IRCTC APPLICATION UI (USER INTERFACE) RE-DESIGN

A MINI-PROJECT REPORT

Submitted by

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in partial fulfilment for the course

CD19651 Mini Project

for the degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND DESIGN

RAJALAKSHMI ENGINEERING COLLEGE

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APRIL 2024

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BONAFIDE CERTIFICATE

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ABSTRACT

The Indian Railway Catering and Tourism Corporation (IRCTC) application is a tool for rail travel bookings across India, handling millions of transactions per day. However, users often face challenges related to usability, navigation and overall user experience. This project aimed at redesigning the IRCTC mobile application to address these issues, thus improving efficiency, accessibility and user satisfaction. Employing a user-centred design approach, we conducted a thorough analysis of the existing application, gathering data through user surveys, interviews, and usability testing. The redesign focused on simplifying the user interface, optimizing performance, and introducing new features such as a more intuitive booking system, real-time tracking of trains, and personalized travel recommendations. This paper discusses the methodologies used in the redesign process, the implementation of design principles, and the impact of these changes on user engagement and satisfaction. This study contributes to the field of HCI by demonstrating how principled redesign can significantly enhance the utility of widely-used mobile applications in public transportation sectors.

ACKNOWLEDGEMENT

Initially we thank the Almighty for being with us through every walk of our life and showering his blessings through the endeavour to put forth this report. Our sincere thanks to our Chairman **Mr.S.Meganathan, B.E, F.I.E.,** our Vice Chairman **Mr. Abhay Shankar Meganathan, B.E., M.S.,** and our respected Chairperson **Dr. (Mrs.) Thangam Meganathan, Ph.D.,** for providing us with the requisite infrastructure and sincere endeavouring in educating us in their premier institution.

Our sincere thanks to **Dr. S.N.Murugesan, M.E., Ph.D.,** our beloved Principal for his kind support and facilities provided to complete our work in time. We express our sincere thanks to our **Prof. Uma Maheshwar Rao** Associate Professor and Head of the Department of Computer Science and Design for his guidance and encouragement throughout the project work. We convey our sincere thanks to our internal guide and Project Coordinator, **Mr.S.Gunasekar, M.Tech., (PhD).,** Department of Computer Science and Design, Rajalakshmi Engineering College for his valuable guidance throughout the course of the project.

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TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

The Indian Railway Catering and Tourism Corporation (IRCTC) serves as the backbone of India's railway ticketing system, facilitating the booking of train tickets for millions of passengers every day. As the most frequented online travel portal in India, the efficiency of the IRCTC mobile app is crucial for ensuring a seamless travel planning and booking experience. Despite its widespread use, the application has been critiqued for its usability issues, slow performance, and outdated user interface, which often leads to a frustrating experience for its users. The primary aim of this project was to redesign the IRCTC mobile app to address these critical issues. By adopting a user-centred design approach, the project focused on identifying existing shortcomings through extensive user research, including surveys, interviews, and usability testing. These insights guided the redesign process to specifically target and improve the navigation structure, booking processes, response times, and aesthetic elements of the app. This paper outlines the redesign process employed for the IRCTC app, emphasizing the methodologies adopted for data collection, analysis, and the iterative design processes.

CHAPTER 2

LITERATURE REVIEW

1. **"UI/UX analysis & design for mobile e-commerce application prototype on Gramedia.com"** (Published in: 2017 4th International Conference on New Media Studies (CONMEDIA)), Mobile-based ecommerce application has begun to gain its trend. Gramedia as one of leader bookstore in Indonesia plans to create a mobile app that is accessible to its customers. Task Centred System Design (TCSD) is a method in building Human Computer Interaction that is useful to identify task-requirements and user needs. This method has been used to build the prototype. The prototype has met the requirements as the User Acceptance Test (UAT) shows that 80% acceptance while another 20% is accepted with notice. The method of System Usability Scale (SUS) performs a final score 80.9 showing that its usability quality is high.

2. **"UI/UX design of educational on-line courses"** (2022-03-21), considers the problem of an interface for educational platform, which is fully effective for achieving the outcomes of educational activity. The current research is a theoretical analysis of existing recommendations on UI/UX design, applied when creating educational systems, as well as of research papers that study user interface (UI) usability and evaluate user experience (UX) in designing on-line platforms.

