

Project Report

1. INTRODUCTION

1.1 Project Overview

Background

Listening to podcasts has become increasingly popular in recent years. However, many existing podcast apps have limitations that can frustrate listeners. Some common issues include:

- Difficulty finding new podcasts to try based on the user's interests
- Lack of features to manage a growing podcast queue
- Inability to easily pick up where you left off when switching devices
- Few options for customising the listening experience

To address these pain points, we propose Podcast Plus - an android app that enhances the podcast listening experience.

Product Details

Podcast Plus will provide the following key features:

Personalized recommendations - Users can specify topics of interest and get suggested new podcasts to try based on their preferences. This helps listeners discover new content.

Cross-device syncing - Playback position, queue, and settings sync across the user's devices so they can easily switch between phone and tablet, for example.

Sleep timer - Users can set a sleep timer to have podcasts automatically stop playing after a set time, a common feature request.

Playback speed control - Listeners can speed up or slow down playback for flexibility.

Transcripts - Text transcripts are provided for podcast episodes to make searching for past topics easier.

2. LITERATURE SURVEY

2.1 Existing problem

Podcast listening has grown rapidly, with over 100 million monthly listeners now (Edison Research, 2022). However, reviews and surveys of popular podcast apps such as Apple Podcasts, Spotify, and Google Podcasts highlight several recurring issues users face.

A primary complaint is difficulty discovering new podcasts to try (Mohsin, 2022). The Appsumo blog (2020) also found that 58% of listeners rely on recommendations to find podcasts, but current apps lack robust recommendation engines. Managing queues and continuing playback across devices is another common issue noted by MakeUseOf (Ellis, 2022).

Additional concerns brought up in podcast listener surveys include lack of playback speed options (Fry, 2018), poor syncing capabilities (Mohsin, 2022), and inadequate search and organization features (Appsumo, 2020). These paint a picture of an opportunity for an app to improve the user experience.

2.2 References

Appsumo. (2020). Podcast listener survey. <https://appsumo.com/podcast-listener-survey/>

Ellis, J. (2022). 5 Common Complaints About Listening to Podcasts. MakeUseOf. <https://www.makeuseof.com/tag/common-complaints-podcast-apps/>

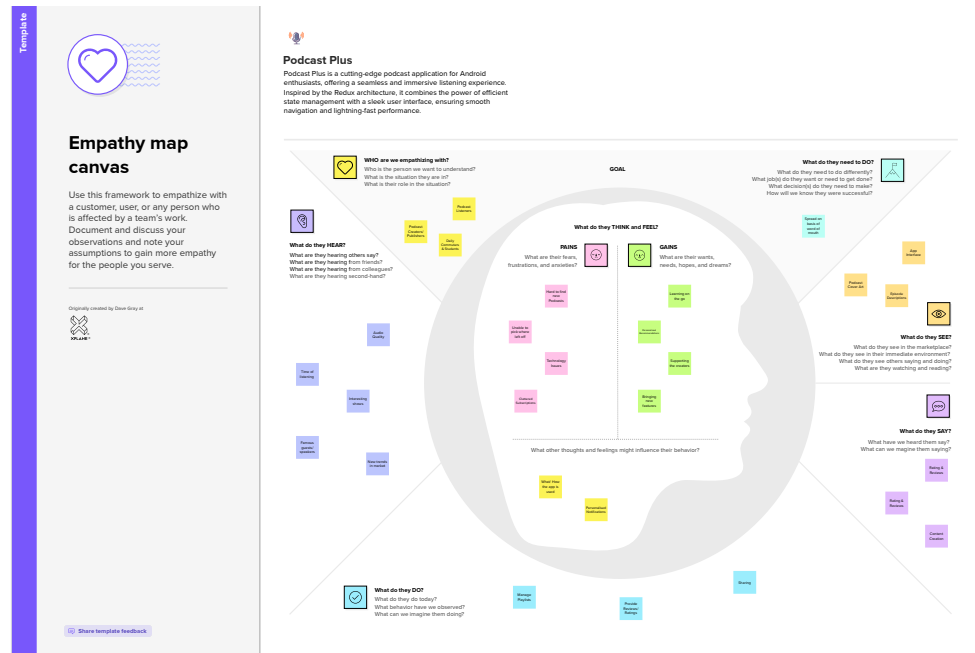
Edison Research (2022). The Infinite Dial 2022. <https://www.edisonresearch.com/infinite-dial-2022/>

