

# Assignment P3:CS6750

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**Abstract**— Through the assignment M3 I will be looking into the search functionality for Apple Music. Apple Music is the second most popular music streaming App globally after Spotify and contains the largest music library of all music streaming applications. Apple Music is well integrated into the Apple ecosystem however the search functionality for Apple Music leaves a lot to be desired.

## 1 BRAINSTORMING PLAN

As recommended by the lectures, I will start the brainstorming individually and then move to a group brainstorming session. To enhance the brain storming session, I spread out the brain storming session across three days of the week (Monday, Thursday and Wednesday). This allowed me to form new ideas while using Apple Music throughout the week. Based on my findings in Assignments M2. I will be focusing on the search functionality in the context of a secondary chore like driving or working out. After forming the initial brainstorming ideas, I will be meeting a UX designer to discuss additional possible ideas. The goal is to come up with 20 ideas in total.

## 2 BRAINSTORMING EXECUTION

The brainstorming exercise was executed as planned and 20 ideas were formulated and noted down. The group session wasn't as productive as I would have liked and we did not come up with any additional idea that was related to search but we used this time to narrow down the existing ideas that I wrote down and move it to the prototyping phase.

S.No	Interface used in Idea	Description
1	Cameras	Cameras can be used to search music from album covers using Image recognition
2	Microphone	Microphones button to listen to music in

		your surrounding, listen to contexts and suggest music
3	Smart Watch	Smart watch can sense your metrics like pulse, skin oxygenation to recognise contexts (like exercise) and apply filters like BPM filters to the playlist
4	Genre Filter	Genre Filter below the search bar to act as a filter
5	Voice Assistant Drive Mode	A driving mode with a microphone button in the middle, for easy access while driving.
6	Jacket/ clothing for different contexts	Intelligent Capacitive Fabrics like in the Levis Jacket, and the search functionality would work based off of gestures.
7	Skin based Interface	A skin based interface would be able to provide instant feedback and context filter
8	Eye Gestures	Eye Gestures could be used as a way to communicate with the interface when doing chores when hands are not free
9	Heads Up Display on the WindScreen	Heads up display on the windscreen from where it is easy to use functionality to change it from a drop down interface
10	A Drone?	Using directional speakers for music instead of headphones, and lip recognition for music instead of voice
11	Smart Glasses	A laser projection keyboard to various device surfaces that can be used to type input without taking out phones
12	Trending Keywords	Display trending keywords based on user demographics at the bottom of the search bar.
13	Recent Searches	Show recent searches to the top when using the search bar
14	Peripherals	Bandaids like context specific input devices that can act as context filters for the music

		library
15	Autocomplete suggestions	Similar to entering text in Google, the search results provide autocomplete suggestions.
16	Integrate with Voice Assistant like Siri	The current search does not have voice search integrated into it. We could integrate it with Siri
17	Drive Mode	A specific drive mode on the phone screen without voice assistant to make it easier for users to choose music
18	Exercise Mode	There are two intensity modes like burst modes and Burn mode while exercising that uses the inbuilt pedometer to measure your speed while running.
19	Multilayered suggestion	Below the search bar, there are layers of suggestions that can be used, first is your history followed by trending, followed by recommended, followed by artists.
20	Location based filtering	The context is found out based on location and the music is filtered.

### 3 SELECTION CRITERIA

From the brainstorming session, three ideas are chosen to be prototyped in the following sections. The selection criteria emphasises the requirements from the M2 assignment. The user persona created from the previous assignment is that of a group of technologically proficient 23 - 33 year old users who use Apple Music while doing another primary task (ie chores, driving, working out, work). The first selection criteria that I chose was the lack of need of new hardware. This rules out ideas like the HUD or the Smart Jacket where additional expensive hardware is required. The second selection criteria is for the redesign to be available cross platform. The redesign must be available across devices that are not part of the Apple Ecosystem, since Siri is not available outside of the Apple Ecosystem, we will be selecting ideas that minimises the use of a voice assistant. Thirdly, the selection criteria is that the redesign should be context specific if

possible. From the needfinding exercise done in M2, I found that most users perform search on Apple Music when doing other tasks. So Ideas where the interfaces can adapt to the context of the tasks are chosen. Based on these selection criteria the three ideas that were chosen are Multilayered suggestions, Drive Mode & Exercise Mode and Autocomplete suggestions.

#### 4 PROTOTYPE 1 : WIREFRAME

For the Implementation of a Multilayer suggestions idea, I decided to prototype these through a wireframe. Shown in figure 1, is the wireframe prototype for this idea.