3. **"UI/UX Redesign of INHIL Dukcapil Application Using the Design Thinking Method"** (Published:2023-01-30) The Dukcapil Inhil application was released to make it easier for people to take care of population administration. However, in its use there are several problems. This research was conducted to develop application recommendations by analysis and redesigning the UI and UX of the "Dukcapil-Inhil" Application using the Design Thinking method. This method is used to take a solution-based approach that will be used for problem solving, by understanding application users to define existing problems and then make a solution to solve existing problems. Application recommendations are built in the form of prototypes using the Figma application. The prototype built was successfully tested on 10 respondents using System Usability Scale (SUS) testing and the application prototype was rated 78.

4. **"REDESIGN THE UI/UX OF THE PT MNO COMPANY PROFILE WEBSITE USING THE THINKING DESIGN METHOD"** (Published: Feb 20, 2024) in the current era of globalization, large and small companies must develop strategies for using websites to improve business branding to the general public. Based on the results of problem identification, there are several UI/UX problems on the PT MNO website, including an unattractive appearance, messy and overlapping fonts, and a messy layout. This research aims to redesign the PT MNO website to improve its UI/UX to make it more informative, clear, and easy to use.

CHAPTER 3

SOFTWARE USED - FIGMA

When incorporating a discussion about using Figma in the redesign of the IRCTC application's user interface into a project report, you can elaborate on the rationale behind choosing Figma, the specific features used during the redesign, and the outcomes achieved. Here are several paragraphs that could be effectively included in such a project report:

Tool Selection:

"In the initial phase of the IRCTC application redesign project, our team conducted a comprehensive evaluation of various UI/UX design tools to select the most effective software for our needs. Figma emerged as the optimal choice due to its robust collaborative features and web-based accessibility. Its capability to allow multiple designers and stakeholders to work simultaneously on the same files in real time significantly streamlined our design process. Additionally, Figma’s extensive library of plugins and integrations offered valuable extensions that enhanced our productivity and creativity."

Design Implementation with Figma:

"Utilizing Figma, our team embarked on a structured redesign of the IRCTC application, focusing on enhancing user experience and interface aesthetics. Figma's vector tools enabled precise adjustments and creation of high-fidelity design elements, ensuring that our visuals were sharp and scalable across different device screens. The component system was particularly beneficial; it allowed us to build a cohesive design language by creating reusable UI components. This approach not only maintained consistency throughout the application but also expedited the design process by eliminating repetitive tasks."

Prototyping and Feedback:

"An integral part of our redesign process involved prototyping and iterative testing using Figma’s interactive prototyping features. We were able to link our design frames and apply transitions and animations to simulate real-world application usage, which was crucial for conducting usability testing sessions. Stakeholders could interact with the prototype directly on Figma, providing immediate feedback which was then swiftly incorporated into the design. This iterative cycle helped in refining interface elements and enhancing the overall user journey within the IRCTC application."

Collaboration and Real-Time Updates:

"Figma facilitated unprecedented levels of collaboration among our project team members and stakeholders. The ability to observe real-time edits and communicate through comments directly on the design files significantly reduced the time typically required for meetings and email exchanges. Moreover, the cloud-based nature of Figma ensured that all participants, regardless of their location, had up-to-date access to the latest designs, thereby aligning the entire team towards a unified design vision and implementation strategy."

Outcome and Impact:

"The adoption of Figma significantly impacted the success of the IRCTC application's redesign project. Post-launch analytics demonstrated an improvement in user engagement and satisfaction rates, underscoring the effectiveness of the new user interface. The project not only met but exceeded our initial objectives, establishing a scalable and intuitive design framework that supports future enhancements and maintains the evolving needs of our users."

