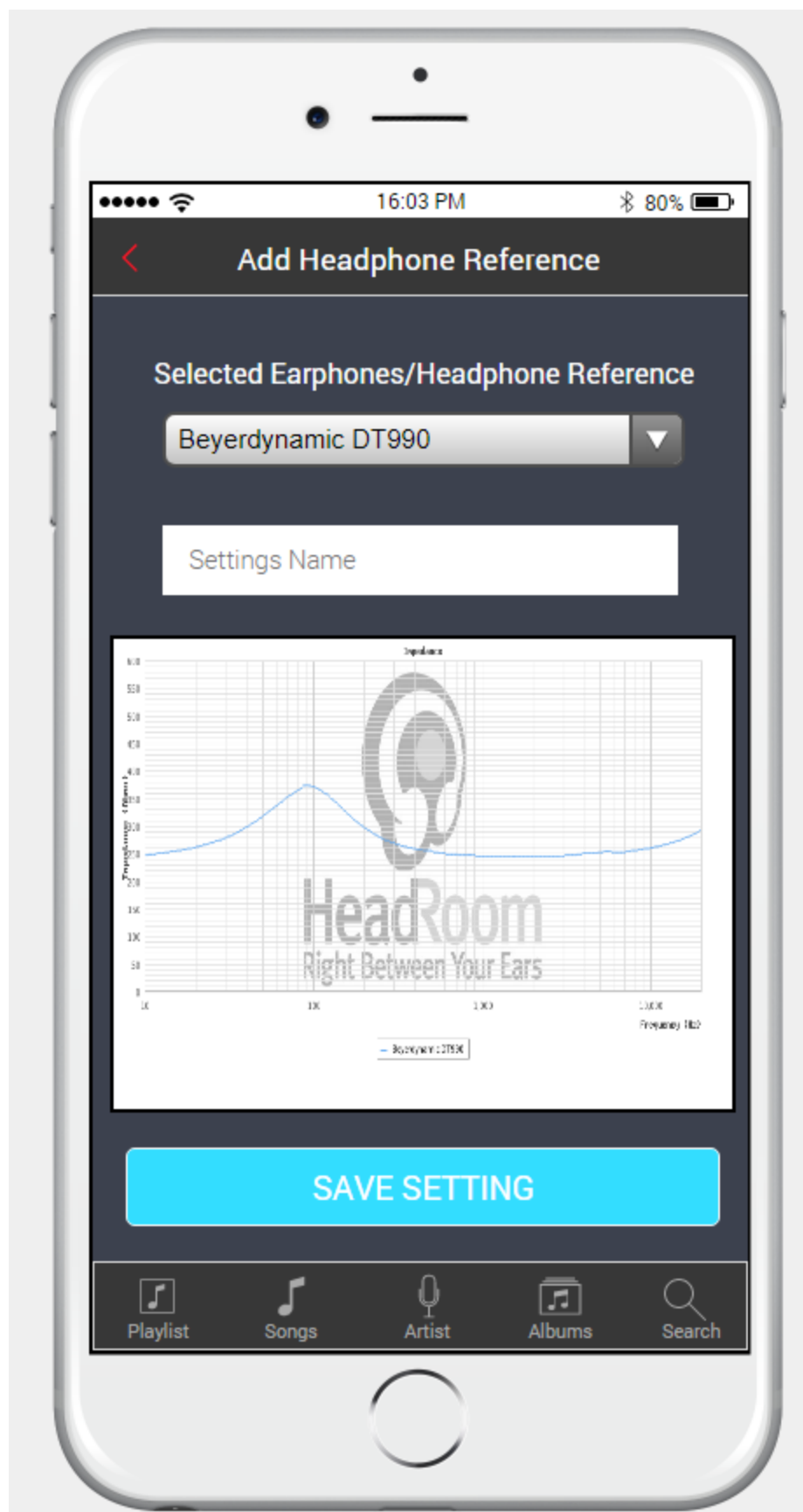
Albums



Search







Conclusion

These prototypes represent my first attempt at creating the concept for the Audiophile application. These designs were intended to be simplistic and follow a similar pattern to the music library already built into the iPhone. This would create familiarity with the users as everyone with the device is used to and understands how to operate the IOS music library. Further prototypes may need to be created to display the custom EQ settings screen and more of the music libraries screens. In conclusion, future mockups and redesigns will be a consideration after feedback and testing is done. This will allow me to create the most efficient UI design for the Audiophile application.