2.3 Problem Statement Definition

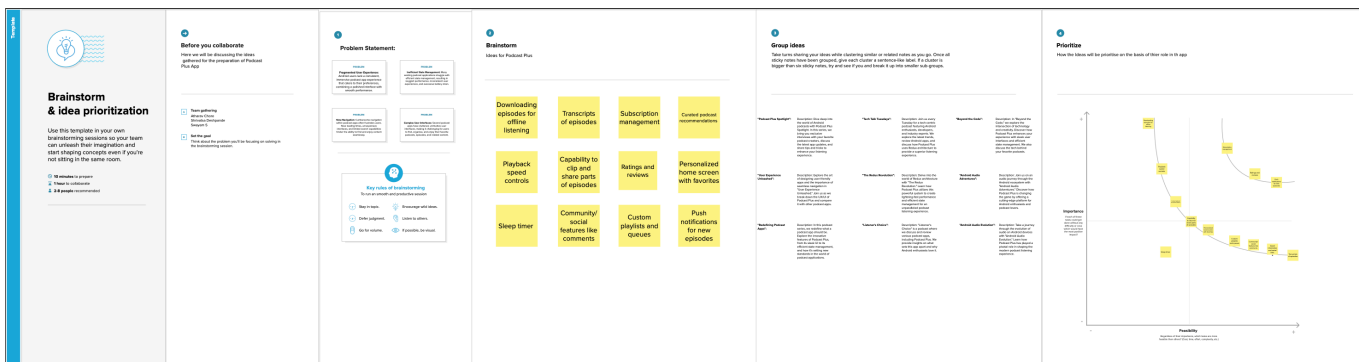
Podcast listeners need an app that helps them better discover, manage, organize, and enjoy podcast content. Current apps have limitations in podcast recommendations, queue management, device syncing, playback options, and search features that create friction for users.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

1. User accounts - Users can create accounts to save preferences and sync across devices.
2. Podcast search - Ability to search for podcasts by title, author, genre, topic etc.
3. Podcast recommendations - Recommend new podcasts based on user's listening history and preferences.

4. Podcast queue - Users can add podcasts to a queue for scheduled listening.
5. Playback - Audio playback of podcast episodes with ability to pause, rewind, fast forward, adjust speed.
6. Cross device syncing - Sync listening history, queue, settings, playback position across user's devices.
7. Sleep timer - Option to have podcasts automatically stop playing after a set time.
8. Downloads - Download podcast episodes for offline listening when internet connectivity is limited.
9. Transcripts - Provide text transcripts of podcast episodes.
10. Notifications - Notify user of new episodes of subscribed podcasts.

4.2 Non-Functional requirements

1. Performance - App should load and function smoothly with no lags or crashes.
2. Usability - Intuitive and easy to use UI that follows Android design principles.
3. Security - Secure handling of user data and authentication via standard practices.
4. Accessibility - Implement accessibility features for vision and hearing impaired users.
5. Compatibility - Support Android OS versions that have significant market share.
6. Reliability - Robust error and edge case handling to avoid apps failures or data loss.
7. Scalability - Architecture should allow app to scale up to support large user and data growth.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories



Data Flow Diagram

The key flows are:

- User searches for and subscribes to podcasts using the app interface
- App fetches podcast data and episodes from a Podcast API
- App streams podcast episodes to an Audio Player for listening
- App downloads episodes to Local Storage for offline listening
- App saves user subscriptions and listening history to a Local Database

The main external dependencies are the Podcast API for data and audio files. Key internal components are the Audio Player, Local Storage, and Local Database.