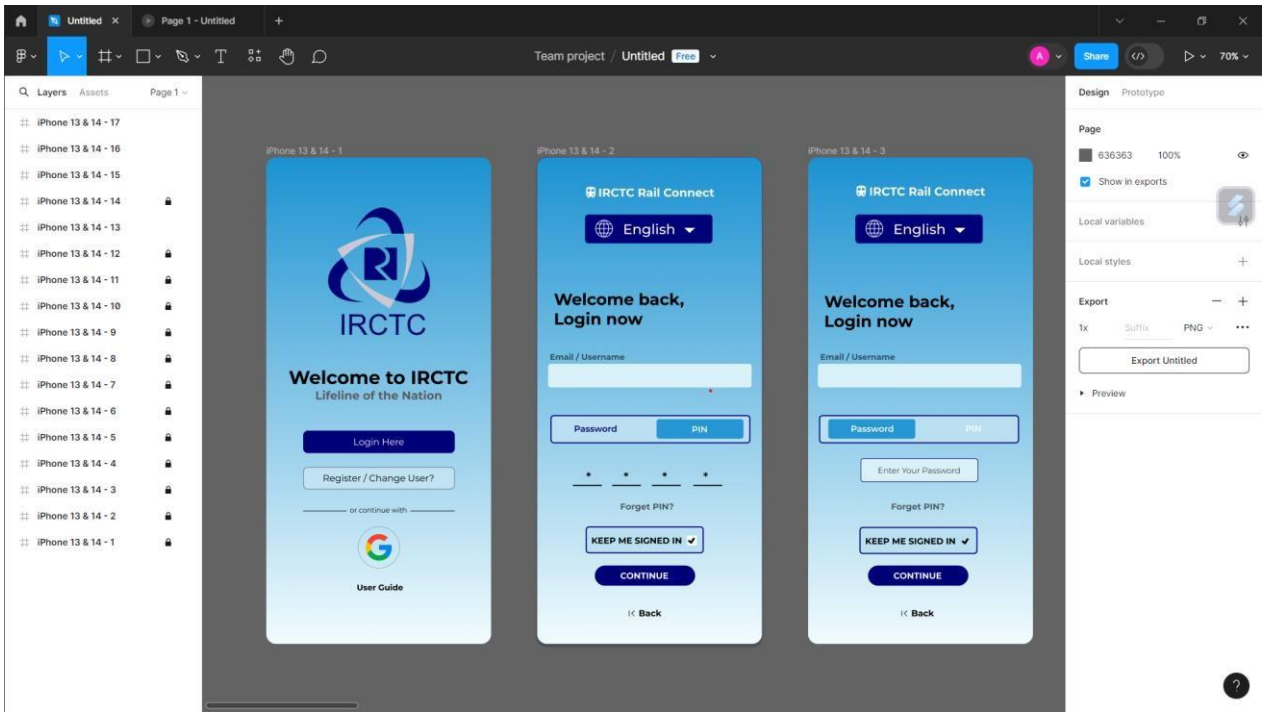


Fig 1: The user interface of the "FIGMA" software.

CHAPTER 4

PRSENT TECHNOLOGY

The current state of technology in the Indian Railway Catering and Tourism Corporation (IRCTC) mobile app encompasses several key components that are typical for e-commerce platforms but specialized to meet the demands of India's vast rail network. This section provides an overview of the existing technologies employed by the IRCTC app, focusing on software architecture, data handling, user interface design, and security measures.

Software Architecture:

The IRCTC mobile app is built on a multi-tier architecture that is designed to handle a high volume of user queries and transactions efficiently. This architecture typically includes:

Front End: The user interface of the app, which is designed for various mobile platforms using frameworks such as React Native or Flutter. This allows for a single codebase to serve both Android and iOS platforms, facilitating easier maintenance and updates.

Back End: The server-side logic is often implemented in languages like Java or .NET, which are robust and scalable for handling large volumes of transactions. The backend is responsible for processing user requests, interfacing with the railway database, and managing booking transactions.

Database: IRCTC relies on robust database management systems (DBMS) such as Oracle or SQL Server, which are capable of handling complex queries and large datasets efficiently. These databases store user data, train schedules, booking details, and transaction histories.

User Interface and Experience:

The user interface (UI) of the IRCTC app is designed to be functional but has been criticized for its complexity and navigational challenges. Presently, the app includes:

Responsive Design: The app features a responsive design that adapts to different screen sizes and orientations, which is essential for mobile users.

Accessibility Features: Basic accessibility features are incorporated, though there is significant room for improvement in making the app more accessible to users with disabilities.

The present technology underpinning the IRCTC app is robust, designed to meet the demands of a high-traffic e-commerce platform. However, there are ongoing challenges in terms of user interface and experience, which are critical areas for improvement. Future enhancements and technology upgrades should focus on making the app more user-friendly, secure, and capable of handling increasing user demands more efficiently.