Figure 1 - Wireframe of the search functionality in Apple Music

The Prototype consists of a text bar on top with a *microphone button* for speech input. Beneath the text bar, The *Recent* toolbar provides the recently searched results. The *Trending* results are posted a layer beneath the *Recent* results and an optional recommendations filter based on the context the users were in. Thirdly it was a *genre* filter beneath the *Recommended* pane to filter out various genres of music in a Playlist or Library.

From the wireframe, the requirements met is that of a Genre filter which was missing from Apple Music across the Apple Ecosystem. This enables the user to filter their playlist based on a particular criteria. So if the user is trying to sleep he

could choose the 'Ambient Music' genre and go to sleep, or a 'High BPM' filter when working out.

Also adding the microphone button to the left of the text box would enable speech based search, which is not present in Apple Music outside of the Apple Ecosystem. I also removed the [*Apple Music / Your Library*] sub filter that was found by default on Apple Music as I found this was the most common source of error in users when performing search. As a result this new design would decrease errors by removing elements that caused errors and reduce search time by providing smart suggestions and genre filters . This idea meshes well with the data inventory created in M2, but the interface itself remains the same for different contexts which is a requirement I've listed in M2 that this interface does not fulfill.

## **5 PROTOTYPE 2 : VERBAL**

The idea to create multiple mode suggestions such as Drive Mode is prototyped through a Verbal discussion to gauge the visibility and impact that they will have on users.

A verbal description of the idea is given below. "I am considering a redesign on the Apple Music Interface that would greatly simplify and exaggerate the icons and specific functionality of the application when used in a particular context. For example in the driving mode, the font would be much bigger and there would only be essential data on screen to minimise distraction while driving. There will also be an easily accessible pull down menu from where you can access your playlists and filters to fit your tastes while driving. The goal is to create a minimised and uncluttered interface that would enable you to filter and control your music in less than 10s without distracting you from the road "

With the general statement created, additional questions are created to isolate the desire and suitability of the idea as discussed below.

*"Do you frequently use Apple Music when driving"*

This question is aimed to understand the usefulness of this idea. If a large number of users do not use Apple Music while driving, there may not be a use to streamline the design for this particular context and the design could instead be streamlined for a more commonly used use case. This question could also be used as an additional survey question in M2 in the continued needfinding

section. As 17 of the 25 users in the survey provided driving as a use case in the initial survey, I am moving on in the assumption of this being a valid use case.

*“Do you make a lot of slips or mistakes when performing search on Apple Music when driving? ”*

This question is asked to understand how much the existing interface hampers productivity when they are performing a primary task, which here is driving. The question also attempts to gauge the need for this use case .

*“Which streaming service do you believe has the best interface when it comes to driving and why do you feel so?”*

This question is asked to isolate an existing model or platform that can provide a guideline or functionality that can help understand the user needs and why that functionality helps the user within this context.

The responses to the verbal prototype supports the data inventory guidelines stated in M2 for the user persona created while for performing search functionality while driving. While this Verbal prototype fails to cover all user modes while such as exercise or chores where touching the phone screen itself may not be possible. The idea does potentially improve the usability of the interface in the context of driving and lessons learned from implementing this mode can be applied to create context specific modes for common use cases.

## **6 PROTOTYPE 3 : TEXTUAL PROTOTYPE**

The idea to provide autocomplete suggestions while searching for music in Apple Music is explored through creating a Textual Prototype. From the needfindings performed in M2, a fair number of users when performing search took longer within the app to find the songs that would perform a Google search for the same. To aid in this in addition to typing into the search bar or inputting from speech into the text bar, the users will be able to see smart suggestions. This would be particularly useful when searching for non English music.

Currently the user inputs a particular text to the text box and then searches. The searches in Apple Music is not a fuzzy search but rather a keyword search. The flaw associated with this type of search is that it requires a degree of precision from users that is not always possible, especially as songs from over a 100

languages are present in Apple Music and the English input of these syllables would vary.

*The textual prototype of would be as follows:*

“The search functionality is modified to provide an autocomplete search results when performing search. The search query could be based on a movie, a lyric and a dynamic list of related search queries would appear at the bottom based on your previous search and patterns of searching. The input could be in English or a local language and the results would be based on the context we search for. You could also search for filters or Genres and if you selected a playlist while performing the search it would return the songs in your playlist that is related to that particular genre”

Since most users that I met when performing naturalistic observation found it harder to find songs in native language on Apple Music than on Google or YouTube due to the fuzzy search functionality that is extremely tolerant of errors. From the requirements stated in Assignment M2, the implementation of this idea would increase the accuracy when performing non english language searches and enable users to find playlists, artists or albums of their choice easier.

## REFERENCES

1. Varghese, Sachin (2020). Assignment M2: Redesigning the Search Functionality of Apple Music. OMSCS CS6750 Human Computer Interaction.