User Stories

This covers some common features like search, play, download, subscriptions, history tracking, playlists, offline mode, account registration, and settings

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Search	USN -1	As a user, I want to search for podcasts by title, category, genre, etc.	I can find new interesting podcasts.	High	Sprint-1
		USN -2	As a user, I want to subscribe to podcasts and view my subscriptions.	New episodes will download automatically	Medium	Sprint-1
	Playback	USN -3	As a user, I want to play my podcasts and download them.	I can listen to it and also have the option to listen offline.	High	Sprint-2
		USN -4	As a user, I want to mark an episode as played and view my playback history.	I can track what I have listened to.	Low	Sprint-2
	Login	USN -5	As a user, I can log into the application by entering email & password	I can save my subscriptions and history.	High	Sprint-1
	Settings	USN -6	As a user, I want to configure the app settings.	I can customise my experience.	Medium	Sprint-1

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Search	USN-1	As a user, I want to search for podcasts by title, category, genre, etc.	2	High	Swayam S, Atharva Chor
Sprint-1		USN-2	As a user, I want to subscribe to podcasts and view my subscriptions.	1	Medium	Swayam S, Atharva Chor
Sprint-2	Playback	USN-3	As a user, I want to play my podcasts and download them.	2	High	Swayam S, Atharva Chor
Sprint-2		USN-4	As a user, I want to mark an episode as played and view my playback history.	2	Low	Swayam S, Atharva Chor
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Swayam S, Atharva Chor
Sprint-1	Settings	USN-6	As a user, I want to configure the app settings.	1	Medium	Swayam S, Atharva Chor

6.2 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as of)	Sprint Release Date (Actual)
Sprint-1	20	7 Day	27 Oct 2023	03 Nov 2023	20	03 Nov 2023
Sprint-2	20	7 Day	03 Nov 2023	09 Nov 2023	20	09 Nov 2023