3.1 LIMITATIONS:

Limitations of the Current IRCTC Mobile App Technology:

While the IRCTC mobile app is equipped with a range of technologies to handle its vast user base and complex functionalities, several limitations persist that impact its performance, usability, and overall user satisfaction. Identifying these limitations is crucial for guiding future improvements and redesign efforts. Below, we discuss some of the primary limitations currently faced by the IRCTC app:

1. User Interface and User Experience (UI/UX):

Complex Navigation: Users often report that the app's navigation is complex and unintuitive. This can lead to a frustrating experience, particularly for new users who may find it difficult to locate specific functionalities like booking tickets, checking PNR status, or finding train schedules.

Outdated Design: The visual design of the app often feels outdated compared to modern e-commerce and travel booking apps. Aesthetic elements, intuitive layouts, and interactive feedback are areas needing significant enhancement to meet current user expectations.

2. Accessibility:

Limited Accessibility Features: The app does not fully accommodate users with disabilities, lacking features such as screen reader support, voice commands, and sufficient contrast for visually impaired users. This restricts access for a significant segment of potential users.

3. Integration with Other Services:

Poor Integration with Other Rail Services: Although the app serves as a primary platform for train bookings, integration with other rail services like metro and local buses could be improved to provide a more holistic travel planning tool.

Lack of Personalization: The current system does a minimal job of tailoring experiences and recommendations based on user behaviour and preferences, a feature that has become standard in leading travel and ecommerce platforms.

The limitations of the IRCTC mobile app highlight the need for a comprehensive redesign and technological upgrade to enhance its usability, performance, security, and accessibility. Addressing these limitations through advanced technologies and user-centred design principles can significantly improve the effectiveness of the IRCTC app, making it more competitive and user-friendly in today's digital landscape.

CHAPTER 5

PROPSED RE - DESIGN

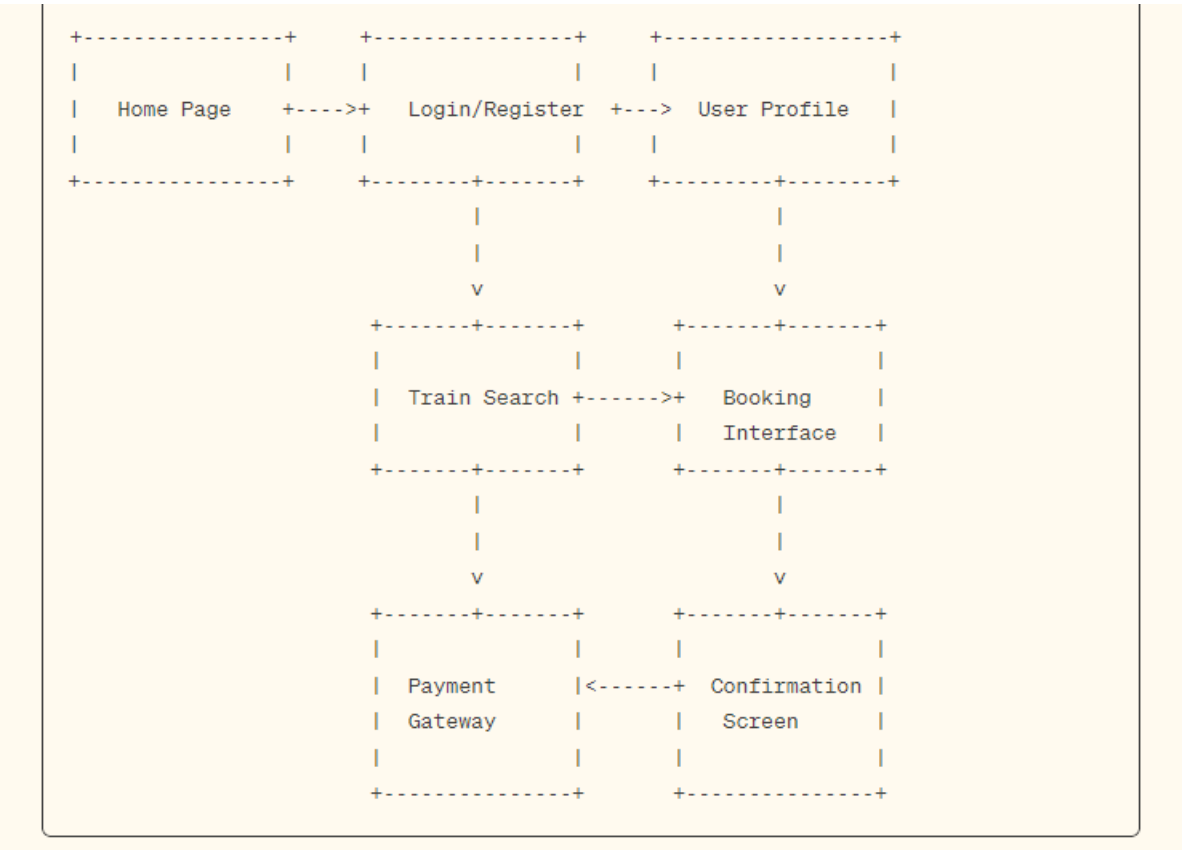
In the proposed redesign of the IRCTC application, our primary focus is to enhance the user experience by creating a more intuitive and visually appealing interface. The redesign aims to simplify navigation, improve accessibility, and ensure seamless interaction for users across different platforms. We intend to implement a cleaner layout with a streamlined menu structure to reduce clutter and increase the visibility of essential features such as ticket booking, enquiry services, and user account management.

