LISTEN TOGETHER

BRD

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GROUP 30

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1 Introduction

1.1 Executive Summary

Listen together is a mobile application that in principle allows its users to play music at the same time. It will have unlimited music resources and strong social integration features. It is going to be have a user-friendly interface with a simple feel to it. A user should be able to enjoy a lightweight and fun experience.

1.2 Document Overview

This document introduces the Listen Together product study plan. It introduces general description, technical description, business objectives, system architecture, a detailed description of the system’s modules, a development plan, an operation plan, tools to be used and features to be provided.

1.3 Business Objectives

- Offer seamlessly perfect music syncing
- Offer intuitive simple to use user interface
- Offer online chatting service
- Offer shareable playlists for fast access
- Offer capabilities of serving a huge user base

2 Background

2.1 Introduction

Nowadays, music is a part of our everyday rather than a rare luxury. Moreover, we often find the need to share our favorite tracks with our friends. But what if you could listen to the same songs together while not having to be physically present at the same place? Listen together will be as simple as playing music on your own but still being in sync with your friends. You will not need to worry about complex setup or technical details when using it. The application is planned to be as lightweight as could be, so that users can also enjoy the service outside the luxury of their homes without having to waste a huge amount of mobile data. Easily make an account or even play anonymously. Invite your friends with a single button click and get going.
However, the simplicity the application offers doesn’t mean a lack of functionality. In fact you would be able to enjoy numerous features such as chatting inside music rooms, access to friends’ playlists, quickly play trending songs, and also linking other accounts (of your friends) to your own account.

2.2 Survey

Examples of similar applications in the market include:

1. Lisn Application (Went out of business):

   Marketed with the tagline “It’s like sharing earphones,” this is an iOS app.

The synced playback feature lets you and a friend listen to tracks together in real time. Pick from a library of over 130 million tunes on Spotify and SoundCloud.
Its creators made it possible for users to talk to the development teamduring the early stages. That approach led to a user-friendly app that’s earned great reviews. There’s also an Android version in the works.

2. Vertigo Application

Using this app requires a Spotify Premium or Apple Music account. After downloading the app and launching one of those services, you can broadcast beloved tracks to the world. Going through one of these portals is a required, legal-related step. Vertigo uses a patented process for making music available. It works so that the provider of the shared content is the music platform, not the user.
In addition to giving music to one friend, you can listen collaboratively with a group. Hearing individual tracks privately is also possible. While in the app, pay attention to the +1, Core, and World ring-like sections. They look like segments of vinyl records.

3 System Description

3.1 What is Listen Together?

Listen together is an app where people can get together and tune in to each other's favorite music. Think of how easy it is to play music on your phone, but now you can do that with your friends.

3.2 Music

Unlike most other similar applications, this app plays the music in audio format. That makes the service way more useful for mobile users who don't wanna run out of data while enjoying a lightweight experience.

3.3 Social

Not only will you be able to share music but also thoughts! Invite your favorite people, add them as friends, and chat with them while listening to whatever you choose to play in your own music room making your experience a hundred times more fun.

3.4 What else can you do?

Create, edit, and share playlists with your in-app friends and on social media. You can also import your playlists from other major apps like spotify. Get notified whenever one of your friends gets online, so you can easily hop in.

4 System Architecture

Listen together system introduces music listening and social services. These services are available through a mobile application.

The system consists of the following modules: Storage, Social integration module, Playlist module, Room server module, Room server spawning module, Music backend module and the Mobile app module.

4.1 Storage

- Store user authorization information
- Store user profile details
- Store playlists

4.2 Social integration module

This module is in control of handling all user and user to user interactions such as:

- Authorizing users
- Handling friend requests
- Linking friends to user accounts
- Linking playlists to user accounts
- Retrieve friends online
- Retrieve invitations
- Retrieve friend requests
- Allows search over application users
- Allows adding new friends to user profile

4.3 Playlist module

This module is in control of anything playlist related such as:

- Defines what a playlist is.
- Creating playlists
- Retrieving playlists
- Authorizes permission to edit a playlist

4.4 Room server module

This module is in control of handling music syncing within a single room; it can do the following:

- Allow synced playing
- Allow synced pausing and resuming
- Allow synced skipping
- Transmit track choices to all users in a room
- Handles chat within a room
- Handles the music backend calls

4.5 Room server spawner module

This module is in control of spawning new room servers upon request from a user; it can do the following:

- Receive room creation requests
- Authorize and check for eligibility for room creation requests
- Launches room servers with correct parameters
- Handle room join requests

4.6 Music backend module

This module is in control of handling all music requests; it can do the following:

- Query the available song choices by name
- Respond to query by top songs that match

- Respond with a song by name on first occurrence
- Respond with a song by link if match of the link searched for by user found

4.7 Mobile app module

This module serves the end user; it does the following:

- Provide a logging in screen
- Provide a sign up screen
- Provide room screen
- Provide music player screen
- Provide a chatting interface
- Provide notification bar music handling
- Provide playlist interface
- Provide user profile interface
- Provide ability to join a room

5 System Features

5.1 Lobby

The user can see his/her online and offline friends, accept room invitations and accept friend requests here. The user can also search for other users by name and send them a friend request. The user also have the ability to create/delete/edit his/her own playlists.