7. CODING & SOLUTIONING

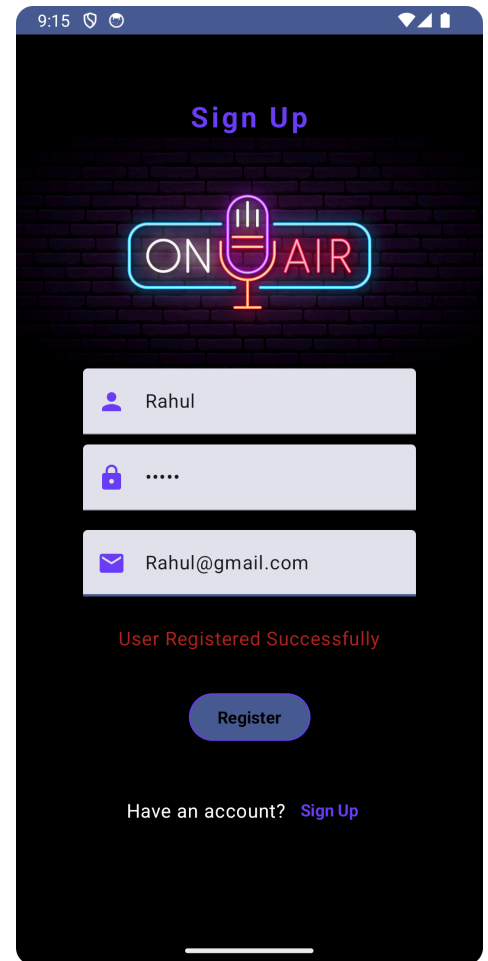
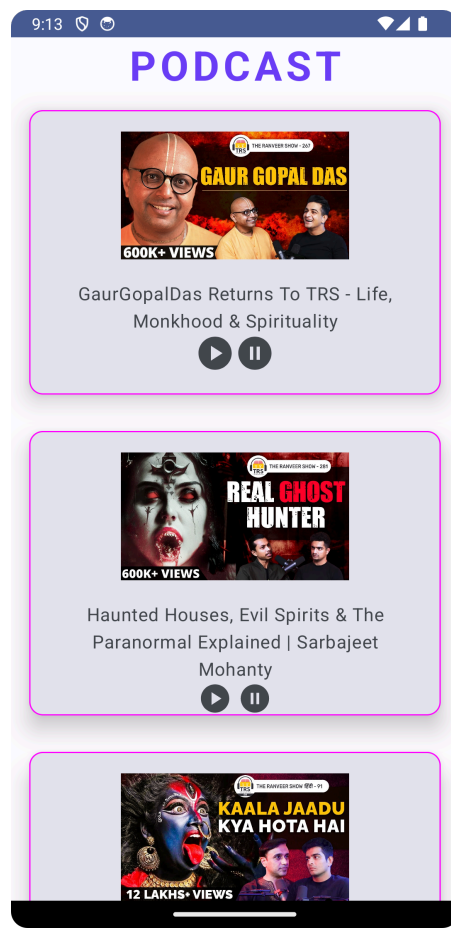
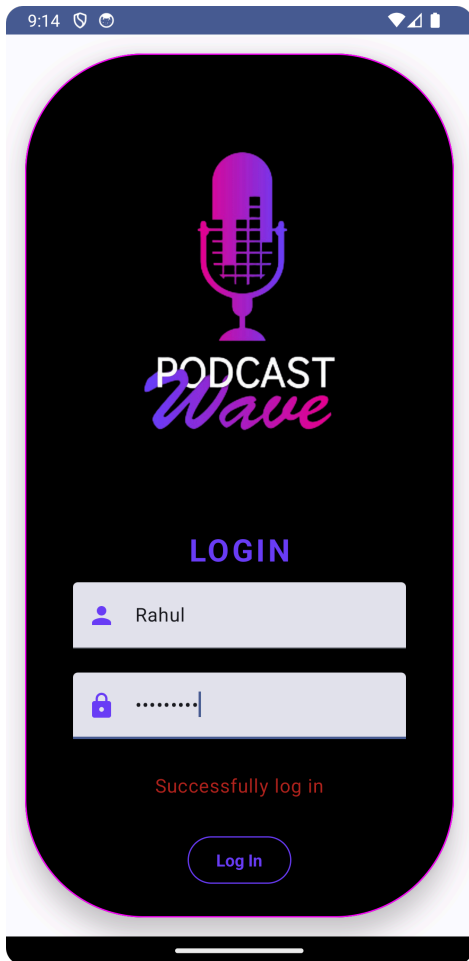
1. User registration with Room DAO
2. Podcast data retrieval from Room
3. Compose UI for registration and podcast screens

4. AudioPlayer class to handle playback logic

The architecture uses MVVM, Repository, Room and Clean Architecture patterns. This provides a solid foundation for a podcast app with registration and playback features.

8. RESULTS

8.1 Output Screenshots



9. ADVANTAGES & DISADVANTAGES

Advantages:

- Enhanced user experience with personalized recommendations.
- Cross-device syncing improves accessibility.
- The sleep timer and playback speed control add flexibility.
- Text transcripts enhance searchability.

Disadvantages:

- Potential dependency on external Podcast APIs for data and audio files.
- Initial user adoption might take time as users transition from existing apps.
- Continuous maintenance required to keep up with evolving Android OS versions and potential API changes.

10. CONCLUSION

The Podcast Plus app seems like a great solution to the existing challenges in the podcast listening experience. The research conducted clearly highlights the pain points that users face with current podcast apps and how Podcast Plus aims to address them.