A key element of the redesign will involve restructuring the home page to prioritize important actions and real-time information updates, such as train schedules, delays, and cancellations. The ticket booking process will be overhauled to reduce the number of steps required to complete a booking, integrating predictive text and autofill technologies to speed up the input process while minimizing errors. Accessibility improvements will include high-contrast visuals, larger clickable areas for touch screen usability, and voice navigation support to cater to users with disabilities.

Moreover, we plan to introduce a personalized dashboard feature that allows users to view their travel history, upcoming trips, and frequent routes at a glance, enhancing the application's utility and personal relevance. By leveraging Figma's collaborative and prototyping tools, we aim to create and test these features in real-time, ensuring that the design is both aesthetically pleasing and functionally robust, thereby significantly improving the overall user experience of the IRCTC application. This initiative is expected to lead to increased user satisfaction and engagement, promoting a more loyal user base and potentially attracting a new segment of users.

The application often logs out or session out at crucial times while using the application. This makes user to log back in again and again. The feature to select number of passengers to travel is not available which in result makes user to start the procedure from first for each passenger. User only use IRCTC to book train tickets rather they use other application to mobile recharge, flight booking, DTH recharge. Most of the senior citizens prefer to take tickets through railway counter because of the absence of user-friendly (providing multilingual support). Showing the status of the ticket that is booked through a proper notification and adding the PNR enquiry at the at the booking page. Rearranging the clumsy options for payment in payment page.

5.1 USER FLOW DIAGRAM:



5.2 ADVANTAGES:

Advantages of Redesigning the IRCTC Mobile App:

A comprehensive redesign of the IRCTC mobile app could bring numerous benefits, ranging from improved user experience to increased operational efficiency and security. Here are the key advantages that a redesign could offer:

1. Enhanced User Experience (UX):

Improved Usability: By simplifying the app's interface and making navigation more intuitive, users can find information and complete tasks such as booking tickets or checking the status of trains more easily and quickly.

Modern Design: Updating the visual design to align with contemporary aesthetics will make the app more appealing and enjoyable to use, which can increase user satisfaction and retention.

Personalized Experience: Integrating advanced data analytics to offer personalized travel suggestions, alerts, and promotions can enhance user engagement and make the app more relevant to individual needs.

2. Integration and Scalability:

Seamless Integration with Other Services: Improving integration with other transportation services can offer a more holistic travel planning tool, making the IRCTC app a one-stop solution for travellers.

Scalable Infrastructure: Building a scalable digital infrastructure ensures that the app can handle future increases in user numbers and transaction volumes without performance degradation.

3. Market Competitiveness:

Staying Competitive: By modernizing the IRCTC app, IRCTC can maintain its competitiveness against private booking platforms and international standards, thus securing its position as a leader in India’s travel and tourism sector.

Redesigning the IRCTC mobile app represents a strategic investment into the future of India's railway system's digital interface. Such improvements not only cater to the immediate needs of improving user experience and operational efficiency but also position the app to adapt to future technological advancements and changing user expectations. This forward-looking approach is crucial for maintaining relevance and excellence in a rapidly evolving digital landscape.