5.2 User Profile

There is a profile to every user. The profile contains details about the user (username, background information, interests, birthday, number of friends). The profile allows user to access his friend list and check his pending friend requests.

5.3 Create Music Room

Users that aren't in a room can create a room; this is where users can listen to music. If the user attempts to play a song without being in a room, a room is automatically created for him/her. If the user attempts to create a room while he/she is in one, his/her request is denied.

5.4 Music Room

Each music room has a certain characteristic link that is generated and used when inviting friends over. The person who wishes to invite their friends can simply press invite and choose the friend whom the invitation is sent to. Inside a room, any user can play songs. Users can either search a song by name or link, but they can even play a song directly given just a name, the music player should pick the first occurence of this name rather than issue a search. Moreover, any user can press an echoing pause, resume or skip. These buttons are also available through the notification bar and the lock screen. Users also have the ability to search for available playlists and append them to the current queue. They can also access the queue, clear all of it, or remove certain entries. Finally, all users have access to chat features.

5.5 Cross Platform Support

The mobile application will be offered on the 3 major mobile operating system which are iOS, Android, and Windows phone.

6 System Development and Operation

6.1 Overview

The system development is performed using Agile methodology. Initial R&D activity should be applied to experiment tools and techniques. Later continuous R&D activity will run beside the system development activities.

6.2 Development Plan

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Study Requirements	▨	▨	▨	▨											
Management Planning Preparation	▨	▨	▨	▨											
Test Planning	▨	▨	▨	▨											
Prototyping	▨	▨	▨	▨											
Implementation				▨	▨										
Research				▨	▨	▨	▨	▨	▨	▨					
Testing											▨	▨			
													▨		

System Testing													▨	▨	
Final Release															▨

6.3 Operation Plan

6.4 Team

Team	Role	#
Management Team	Operation Manager	1
	Project Manager	1
Business team	UX Designer	1
	Business Analyst	1
	Marketing Members	1
Development Team	Team Leader	1
	R&D Engineers	1
	Mobile Developers	1
	Configuration Manager	1
	Quality assurance	1
Testing Team	Team Leader	1

	QC Member	**1**
Operation Team	**IT Engineer**	**1**

	Marketing	**1**
	System Operator	**1**
Maintenance Team	**Team Leader**	**1**
	Mobile Developer	**1**
	QC Member	**1**

6.5 Tools

Listen together will be developed mostly using open source tools, and languages. Commercial tools will be used in case there is no free/open source alternative. This will decrease the cost especially for the long term operation.

While development, online tools will be used for management, tracking, testing, and development. That is to increase the collaboration between members even though they aren’t present at the same physical space.

Operation	Recommended tool
Source control and versioning	Github/git
Tasks and Issue Tracking	GitHub/Issues/Zenhub
Structured Database	MySQL
Programming languages	Python and C#
Operating Systems	Linux/Windows server

Documents	Google docs

Planning	MS Project, trello, or github
Software SRS/SDA/SDD	Visio
UX Design	Xamarin, grialkit
Web-server	Apache/Wamp
Music backend	Savedeo

6.6 Infrastructure

Listen together system requires multiple infrastructures for development and production. Know that personal computers and devices of all members are included

Type	Name	#
Development and Testing Infrastructure	Mobiles and tablets	3
	Online development server (Virtual)	1
Initial production Infrastructure	Mobiles and tablets	3
	Online production server (Virtual)	1

	Online backup storage	1

6.7 Assumptions

- Users should approve to give the copyright of their material to the system

- Use of a costly API for fetching mp3 audio files

6.8 Risks

- Limited development time for such a complicated multi-module system
- Limited time for applying good networking security measures
- Limited time for applying good load balancing measures to used servers

7 References

1. For checking for availability of competing applications to add to our survey section (Some of these applications have shut down): **https://www.makeuseof.com/tag/listen-music-friends-far-away/**

2. As a guideline to constructing this BRD document: **https://drive.google.com/file/d/14jo-mNwOYV5h29w8_sS-3seeafYTWhxLm/view**