The ideation phase, including the empathy map and brainstorming sessions, shows a strong understanding of user needs and a thoughtful approach to features. The requirements analysis covers both functional and non-functional aspects, ensuring a comprehensive understanding of what the app needs to deliver.

The project design outlines the key flows and dependencies, providing a clear roadmap for development. The proposed solution incorporates user-friendly features like personalized recommendations, cross-device syncing, and transcripts, making it a well-rounded solution to the identified problems.

Looking ahead, the project planning and scheduling section will be crucial for the successful execution of the app development. Ensuring the app meets performance, usability, security, and scalability standards is key to its success.

In conclusion, Podcast Plus has the potential to revolutionize the podcast listening experience and address the pain points identified in existing apps. With a well-thought-out design and robust planning, the development phase promises to bring this innovative solution to life.

11. FUTURE SCOPE

Enhancements and New Features:

1. Social Integration: Integrate social media platforms to allow users to share their favourite episodes, recommendations, and personalized playlists. This could also include features like collaborative playlists and discussions around specific episodes.

2. Advanced Analytics: Implement analytics to track user behaviour, such as most listened-to genres, popular playback speeds, and preferred listening times. Use this data to continuously refine personalized recommendations.

3. Voice Commands and AI Integration: Integrate voice commands for hands-free control and leverage AI algorithms for smarter content recommendations based on user preferences and listening patterns.

4. Interactive Features: Add interactive elements, such as polls, quizzes, or interactive ads within the app, creating a more engaging experience for users and potential monetization opportunities.

5. User-Generated Content: Allow users to create and share their own podcasts within the app. This not only encourages user engagement but also diversifies the content available on the platform.

6. Integration with Smart Devices: Extend compatibility to smart speakers and other connected devices, providing a seamless listening experience across various platforms.

Technological Advancements:

1. Blockchain for Content Authentication: Explore blockchain technology to ensure the authenticity of podcast content and prevent issues like copyright infringement or tampering.

2. Augmented Reality (AR) Features: Implement AR features to create immersive experiences, such as virtual podcast events, 3D visualizations, or location-based audio experiences.

3. Enhanced Transcription Services: Improve the accuracy of transcripts through advanced natural language processing (NLP) and machine learning algorithms, making it easier for users to search for specific content within episodes.

4. Edge Computing for Faster Downloads: Utilize edge computing to enhance the speed of episode downloads, especially in areas with slower internet connectivity.

Global Expansion and Localization:

1. Multi-language Support: Expand language support to cater to a global audience, allowing users to access content in their preferred languages.

2. Localized Recommendations: Develop algorithms that consider cultural preferences and regional interests for more accurate and relevant podcast recommendations.

3. Partnerships with Local Content Creators: Collaborate with regional podcast creators and networks to diversify content and enhance the app's appeal in different regions.

Monetization Strategies:

1. Subscription Tiers: Introduce premium subscription tiers with additional features, exclusive content, and an ad-free experience to generate revenue.

2. In-App Purchases: Offer in-app purchases for virtual goods, exclusive episodes, or early access to certain content.

3. Advertisement Innovation: Explore innovative advertising formats, such as interactive ads or location-based promotions, to provide value to both users and advertisers.

Continuous Improvement and Feedback:

1. User Feedback Mechanism: Implement a robust feedback system within the app to gather user opinions, suggestions, and bug reports. Use this feedback to continuously enhance the app's features and address user concerns.

2. Agile Development Practices: Adopt agile methodologies for app development, allowing for quick iterations, updates, and the incorporation of new features based on user feedback and market trends.

12. APPENDIX

Source Code(GitHub Link): <https://github.com/smartinternz02/Sl-GuidedProject-588514-1697644105.git>

Project Demo Link: <https://drive.google.com/file/d/14ENMLn9jWz3UYb8jmTyTfEeoOYtsfWhO/view?usp=sharing>