CHAPTER 6

OUTPUT

PROJECT LINK:

https://www.figma.com/file/IIRVt4uJFk9dOnCxvITXgN/Untitled?type=design&node-id=0%3A1&mode=design&t=zkC7btD70dIWsxDh-1

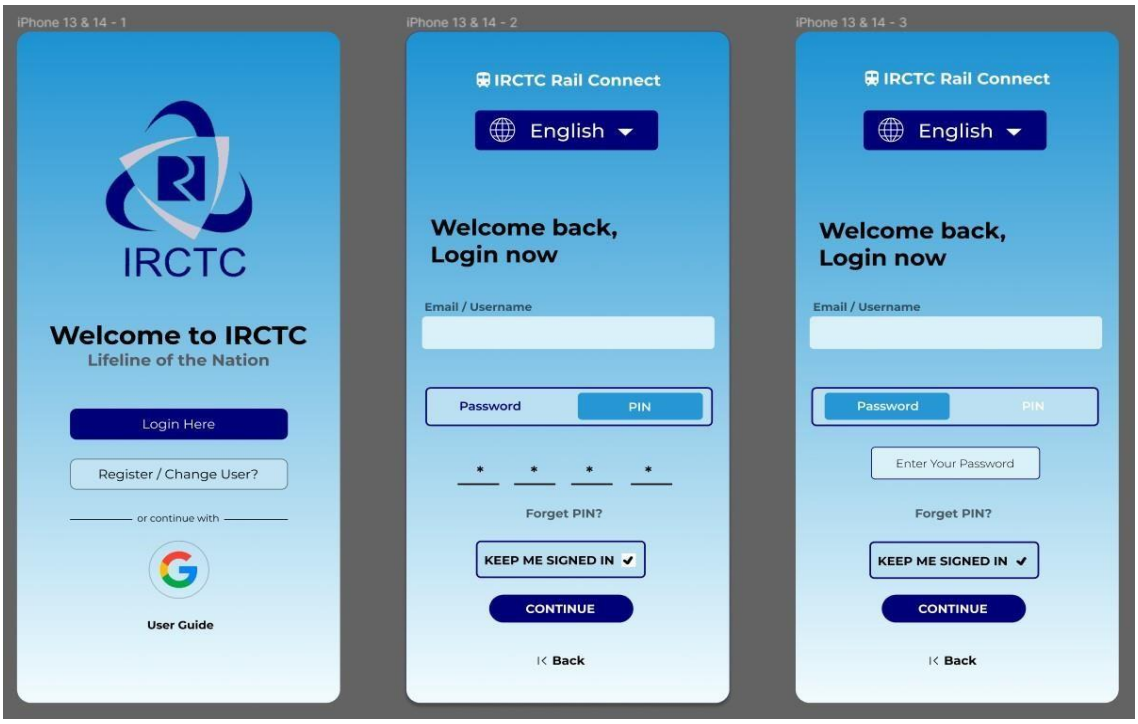


Fig 2: The Login Pages of Re-designed IRCTC application.

These pages have the features like sign in using google, multiple languages support, keep me signed in option and login using pin and password.

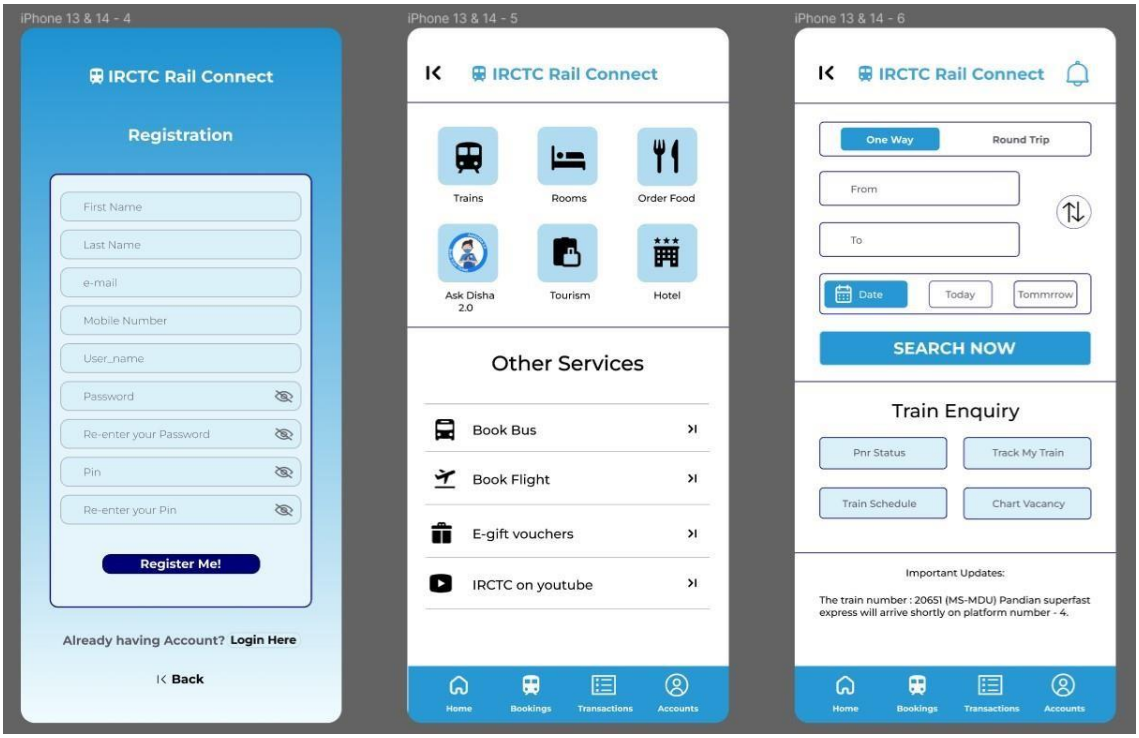


Fig 3: The User registration and home page of Re-designed IRCTC application.

The user registration page directly acquires pin and password at the time of user registration itself. The home page has features like trains, rooms, food, Disha(BOT), tourism and other services.

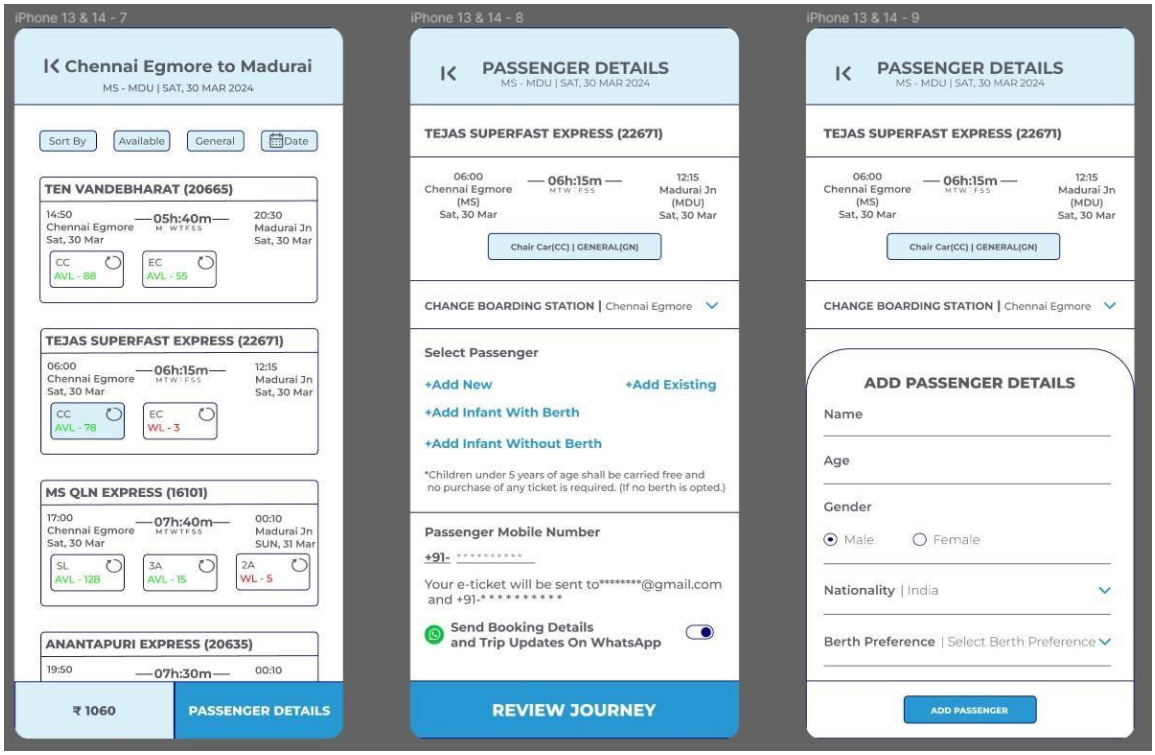


Fig 4: The Train booking and passenger details page of Re-designed IRCTC application.

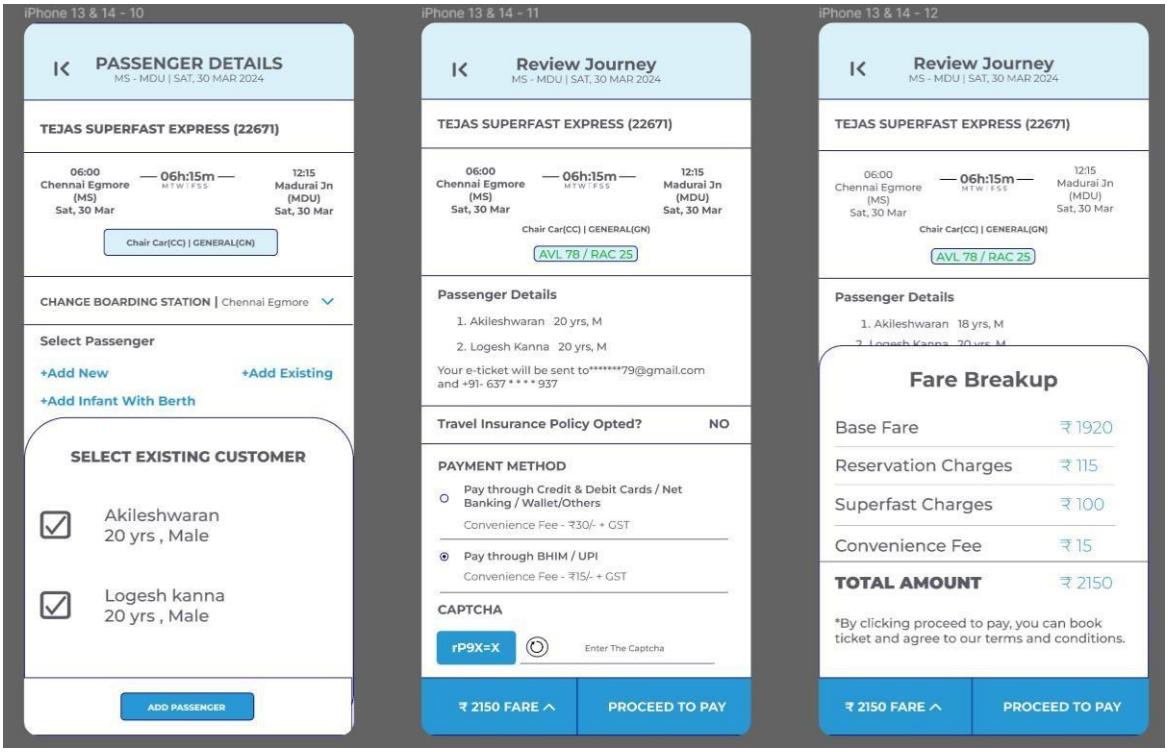


Fig 5: The Journey review details page of Re-designed IRCTC application.

CHAPTER 7

CONCLUSION:

The IRCTC mobile app serves as a critical component in facilitating rail transportation across India, a country with one of the largest railway networks in the world. Despite its pivotal role, the app's current design and technological underpinnings present several limitations that hinder user experience, performance, and overall satisfaction.

The proposed redesign of the IRCTC app encompasses a broad spectrum of improvements, from enhancing user interface and experience, bolstering security measures, to integrating advanced data analytics for personalized services. These changes aim to transform the app into a more intuitive, secure, and efficient tool, thus significantly elevating the user journey from planning to completion of travel.

Moreover, the redesign would enable IRCTC to maintain its competitive edge in a market that is increasingly influenced by technological innovations and rising user standards. In an era where digital interactions are becoming the norm, the ability of the IRCTC app to provide a seamless, reliable, and enjoyable experience is crucial. This would not only improve customer loyalty and satisfaction but also enhance operational efficiencies and reduce costs associated with system downtimes and customer service.

In conclusion, the redesign of the IRCTC mobile app represents a strategic step forward for the Indian Railway Catering and Tourism Corporation. It addresses current shortcomings while paving the way for future enhancements that could adapt to technological advancements and changing user behaviours. By committing to this redesign, IRCTC would ensure that it continues to serve as an indispensable tool for railway passengers across India, promoting a more connected and accessible rail system.

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